BEFORE THE MONTGOMERY COUNTY
BOARD OF APPEALS
OFFICE OF ZONING AND ADMINISTRATIVE HEARINGS
Stella B. Werner Council Office Building
Rockville, Maryland 20850
(240) 777-6660

IN THE MATTER OF COSTCO WHOLESALE CORPORATION	*	
Petitioner	*	
Erich Brann, Jim Agliata, Steve Gang, Gina Volpicelli, Mark Willard, Thomas Flynn, Joe Cronyn, Dan Duke, Wes Guckert, David Sullivan, Dr. Kenneth H. Chase, Tim Hurlocker, Dan Goalwin and Wayne Tucker,	*	
For the Petition	*	
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Attorneys for the Petitioner	*	
* *		
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Individuals Supporting the Petition	*	
* *		
Kensington Heights Civic Association (KHCA)	*	
Danila Sheveiko, Karen Cordry, Donna Savage, Dr. Maria Jison, Dr. Patrick Breysse, Jim Core, Elena Sheveiko, Karen Livornese and Brendan McGarry	*	Board of Appeals Case No. S-2863 (OZAH Referral No. 13-12)
Opposing the Petition	*	
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Attorney for KHCA	*	
Kensington View Civic Association (KVCA)	*	
Eleanor Duckett	*	
Opposing the Petition	*	
"Stop Costco Gas Coalition" (SCGC)	*	
Abigail Adelman, Dr. Mark Adelman	*	
Dr. Henry S. Cole, Pat Mulready	*	
and Larry Silverman, Esquire	*	
Opposing the Petition	*	
Diane M. Cameron, Audubon Naturalist Society	*	
Ethan Goffman, Sierra Club	*	
Cheryl Cort, Coalition for Smarter Growth	*	
Kathleen Shen, FreeState Petroleum	*	
Mark Meszaros, Kenmont Swim Club	*	
Groups Opposing the Petition	*	
* *		

Virginia Sheard, Barbara Gottlieb, Kamran *
Youssefieh, Margaret Alpert, Mary Ann Carter, *
Sam Campbell (with her son, Jack), Maria *
Alvarez (with her daughter, Angela), Vivian *
Pescov, Laura Kervitsky, Kathleen Michels, *
Guy Spaid (for his Sunoco station), Deborah *
Houseworth, Ann Statland, and Doug Sims *
Individuals Opposing the Petition *
* *
Clifford Scharman (*Neither For nor Against)* *
* *

Before: Martin L. Grossman, Hearing Examiner
Director, Office of Zoning and Administrative Hearings

HEARING EXAMINER'S REPORT AND RECOMMENDATION

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Appendix I Summary of the Costco Hearing – S-2863
Appendix II Conditions for the Board to Consider if it Grants the Petition

I. STATEMENT OF THE CASE

Petition No. S-2863, filed on November 13, 2012, by Costco Wholesale Corporation ("Costco"), seeks a Special Exception, pursuant to §59-G-2.06 of the Zoning Ordinance, to allow Petitioner[1] to construct and operate an Automobile Filling Station with 16 gasoline pumps.[2] The subject site is located at 11160 Veirs Mill Road, Silver Spring, Maryland (Lot N631, Wheaton Plaza-Parcel 10), also known as the Westfield Wheaton Mall, and was zoned C-2 Zone (General Commercial) at the time of the application and hearing.[3]

The Westfield Wheaton Mall is owned by the Wheaton Plaza Regional Shopping Center, L.L.P., an affiliate of Westfield Corporation ("Westfield"), under Tax Account Number 13-03550740. According to Petitioner's Statement (Exhibit 3(a), p. 2), the property owner and Costco entered into a lease for the development of a Costco Warehouse and a filling station to be located on a 36,800 square foot parcel[4] in the southwest quadrant of the Mall Parcel. Petitioner's Statement (Exhibit 3(a), p. 2). Westfield also expressly authorized Petitioner to seek the subject special exception on its property. Exhibit 3(b).

On November 29, 2012, the Board of Appeals issued its notice setting the hearing in S-2863

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[1] Costco Wholesale Corporation is variously referred to in this case as "Petitioner," "Applicant" or "Costco." The opposing groups and individuals are frequently referred to as "the Opposition."

[2] The original application of Petitioner for a special exception to allow an automobile filling station at Wheaton Plaza was filed on December 1, 2010 in S-2794. The Hearing Examiner takes official notice of the procedural history of S-2794. That case was initially scheduled for a hearing before the Office of Zoning and Administrative Hearings (OZAH) on May 20, 2011; however, it was continued at the request of the Petitioner and again at the request of the Opposition. On July 24, 2012, the Council adopted ZTA 12-07 (Ordinance No. 17-19), effective August 13, 2012. Petitioner determined that it could not establish an automobile filling station at the location specified in S-2794 consistent with the terms of ZTA 12-07. Therefore, by letter to the Board of Appeals dated October 23, 2012, Petitioner withdrew S-2794. On November 13, 2012, Petitioner filed the instant special exception application (S-2863), which seeks to establish an automobile filling station at a different location on the Wheaton Plaza site (260 feet to the east of the original site, according to Petitioner's Land Use report, Exhibit 10, p. 1).

[3] The subject site and Wheaton Westfield mall was rezoned from the C-2 Zone to the GR-1.5 Zone by virtue of District Map Amendment G-956 (Exhibit 619), adopted by the Council on July 15, 2014, in Resolution 17-1156, with an effective date of October 30, 2014. This change does not affect the Hearing Examiner's evaluation of this case, since this petition must be evaluated under the Zoning Ordinance in effect on October 29, 2014, per Section 59- 7.7.1.B.1 of the Zoning Ordinance rewrite. Moreover, auto filling stations are a permitted conditional use in the new GR-1.5 Zone.

[4] Petitioner's description of the size of the special exception area was originally 37,754 square feet, but it was amended to 36,800 square feet during the course of the hearing. *See* Exhibits 148 and 229(c).

for March 11, 15, 18, and 22, 2013, the dates previously scheduled to hear the predecessor case, S-2794. Exhibit 19(b). On December 3, 2012, Donna Savage, Treasurer of the "Stop Costco Gas Coalition" (SCGC) sent OZAH an e-mail (Exhibit 28) attaching a signed petition (Exhibit 28(a)) from 19 individuals seeking a postponement of the March 2013 hearing dates, indicating essentially that the Opposition and Technical Staff needed more time to review the case. On December 5, 2012, Technical Staff filed a response indicating that it did not need more time and was still agreeable to the March 2013 hearing dates. Exhibit 29. On December 5 and 6, 2012, Petitioner filed an opposition to the continuance request on numerous grounds. Exhibits 30 and 31. On December 12, 2012, the Hearing Examiner issued an Order denying the continuance motion. Exhibit 43.

Approximately 50 community members asked to be parties of record in this case. *See, e.g.,* Exhibits 27, 36, 45, 50, 55, 61 and 65. Many letters of support for this application have been received (*e.g.*, Exhibits 38 – 42, 47, 74, 75, 84, 183, 184, 185 and 186) and many letters in opposition (*e.g.*, Exhibits 72, 76, 78, 80, 82, 94, 97, 113, 130, 145 and 164). Among the Opposition are a number of organizations – the Kensington Heights Civic Association (KHCA), the "Stop Costco Gas Coalition" (SCGC), Kensington View Civic Association (KVCA), the Audubon Naturalist Society, the Montgomery County Group of the Sierra Club and the Coalition for Smarter Growth (CSG).

Petitioner submitted letters dated December 13, 2012 (Exhibit 44), January 3, 2013 (Exhibit 54) and January 22, 2013 (Exhibit 56), forwarding materials relating to the petition. Pursuant to Section 59-A-4.24 of the Zoning Ordinance, the Hearing Examiner treated those new submissions as a motion to amend the petition. That motion to amend the petition was granted over objection on February 22, 2013 (Exhibit 71).

Technical Staff of the Maryland-National Capital Park and Planning Commission

recommended denial of the special exception in a memorandum dated February 20, 2013, which included numerous attachments.[5] Exhibit 70. Staff supplemented its report on February 27, 2013, regarding the "needs analysis." Exhibit 77. Staff's recommendation of denial was essentially based on its finding that Petitioner had failed to demonstrate "that the proposed use will not adversely impact the health of the residents, and visitors within the neighborhood as required by §59-G-1.21(c)." Exhibit 70, p. 29. On February 28, 2013, the Montgomery County Planning Board voted 3-2 to recommend denial, but for reasons other than those relied upon by its Technical Staff. Exhibit 89. The Planning Board's vote centered around the conclusion of its majority that the petition was not sufficiently consistent with the 2012 Wheaton CBD and Vicinity Sector Plan. By letter to the Hearing Examiner dated March 27, 2013, the Planning Board summarized its meeting of February 28, 2013, and stated the rationale for the majority's recommendation of denial (Exhibit 89, p. 1):

> . . . the Board recommended (3-2) that Special Exception Petition S-2863 be denied on the grounds that the proposed special exception use did not meet the vision of the 2012 *Wheaton CBD and Vicinity Sector Plan* [Exhibits 9 and 150], and that the proposed use did not meet the findings of §59-G-2.06(a)(3), which states that "the use at the proposed location will not adversely affect nor retard the logical development of the general neighborhood or of the industrial or commercial zone in which the station is proposed, considering service required, population, character, density and number of similar uses."

Since significant additional materials were filed by the parties less than two weeks before the scheduled March 11 hearing date in an effort to sway the Planning Board, the Hearing Examiner felt that it would be unfair to push the parties into a hearing beginning on March 11, and suggested in a March 1, 2013 e-mail to the Petitioner, KHCA and SCGC that the opening hearing date be held on March 22, 2013, which was the last of the four hearing dates that had been noticed. Exhibit 79. Ultimately, the parties agreed to move the hearings to eight days in April, May and June of 2013.

[5] The Technical Staff report and supplements to it are frequently quoted and paraphrased herein. A typo on page 15 of Staff's report was corrected by Staff on February 28, 2013, and the corrected version is in the S-2863 case file.

Exhibit 79(a)-(d). Notice scheduling the new hearing dates was issued on March 5, 2013. Exhibit 83.

Ninety-eight exhibits (many with numerous subparts) were filed by the parties before the first hearing date. A public hearing was convened as scheduled on April 26, 2013 and 37 hearing sessions were held, with the last one occurring on September 19, 2014.[6] Fourteen witnesses testified in Petitioner's case-in-chief, and also fourteen individuals from the community testified in support of the petition. Seventeen witnesses testified on behalf of groups opposing the petition in the Opposition's case-in-chief. Those groups are listed earlier in this section. In addition, fourteen individuals from the community testified in opposition to the petition. One individual testified about the case without taking a position. The Petitioner called two witnesses in rebuttal and the Opposition called four witnesses in surrebuttal.[7] In addition to the many witnesses, numerous letters and other submissions were filed by individuals both for and against the petition. Because there is such a large volume of direct testimonial evidence and exhibits submitted by the hearing participants, the focus of this report will be mostly on that body of evidence, all of which was subject to cross-examination and responsive evidence.

Petitioner's special exception plans and related plans were modified a number of times in the course of the hearing in response to points raised by the Opposition.[8] Changes included, *inter alia*, reducing the size of the special exception area from 37,754 square feet to 36,800 square feet (Exhibits 148 and 229(c)); modifying the western side of the special exception area to allow more space on site for the fuel delivery trucks; adding bollards on the eastern side of the site; and adding an elevated sidewalk along the southern ring road (Exhibit 233). The final Special Exception plans are, for the most part, contained in Exhibits 229-238 (and their subparts), all received at the July 31,

[6] The Hearing dates were 4/26/13, 5/1/13, 5/6/13, 5/23/13, 6/4/13, 6/17/13, 6/19/13, 7/8/13, 7/30/13, 7/31/13, 8/2/13, 9/9/13, 9/16/13, 9/20/13, 9/23/13, 10/17/13, 10/21/13, 10/24/13, 11/14/13, 11/19/13, 11/21/13, 12/5/13, 12/6/13, 1/10/14, 2/10/14, 2/24/14, 2/25/14, 3/11/14, 4/1/14, 4/29/14, 5/1/14, 5/8/14, 5/12/14, 5/20/14, 5/22/14, 5/29/14 .and 9/19/14.
[7] All the witnesses who testified are listed in the heading of this report and recommendation.
[8] The Lighting Plan (Exhibit 6) and the architectural elevations (Exhibit 7) remained unchanged.

2013 hearing session. Modified Landscaping Plans (also called "Planting Plans") were received at the August 2, 2013 hearing and updated again on August 22 and September 6, 2013. The final landscape plans are the Landscape Master Plan (Exhibit 265(d)); Planting Plan L1.01 (Exhibit 265 (a)); Planting Plans L1.02 and L1.03 (Exhibits 256(c) and (d)); SWM Planting Plan L1.04 (Exhibit 265(b)); Greenscreen Plan L1.05 (Exhibit 265(c)); and the Landscape Sections (Exhibits 245(b) and (c)). All the final plans were reviewed and approved by Technical Staff (Exhibit 259).

In addition to the Technical Staff reports and commentary (Exhibits 70, 77, 173, 180, 259, 360, 410, 417(a), 525, 560 and 634)[9], the Planning Board letter (Exhibit 83) and the final plans referenced above, other key exhibits in this case were two Zoning Text Amendments – ZTA 12-07, which revised the special exception standards for the approval of an automobile filling station (Exhibit 99) and ZTA 01-10, which modified the Zoning Ordinance language for the neighborhood need requirement (Exhibit 415); the memorandum from the Council's legislative attorney, Jeff Zyontz, regarding ZTA 12-07 (Exhibit 290); the reports and follow-up reports filed by Petitioner's experts, which are listed in the footnote below[10]; the reports and follow-up reports filed by the

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[9] Technical Staff filed two reports prior to the commencement of the hearing – the overall Staff report to the Planning Board (Exhibit 70) and Staff's supplementary memo to the Planning Board regarding "needs analysis" (Exhibit 77). Thereafter, the Hearing Examiner asked for Technical Staff's comments on a number of issues that arose during the hearing. Their responses included comments on a proposed pedestrian path along the southern ring road (Exhibits 173 and 180); approval of the final revised special exception plans (Exhibit 259); comments on a supplemental needs analysis (Exhibits 360, 410 and 417(a)); discussion of traffic at Intersection 16 (the intersection on the west side of the mall property where the ring road meets Valley View Avenue) and potential remedies (Exhibits 525 and 560); and suggestions regarding possible conditions if the Board of Appeals granted the special exception (Exhibit 634).

[10] Exhibit 10, the report of Petitioner's land planner, Steve Gang, and corrections in Exhibit 249(g));
Exhibit 11(a) & (b), the traffic analysis of Petitioner's traffic expert, Wes Guckert;
Exhibit 13, Petitioner's engineering report, by Dan Duke, updated in Exhibit 239;
Exhibit 14, Petitioner's Neighborhood Needs analysis by Thomas Flynn;
Exhibit 15(a) Petitioner's November 2012 environmental report by air quality expert, David Sullivan. Mr. Sullivan's initial report was supplemented a number of times:
Exhibit 56(a), Mr. Sullivan's' supplemental report of January 16, 2013 (replacing a 12/18/12 report)
Exhibits 125(a), (b) & (c), Mr. Sullivan's additional analysis
Exhibit 174, Mr. Sullivan's modified PowerPoint presentation
Exhibit 255(a), Mr. Sullivan's supplemental report of August 2013 to correct a major error in his earlier reports
Exhibit 466, Mr. Sullivan's Rebuttal report of February 21, 2014
Exhibit 542, Mr. Sullivan's reply to Dr. Cole's response to Mr. Sullivan's rebuttal report;
Exhibit 15(b), Petitioner's health impact analysis by Dr. Kenneth Chase (supplemented in Exhibit 269)

Opposition's experts, which are listed in the footnote below;[11] the scientific studies referenced by the experts and lay witnesses on both sides, which will be referred to in this report where relevant; the federal Environmental Protection Agency's (EPA's) National Ambient Air Quality Standards (NAAQS) (Exhibit 277); the EPA's Guidelines on Air Quality Models, 40 CFR Part 51 Appendix W (fondly referred to herein as "Appendix W") (Exhibit 285); an EPA clarification memorandum regarding Appendix W Guidance (Exhibit 407); OSHA Regulations regarding ambient air quality for workers (Exhibit 287); and a host of written evaluations, comments and submissions by learned lay persons[12] which are too numerous to list here. Key testimony and exhibits will be referenced in the body of this report.

The Hearing Examiner considered conducting a site visit, but elected not to when the parties expressed preferences for different itineraries (Exhibit 134). In lieu thereof, photographs and videos of the area and activities thereon were placed in the record.

Numerous substantive motions were filed and disposed of by the Hearing Examiner in the course of the hearing.[13] These included the following;

- The Opposition's "Motion in Limine" (Exhibit 262) requesting the Hearing Examiner to (a) strike those portions of the August 2013 Report filed by Mr. Sullivan that materially contradict Mr. Sullivan's prior November, 2012 and January, 2013 Reports, as well as his attachments and

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Exhibit 16, Petitioner's analysis on the impact on nearby property values by Joe Cronyn; and
Exhibit 198, Petitioner's alternative Neighborhood Needs analysis based on demand in the general neighborhood.

[11] Exhibit 76(i) & 87(f), Pre-hearing Statement by the Opposition's air quality expert, Dr. Henry Cole. Dr. Cole's report was supplemented in a number of exhibits:
Exhibit 262(b) & 310(a), Dr. Cole's affidavit in support of the Opposition's motion for summary disposition
Exhibit 423(a), Dr. Cole's Powerpoint presentation
Exhibit 531, Dr. Cole's comments in response to Mr. Sullivan's rebuttal report;
Exhibits 88(a) & (b) and 96(c), the report of Dr. Patrick Breysse, one of the Opposition's health impact experts; and
Exhibits 88(d) & (e) and 96(d), the report of Dr. Maria Jison, the Opposition's other health impact expert.

[12] The Hearing Examiner uses the term "learned lay persons" to identify numerous hearing participants who were not qualified as experts, but whose extensive evaluations of the submissions of the experts, cross-examinations of those experts and/or references to scientific studies and other materials were helpful to the Hearing Examiner's own understanding of this case. Among the witnesses in that category were Karen Cordry, Larry Silverman, Dr. Mark Adelman, Abigail Adelman, Donna Savage, Eleanor Duckett, Danila Sheveiko, Jim Core and Clifford Scharman.

[13] A number of these motions were initially filed with the Board of Appeals, which referred them back to the Hearing Examiner for action. Exhibit 306.

testimony; and (b) exclude Dr. Kenneth Chase from presenting testimony. The Hearing Examiner denied that motion on September 18, 2013 (Exhibit 280).

- KHCA's motion for summary disposition (Exhibit 216) asserting that "Applicant's own evidence confirms that the proposed special exception will *violate* EPA's NO_2 Rule and expose residents, visitors and workers to the Mall Parcel to the risk of very adverse health effects which EPA's NO_2 Rule was established to prevent." Exhibit 216, p. 14. The Hearing Examiner denied that motion on October 4, 2013. Exhibit 312.

- The motion of Dr. Mark R. Adelman (a member of the Stop Costco Gas Coalition) for summary disposition (Exhibit 248) based on his assertion that Applicant has improperly increased the "intensity of use," in violation of OZAH Rule 10.2, by slightly reducing the size of the special exception site. The Hearing Examiner denied that motion on October 4, 2013. Exhibit 312.

- KHCA's motion to strike the Sullivan "Rebuttal Report" of February 21, 2014, on grounds that it was not true rebuttal (Exhibit 470(b)). The Hearing Examiner denied that motion on March 4, 2014, but granted the alternative relief of allowing the Opposition to produce surrebuttal evidence (Exhibit 474)**.** A joint motion of KHCA, SCGC and KVCA (Exhibits 486(b), 497 and 505)) requesting that the Hearing Examiner reconsider his March 4, 2014 Order denying KHCA's earlier motion strike the Sullivan rebuttal report was denied on April 3, 2014, though Mr. Sullivan's rebuttal testimony was postponed to give the Opposition time to prepare (Exhibit 519).

- KHCA's Objection to admission of portion's of Mr. Sullivan's rebuttal report (Exhibit 532(a)) on grounds that some of the methodologies employed by Mr. Sullivan have allegedly not been accepted by the EPA or the scientific community. The Hearing Examiner advised the parties that he would consider the admissibility issue again after Mr. Sullivan had the opportunity to present his scientific justification for applying the "Ozone Limiting Method" during his rebuttal testimony. Exhibit 533. Following the completion of Mr. Sullivan's rebuttal testimony and Dr. Cole's surrebuttal testimony at the May 29, 2014 hearing session, the Hearing Examiner heard argument and overruled the Opposition's objection to Mr. Sullivan's rebuttal report of February 21, 2014 (Exhibit 466) and his testimony relating thereto. Tr. 5/29/14, 170-181.

Closing briefs were filed by Petitioner (Exhibits 616 and 629) and Opposition groups KVCA (Exhibit 620), SCGC (Exhibit 621) and KHCA (Exhibit 624). The record was held open until September 29, 2014, to allow the parties to file brief responses to issues discussed at the final hearing (Exhibits 639-642). In all, 642 Exhibits were filed in the case (many with additional labeled subparts). Except as specifically noted on the Exhibit List, the parties agreed to the admission of all the listed exhibits without objection, subject to the Hearing Examiner's

determination of the appropriate weight to be accorded each exhibit.[14] The record closed, as planned, on September 29, 2014.

A few words should be said about the Hearing Examiner's approach in this report. Because this case involves 37 days of hearings, 9,540 pages of transcripts, and many hundreds of very lengthy exhibits, replete with scientific data, it is not the intention of the Hearing Examiner to discuss every item of evidence in this report, nor every issue raised. To do so would result in a document so long and detailed as to be virtually unusable by the reviewing Board of Appeals. Instead, this report will mostly address the evidence and issues the Hearing Examiner considers significant to the outcome. The fact that an item of evidence or an argument has not been mentioned in this report does not mean that is has not been reviewed and considered by the Hearing Examiner. All the exhibits and transcripts are in the record.

The Hearing Examiner has tried to organize this report in a way that will be most useful to the reader. It is clear that the Summary of the Costco Hearing (at 222 pages) is too long to be included as part of the main report, which is the usual fashion, and thus it has been added as Appendix I. It contains its own Table of Contents. Transcript references are to the date and page number of the particular transcript. Thus, a reference of "Tr. 1/1/14, 234" would refer to page 234 of a hearing held on January 1, 2014. The second appendix (aptly named Appendix II) is a list of possible conditions, which is provided by the Hearing Examiner for consideration by the Board of Appeals if it elects to grant the special exception, contrary to the Hearing Examiner's recommendation. The Hearing Examiner's possible conditions were thoroughly vetted with the hearing participants towards the end of the hearing, and their responses are included as exhibits in the file, in addition to the discussion of related issues at the final hearing.

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[14] The Petitioner had initially raised a number of objections to exhibits submitted by the Opposition (Exhibit 563), but it ultimately elected to withdraw those objections and rely on the Hearing Examiner's evaluation of the weight to be accorded each piece of evidence. Tr. 5/29/14, 154-155.

As to organization of the report, there is, as usual, a "STATEMENT OF THE CASE" (this part), which gives a general outline of the case, and a part entitled "FACTUAL BACKGROUND" which sets forth the significant undisputed facts about the case:

A. THE SUBJECT PROPERTY AND THE GENERAL NEIGHBORHOOD
B. PROPOSED USE
C. PUBLIC FACILITIES
D. COMMUNITY RESPONSE

A new part is added to this report and entitled "MAJOR ISSUES." This part is central to the report because it discusses the issues in this case on which the Hearing Examiner's recommendation turns. It has the following parts:

A. The Sector Plan
B. Health Impacts, Standards, Sources and Causes
C. Other Compatibility Issues (Traffic, Parking, Noise, Activity, Odors, Lighting, View, Property Values and Future Development)
D. General Environment Issues (Leaks, Fire, Spills, Green Buffer and Global Warming)
E. Neighborhood Need

There is the usual part of the report entitled "FINDINGS AND CONCLUSIONS," and the usual subparts labeled:

A. Standard for Evaluation
B. General Conditions
C. Specific Standards
D. Additional Applicable Standards

The final part of the report, labeled "RECOMMENDATION" sums up the Hearing Examiner's conclusions and recommendation.

This was a difficult and hard-fought case. It has been thoroughly documented and analyzed by the Petitioner, the Opposition, and the Technical Staff. Based on the record in this case, as discussed below, the Hearing Examiner finds that Petitioner has **not** met its burden of demonstrating, by a preponderance of the evidence, that it will meet all the standards set forth in the Zoning Ordinance for granting the special exception it seeks.

The Hearing Examiner's first reaction to the petition in this case was the common sense

thought that an automobile filling station in the parking lot of an auto-centric shopping mall would seem to be compatible. However, it is not the Hearing Examiner's function to base his conclusions on his first impressions, but rather on an evaluation of all the evidence admitted in the case. That evaluation leads to the conclusion that this particular proposal, at this particular location, at the level of usage planned (12,000,000 gallons of gas sales a year), with the proposed design, and the proximity of residences, a community swimming pool and the Stephen Knolls School which serves many medically fragile children, is, on balance, not a compatible use. It should be emphasized that this determination is based on the very specific facts of this case, and should not be taken as a finding that all auto filling stations of this size are problematic.

The Hearing Examiner's findings regarding health effects address the very specific burden imposed on the Petitioner by the Zoning Ordinance – proving its case by a preponderance of the evidence. Despite all the studies, expert testimony and documentary evidence, the Hearing Examiner cannot find that Petitioner met its burden regarding adverse health effects, as will be discussed in Part III.B., which is devoted to that issue. In its Closing Reply Brief, Petitioner described the Opposition's strategy (Exhibit 629, at p. 49) as "death by a thousand cuts." It is true that the Opposition raised innumerable details that do not play a direct part in the Hearing Examiner's final analysis, but the most important "cuts" against Petitioner's case were self-inflicted wounds, especially the egregious mathematical error by Petitioner's air quality expert, David Sullivan, resulting in a striking underestimation of one-hour NO_2 concentrations in his initial reports,[15] and the erroneous focus of Petitioner's sole health expert, Dr. Kenneth Chase, on studies

[15] During his testimony at the ninth hearing session (July 30, 2013), Mr. Sullivan conceded that he had made a significant mathematical error that understated the area background levels of NO_2 (Nitrogen Dioxide, an air pollutant) by approximately 350%. Specifically, the NO_2 background readings shown on Exhibit 213 indicated one-hour NO_2 levels of 52 ppb (parts per billion). In order to include those readings in his calculations, Mr. Sullivan had to convert them to micrograms per cubic meter ($\mu g/m^3$). It is undisputed in this case that the correct conversion methodology is to multiply the "ppb" figure by the conversion factor of 1.88, which would have resulted in a one-hour NO_2 background level, if properly converted, of 98 $\mu g/m^3$. Instead of multiplying, Mr. Sullivan divided by the conversion factor, resulting in the erroneous one-hour NO_2 background level of 28 $\mu g/m^3$. Tr. 7/30/13, 121-135.

of the impacts of automotive diesel emissions, in a case involving a gas station which does not sell diesel fuel. Mr. Sullivan's error forced him to repeatedly relax the initial conservatism in his evaluation in favor of estimates he characterized as more "accurate." Dr. Chase's initial miss-focus resulted in his testimony being more anecdotal than scientific on a crucial health issue in the case.

Juxtaposed against Petitioner's health evidence was the very strong expert evidence from the Opposition's health experts, Dr. Jison and Dr. Breysse, who produced solid scientific evidence of the potential adverse health effects of two of the pollutants, NO_2 and $PM_{2.5}$, known to be emitted by the proposed use, and the findings of likely adverse health impacts by the objective M-NCPPC Technical Staff. Though the majority of the Planning Board did not agree with its Technical Staff regarding the potential for adverse health effects, it is important to note that the Planning Board had before it the uncorrected version of Mr. Sullivan's air-quality analysis, which contained the egregious mathematical error discussed above.

The health impact question comes down to an analysis of what health effects may occur at potential levels of certain pollutants in the general neighborhood. Common sense may suggest that these levels will never get as high as the Opposition fears, especially since readings throughout the country, even in high pollution areas, seem to indicate that it is not likely (Exhibit 593); however, the modeling results in evidence in this case (and the Hearing Examiner considers all the evidence, not just Mr. Sullivan's rebuttal analysis) indicate that adverse health effects may well occur, given the uncertainties of the AERMOD model used to predict the pollution levels.[16] The Hearing Examiner cannot ignore the evidence produced in Mr. Sullivan's November 2012, January 2013

[16] Appendix W, Section 9.1.1.a. (Federal Register / Vol. 70, No. 216 / Wednesday, November 9, 2005, p. 68246) contains the following language:

> . . . Even with a perfect model that predicts the correct ensemble average, there are likely to be deviations from the observed concentrations in individual repetitions of the event, due to variations in the unknown conditions. The statistics of these concentration residuals are termed ''inherent'' uncertainty. Available evidence suggests that this source of uncertainty alone may be responsible for a typical range of variation in concentrations of as much as ±50 percent. [Emphasis added and Footnotes omitted.]

and August 2013 reports merely because Mr. Sullivan may have chosen to be ultra-conservative in his initial predictions while under the erroneous impression that he had large margins to work with. Based on a thorough review of the entire record, Petitioner's case on the health issues was just not proven by a preponderance of the evidence.

The other major issues also factor into the Hearing Examiner's evaluation – the dispute over Sector Plan compliance, with the County's Planning Board finding non-compliance; various compatibility and impact issues; and the question of whether Petitioner met the statutory "neighborhood need" criteria. These important factual and legal issues are addressed in Part III, below. Although the Hearing Examiner finds that Petitioner made a sufficient case on some of these issues, the sum total of the impacts of the proposed gas station result in the conclusion that it would not be a compatible use at the subject site. The Hearing Examiner therefore recommends denial of the petition.

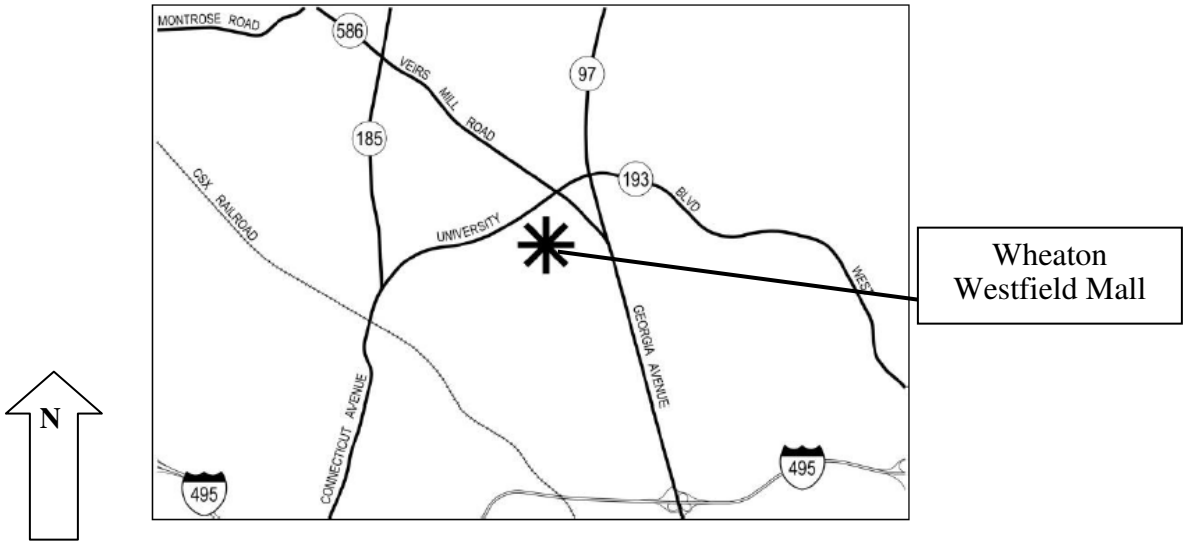
II. FACTUAL BACKGROUND

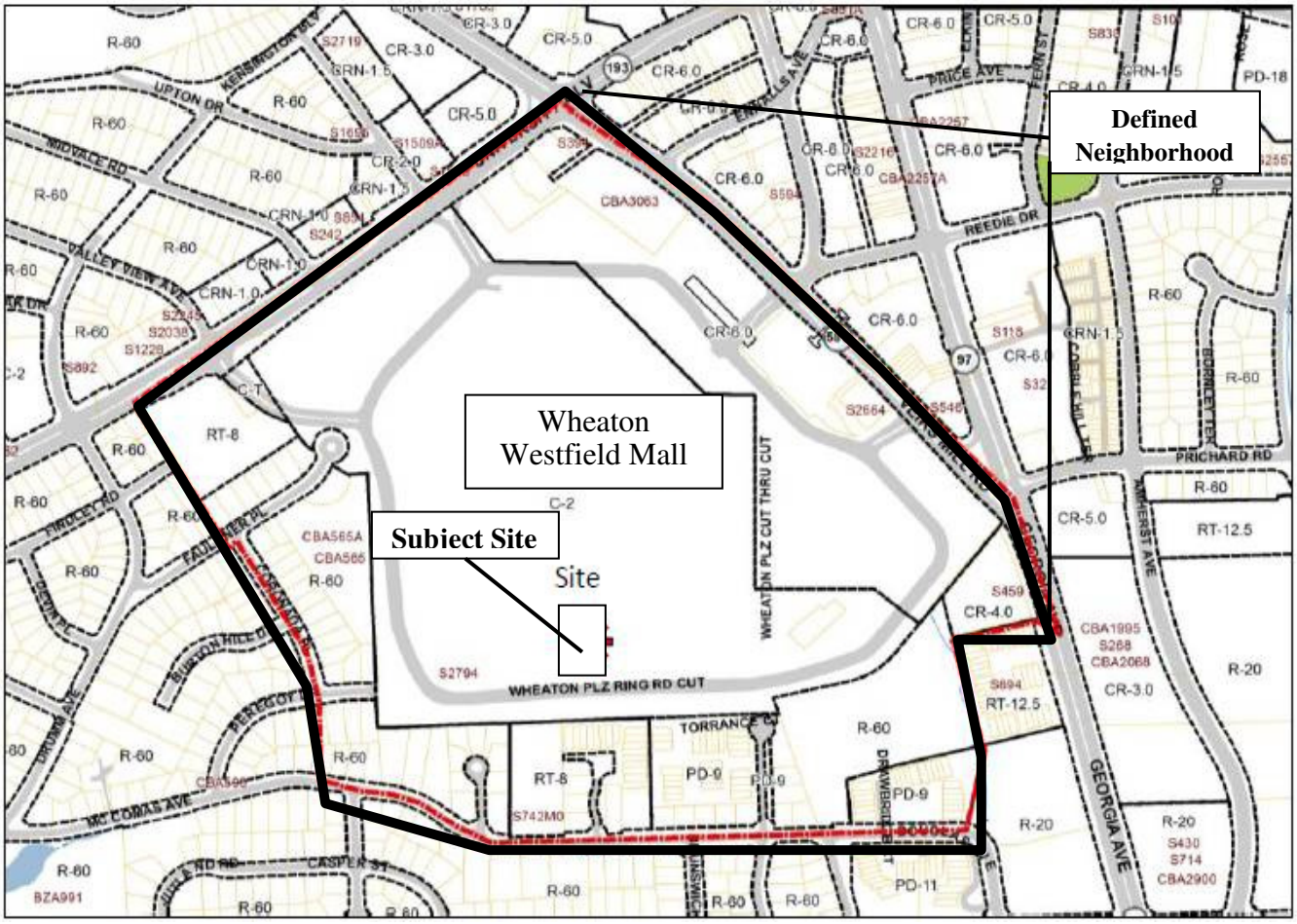
A. The Subject Property and the General Neighborhood

The subject site is located in the southwestern section of Westfield Wheaton Mall, at 11160 Veirs Mill Road, Silver Spring, Maryland (Lot N631, Wheaton Plaza-Parcel 10). Although it had been zoned C-2 Zone (General Commercial) throughout the Planning Board review and the hearing, District Map Amendment G-956 (Exhibit 619), adopted by the Council on July 15, 2014, in Resolution 17-1156, rezoned the site to the GR-1.5 Zone, effective October 30, 2014. This change does not affect the Hearing Examiner's evaluation of this case, since this petition must be evaluated under the Zoning Ordinance in effect on October 29, 2014, per Section 59-7.7.1.B.1 of the Zoning Ordinance rewrite. [17]

[17] Auto filling stations are a permitted conditional use in the new GR-1.5 Zone, as they were in the C-2 Zone.

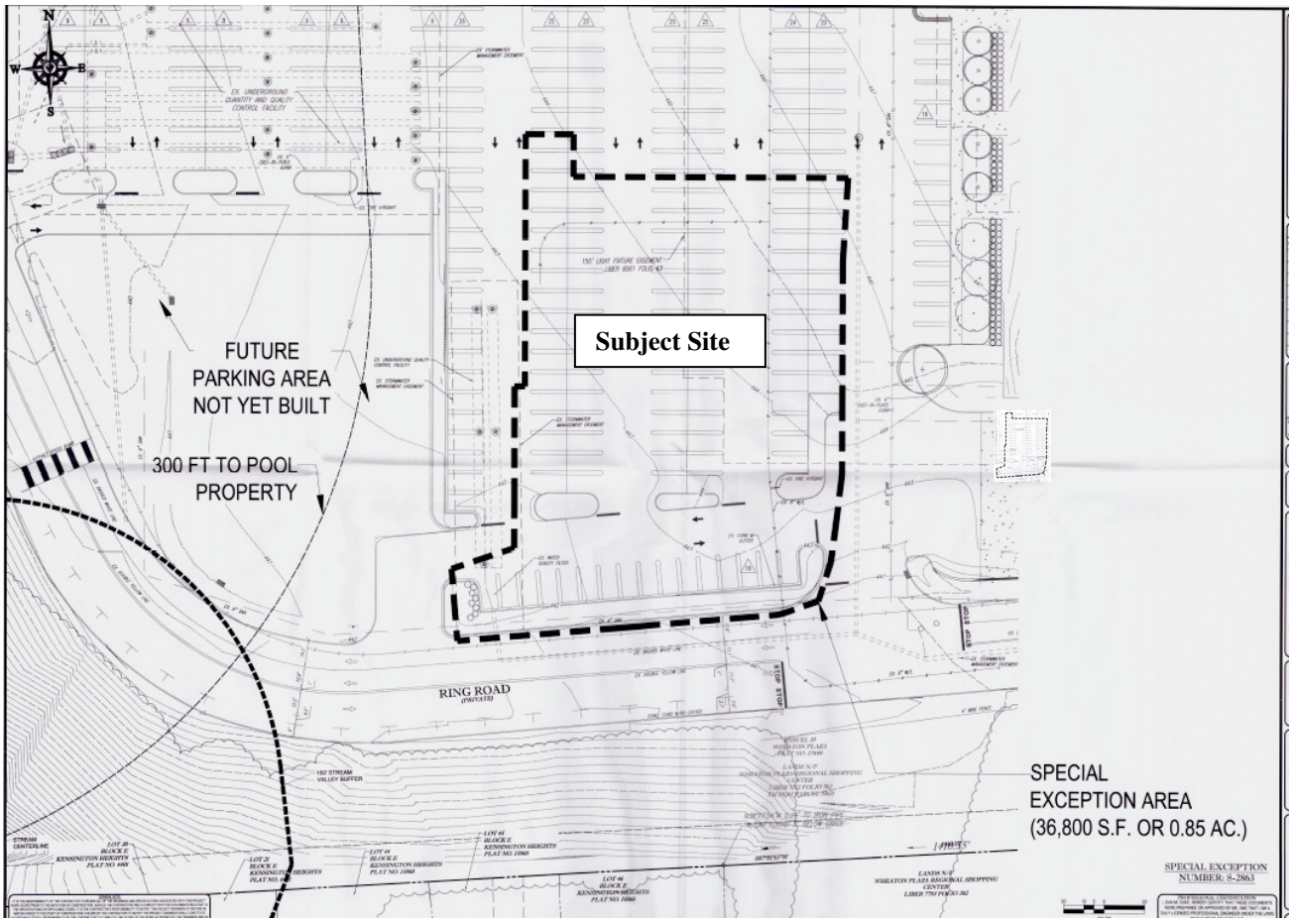
The Westfield Wheaton Mall is about 75-acres in size, and it is located west of the intersection of Georgia Avenue and Veirs Mill Road in Wheaton, Maryland, as shown in the maps on the following page. The Mall is within both the Rock Creek and Sligo Creek watersheds, but it is not in a Special Protection Area. Exhibit 70, pp. 5 and 10.



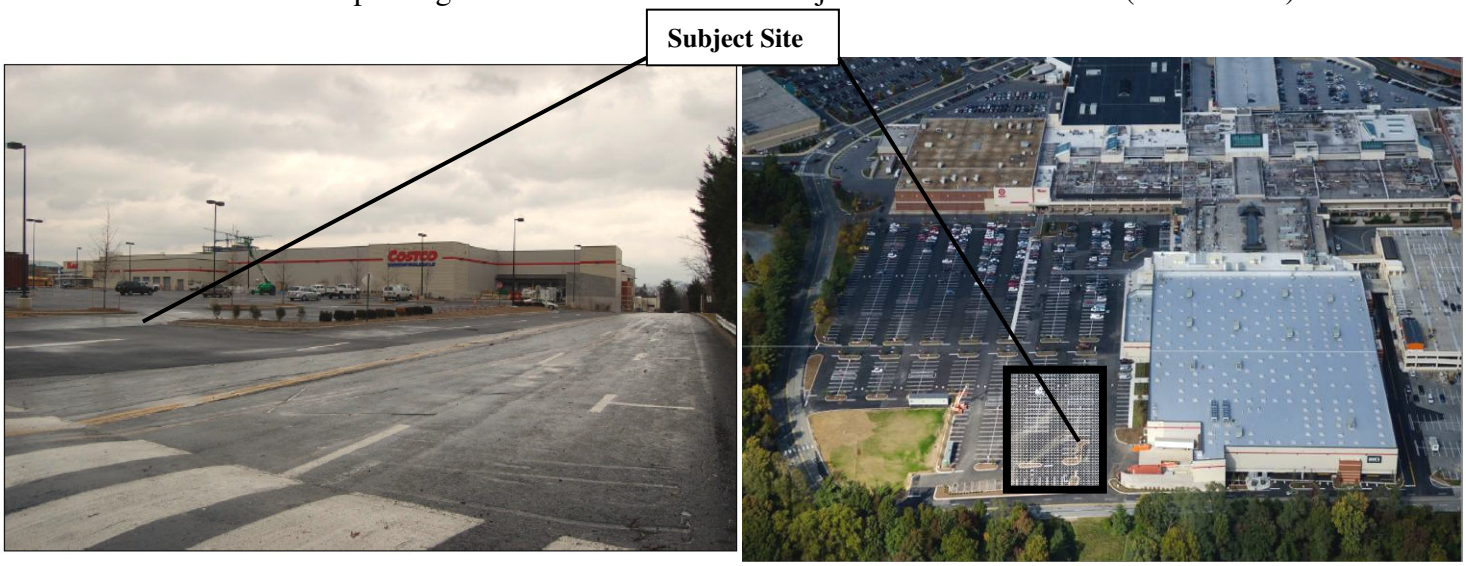


There are five access points to the ring road – University Boulevard West at Valley View Avenue, University Boulevard West at East Avenue, Veirs Mill Road at the CVS parking lot, Veirs Mill Road at Reedie Drive and Veirs Mill Road at the south Mall entrance, by the WMATA bus bay entrance. As reported by Technical Staff (Exhibit 70, p. 5), the Mall property contains approximately 1.5 million square feet of retail uses, including anchor stores (*e.g.,* Target, J.C. Penney and Macy's), a Giant grocery store and the new Costco Warehouse.

The subject site is 36,800 square feet, is almost rectangular in shape, and is situated in a parking lot immediately to the west of the new Costco warehouse store. Thus, the subject site is surrounded by the Mall's surface parking lot to the north and west, by the ring road to the south, and by a drive aisle and the Costco Warehouse to the east. As can be seen from the diagram below (Exhibit 229(b)), vehicular access to the subject site will be from the Mall's southern ring road.

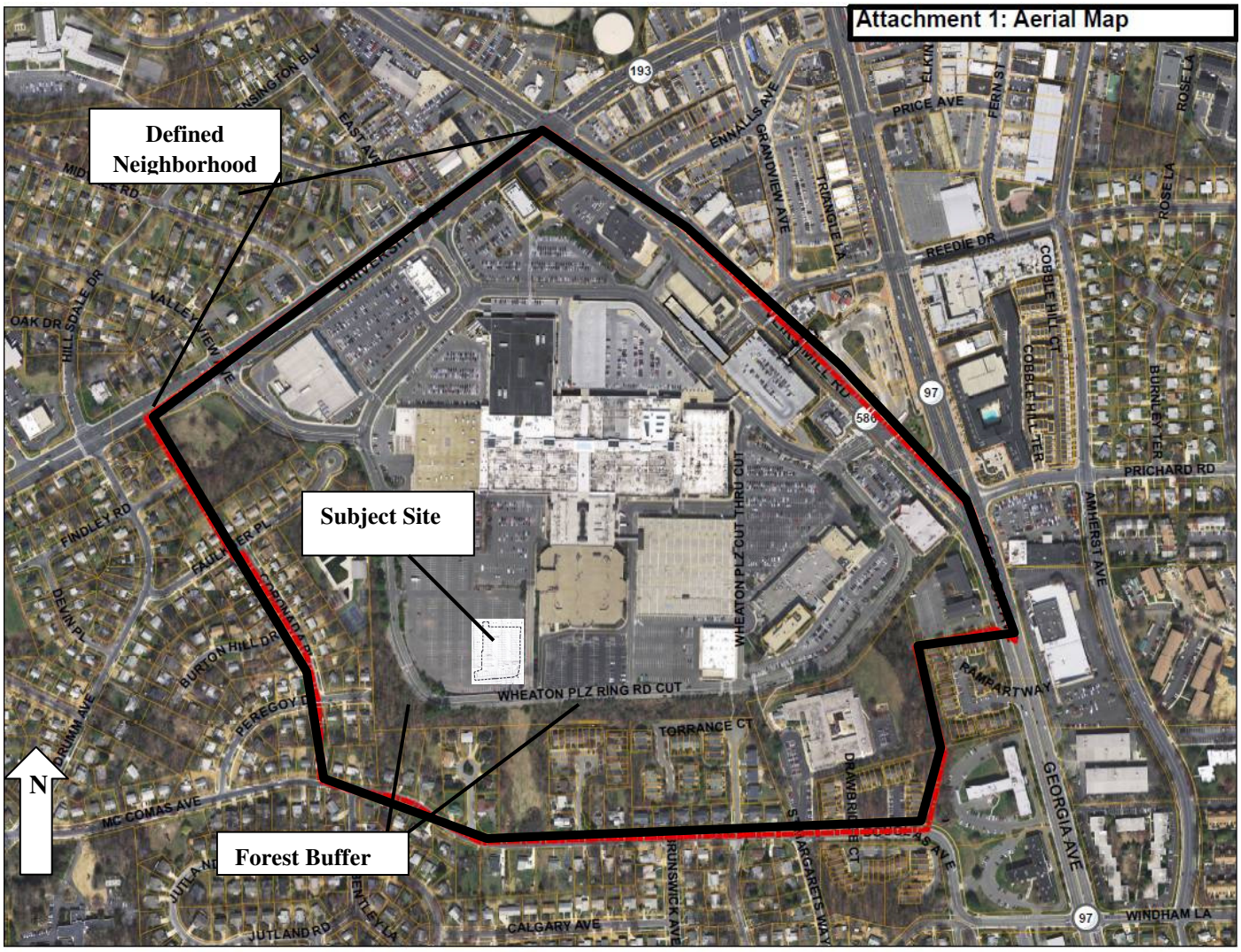


The Mall parcel provides 6,072 parking spaces, in three levels of parking. There are 389 surface parking spaces that are allocated for Costco, but any Mall shopper can use these spaces. There is an additional parking garage to the east of the Costco warehouse. A photograph (on the left, below) provided by Technical Staff (Exhibit 70, Attachment 2, Figure 3) depicts a portion of the southern parking lot, the area of the subject site and the Costco warehouse behind it, as taken from the southern ring road, looking east. A photo (on the right, below) depicts the Costco warehouse and the parking lot to its west where the subject site is to be located (Exhibit 101):



Technical Staff defined the general neighborhood "to include all properties that may be impacted by traffic, noise, glare, vibrations or fumes associated with the proposed use. The defined neighborhood includes the entire Mall property and the first ring of properties adjacent to the south and west of the Mall." Exhibit 70, p. 5. The Hearing Examiner accepts that definition.[18] The defined neighborhood can be seen in the map from the Staff report reproduced on page 15 of this report and in the aerial photo (Attachment 1 to the Staff report), reproduced below:

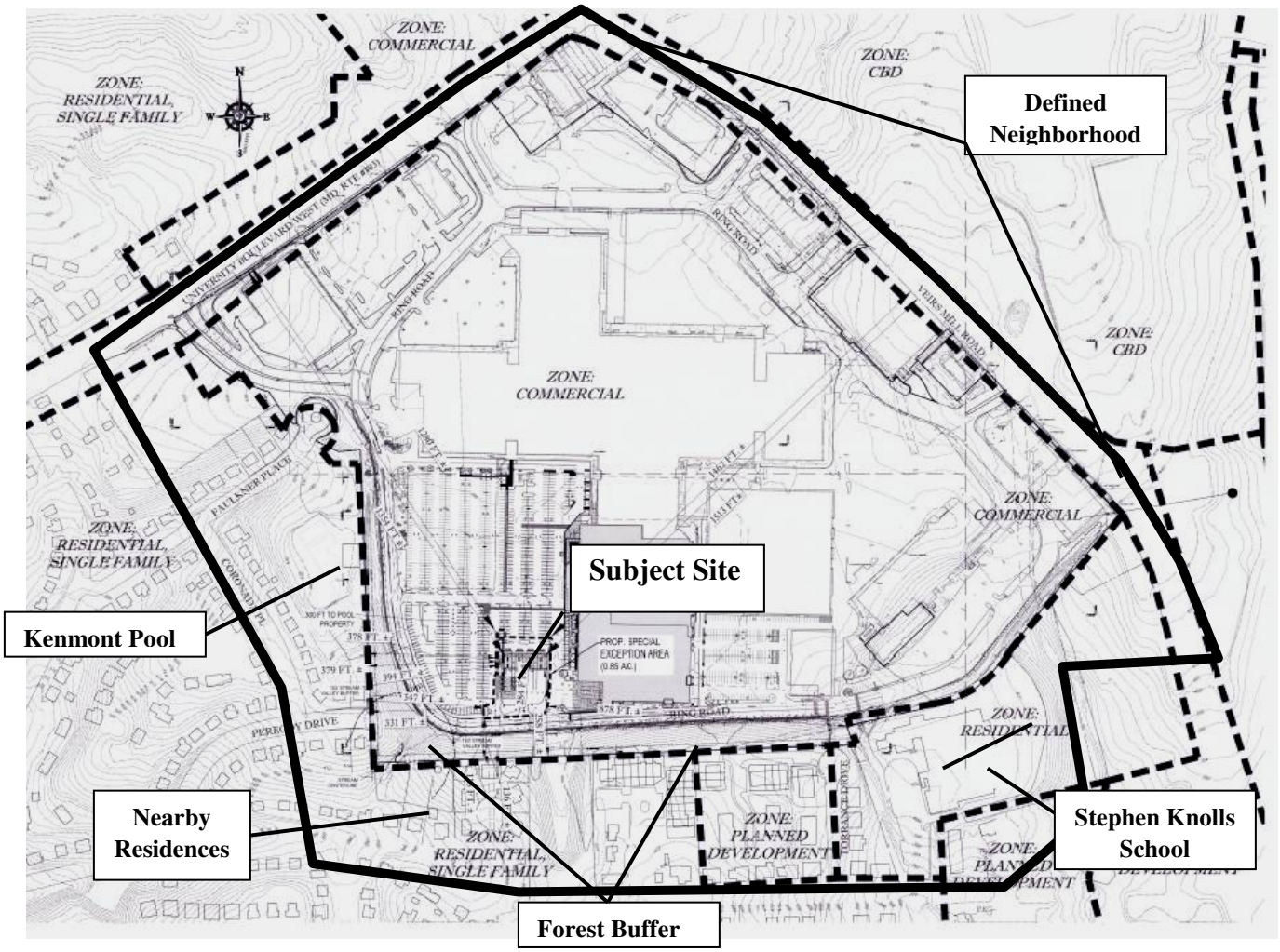
[18] Petitioner's land planner, Steve Gang, had proposed defining the general neighborhood to include only the area of Wheaton Westfield Mall. Neither Technical Staff nor the Hearing Examiner accepted his definition because it would not have included the nearby properties that could be most affected by the special exception. Mr. Gang agreed that in land use, the general neighborhood is defined as the area which would be most affected by the special exception. He added that whichever definition of neighborhood is used, his conclusions would be the same. Tr. 6/4/13, 197-202.



Approximately 26.4 acres of the Mall property along its Veirs Mill frontage is zoned CR-6.0, C-5.5, R-5.5, H-200. The surrounding neighborhood is generally zoned R-60, with some properties zoned PD-9, RT-8 and RT-12.5. "To the south and west of the Mall property is a residential community with single-family detached houses and some townhomes. The Kenmont Swim and Tennis Club property is located approximately 375 feet to the northwest of the site, and the Stephen Knolls School is approximately 874 feet to the southeast." Exhibit 70, p. 5. The nearest residence is approximately 118 feet south of the site. Tr. 4/26/13, 202-209. That home is located at 10812 Melvin Grove Court. Technical Staff notes that there is a significant grade

difference between the Mall property and the residences to the south and west of the Mall, which results in the Mall property being approximately nine to thirty feet higher than the surrounding community. Staff also reports that there is a green buffer of vacant land with trees and understory between the ring road and the adjacent residences to the south. Exhibit 70, p. 5.

The critical issues in this case regarding air pollution, noise, traffic congestion, parking congestion, pedestrian safety, accessibility and compatibility in general center around the southern ring road area and the areas just to the south and west of the mall, but within the general neighborhood. The closest residences, the Kenmont Swim and Tennis Club, and the Stephen Knolls School are all located in those areas, as shown in Petitioner's "Overall Illustrative Plan" (Exhibit 230), on which the defined neighborhood outline has been superimposed.



B. The Proposed Use

1. Summary of Petitioner's Proposal

The subject application seeks a special exception pursuant to Section 59-G-2.06 of the Zoning Ordinance to permit the construction and operation of an automobile filling station. The filling station would serve only Costco members and would have no car wash, convenience store, air pumps or service bays. Sales would be limited to gasoline fuel (*i.e.*, no diesel fuel or propane gas will be sold). Petitioner's proposal, as modified during the course of the hearing, is generally set forth in it's final submission of the conditions it would find acceptable, should the Board grant the special exception (Exhibit 642(a)). The following description of the proposed use is derived from that submission, as renumbered and summarized by the Hearing Examiner:

1. Development of the property is limited to:
   a) An Automobile filling station to be located on a 36,800 square foot parcel in the southwest quadrant of the Wheaton Mall Parcel.
   b) 16-fueling stations, consisting of four islands with four gas dispensing hoses each.
   c) A canopy and a 128 square foot metal sales kiosk, as shown on the special exception plan.
   d) Four 28.5 square-foot signs, with each sign located on one of the four sides of the canopy, and a portable board sign, providing daily gas prices.
   e) Parking on the adjacent parking lot.
   f) An eight-foot high screening wall along the outer perimeter of a portion of the Mall's Ring Road located to the south and west of the Property.
   g) Landscape islands to the south and west of the Property.
   h) Underground fuel storage tanks.
   i) Such other items as are specified in the following conditions.
2. The Fuel storage tanks and fuel pump installation and use will comply with all applicable regulations.
3. Hours of operation will be limited to Monday through Friday, from 6:00 AM until 9:30 PM and Saturday and Sunday from 7:00 AM until 7:00 PM.
4. Petitioner will have a minimum of one attendant on site at the gas station at all times during the operation of the gas station. Petitioner will have two attendants on site on weekends between the hours of 10:00 a.m. and 4:00 p.m. In addition, at all other times, Petitioner will dispatch one or more additional attendants as needed to manage the queue and direct traffic in order to avoid any queuing on the Ring Road.

5. Petitioner will conduct monitoring of the gas station to give the Board of Appeals the opportunity to review the results of emissions associated with the operation of the gas station.[19]

6. Petitioner will limit gasoline product sales to regular and premium unleaded gasoline. Petitioner will be limited to annual sales of 12 million gallons.

7. Petitioner will install an "ARID Technologies Permeator," to reduce harmful emissions from the underground storage tank vent. This devise may in the future be replaced with different equipment of substantially the same or improved capability.

8. Petitioner will turn off gas canopy lighting no later than 10:00 PM Monday through Friday and 7:30 PM Saturday and Sunday, with the exception of security lighting.

9. Petitioner will designate six parking spaces immediately to the west of the gas delivery area "employee only parking." Petitioner will use best efforts to direct all other employees to not park in the southwest parking lot.

10. Petitioner will obtain any required permits for all signs, and copies thereof will be filed with the Board of Appeals prior to posting the signs.

11. Petitioner will provide the following signage relating to garage parking:
    a) signs along eastbound Ring Road indicating "Costco/Mall Parking in Garage";
    b) directional signs to the garage located directly east of the Costco Warehouse;
    c) signs on the second floor of parking garage indicating "Costco/Mall Parking Available – Third Level"; and
    d) a minimum of two signs within the Costco warehouse at the customer exits indicating that parking is available on levels two and three of the parking garage.

12. No more than five fuel deliveries will occur per day, including weekends, to coincide with the hours of gasoline station operations. Petitioner will use commercially reasonable efforts to schedule at least one of the daily gas deliveries prior to 9:30 AM, but no earlier than 6:00 AM on weekdays and 7:00 AM on weekends. Delivery vehicles will not idle and will be turned off during the off-loading of fuel. Petitioner will install "no idling" signs adjacent to the gas delivery truck area.

13. All gas delivery trucks will be certified NDTE (New Technology Diesel Engines), or future substantially equivalent certified standard.

14. Petitioner will extend the pedestrian aisle designated to run just south of the main drive aisle in the vicinity of the gas station west to the Ring Road.

15. Petitioner will construct a five-foot wide raised, pedestrian path along outer perimeter of Ring Road as set forth on Exhibit 233(a)-(d), to include five handicapped access ramps to be located at the start and end of the pedestrian path; at the western terminus of the east-west drive aisle; at the north-south drive aisle by the Costco loading docks; and by the north-south drive aisle on the east side of Costco store.

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[19] Petitioner objected to any monitoring condition, but when the Hearing Examiner suggested that he might recommend such a condition (Exhibit 632(a)), Petitioner fashioned a condition which included a long description of the parameters it suggested to govern any such monitoring. That description is omitted in this summary because it is not material to this part of the report. The text of the entire possible condition can be seen in Item 6 of Exhibit 642(a) and in Appendix II.

16. Petitioner will provide adequate traffic control measures, in cooperation with the operator of the Mall (currently Westfield) that include, but are not limited to, directional arrows and signage to provide safe passage to and through the special exception site.

17. Petitioner will provide painted crosswalks across Ring Road from pedestrian path access ramps. All crosswalks shall be at least five feet wide and striped, in accordance with ADA requirements, so as to ensure that cars slow down while crossing.

18. Petitioner will construct the green wall in the location set forth on Exhibit 229(c) and pursuant to the specifications set forth on Exhibit 265(c). The east end of the wall shall be located so as to provide pedestrian access to a possible path extending up from the property at 2609 McComas Avenue ("Mt. McComas"), which is being developed under Preliminary Plan number 120110170 (Kensington Heights).

19. Petitioner will maintain the green wall and green screen, including landscaping, to commercially reasonable standards consistent with a first class regional mall. Such standards shall, at a minimum, require planting and maintenance of trees, shrubs, and other plants listed on the approved landscaping plan as required by Maryland-National Capital Park and Planning Commission, and shall also require replacement of any such trees, shrubs, or other plants that die.

20. Petitioner will maintain plantings in stormwater management bio-retention islands within the Special Exception Area at least at the level provided for in the Special Exception plans. Petitioner shall replace any plantings that die while the gas station remains operational.

21. Petitioner and its contractors and agents will not conduct any activity within the forest stand buffer, except for the following activities:
    a) Planting and maintenance of trees, shrubs and other plants provided on the approved landscaping plan as required herein by Maryland-National Capital Park and Planning Commission;
    b) Limited access associated with the ordinary and necessary inspection, maintenance, repair, or replacement of the green wall and the landscaping associated with the green wall; and
    c) Any activity required by applicable law, rule, or regulation.

22. Petitioner will not violate any terms of the stormwater management plan approved by the County Department of Permitting Services.

23. In the event Maryland Department of Environment ("MDE") determines that air monitoring of the station is necessary, Petitioner shall make the site available to MDE and shall cooperate fully with MDE.

24. Petitioner will submit an annual report to the Board of Appeals detailing any vehicle/ pedestrian or vehicle/bicycle accidents occurring during the preceding year on the Special Exception site and any such vehicle/pedestrian or vehicle/bicycle accidents of which they are aware occurring along that portion of the Ring Road immediately adjacent to the Special Exception site or on that portion of the southwest parking lot located south of the main east-west drive aisle.

25. Petitioner will not permit merchandise from trucks parked beyond the west side of the station to be walked through the special exception site during the hours that the gas station is

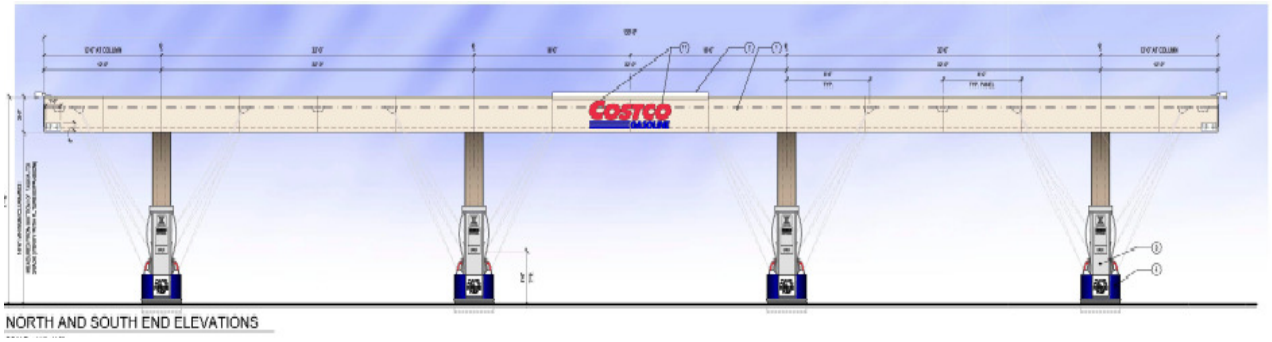
operational. Bollards and chains will be used to preclude truck access to any portion of the gas station area during any period of time in which the station is operating.

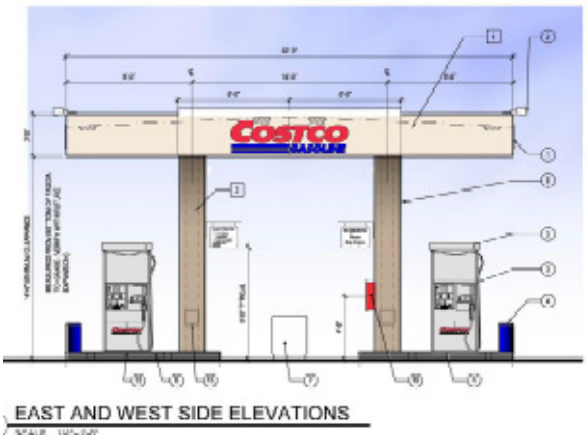
26. Petitioner will establish a contact person to whom any issue, problem or complaint related to the gas station special exception operation may be directed ("Station Contact").

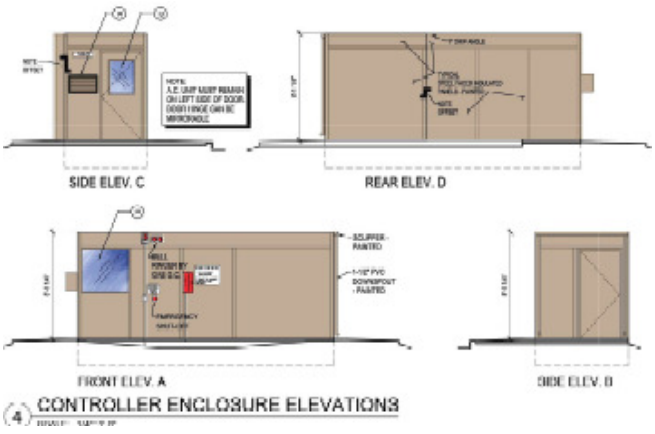
27. Petitioner will obtain and satisfy the requirements of all licenses and permits, including but not limited to building permits and use and occupancy permits, necessary to occupy the special exception premises and operate the special exception as granted herein. Petitioner will at all times ensure that the special exception use and premises comply with all applicable codes (including but not limited to building, life safety and handicapped accessibility requirements), regulations, directives and other governmental requirements.

2. Petitioner's Concept of the Proposed Station

The auto filling station, as envisioned by Petitioner, is depicted in the architectural elevations (Exhibit 7), reproduced below, and the final special exception plans reproduced on the following pages. The canopy over the gas station is 17-feet, 6-inches at its highest point, and the metal kiosk is 8 feet, 1¼ inches at its highest point. Proposed signage is also depicted.

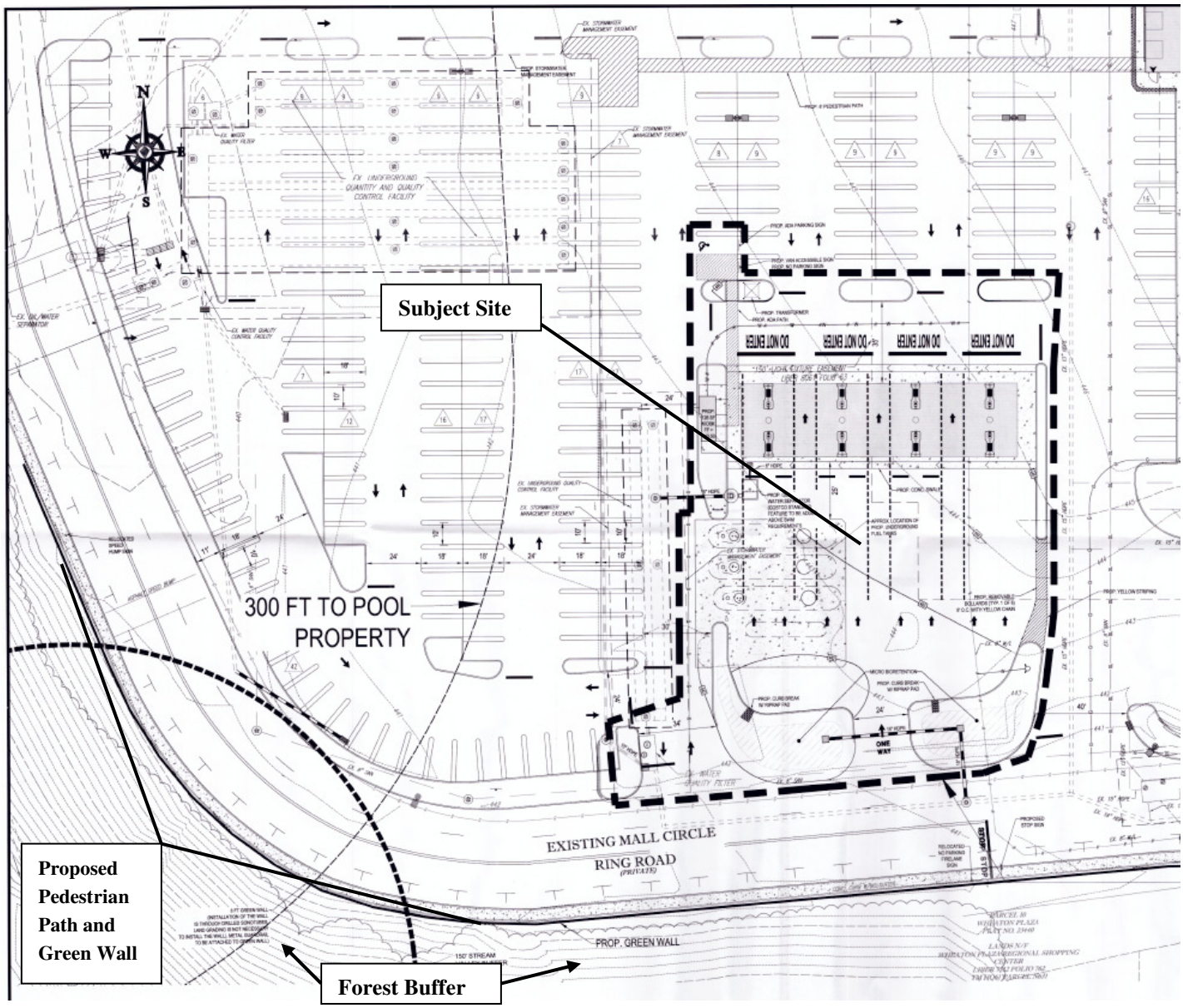




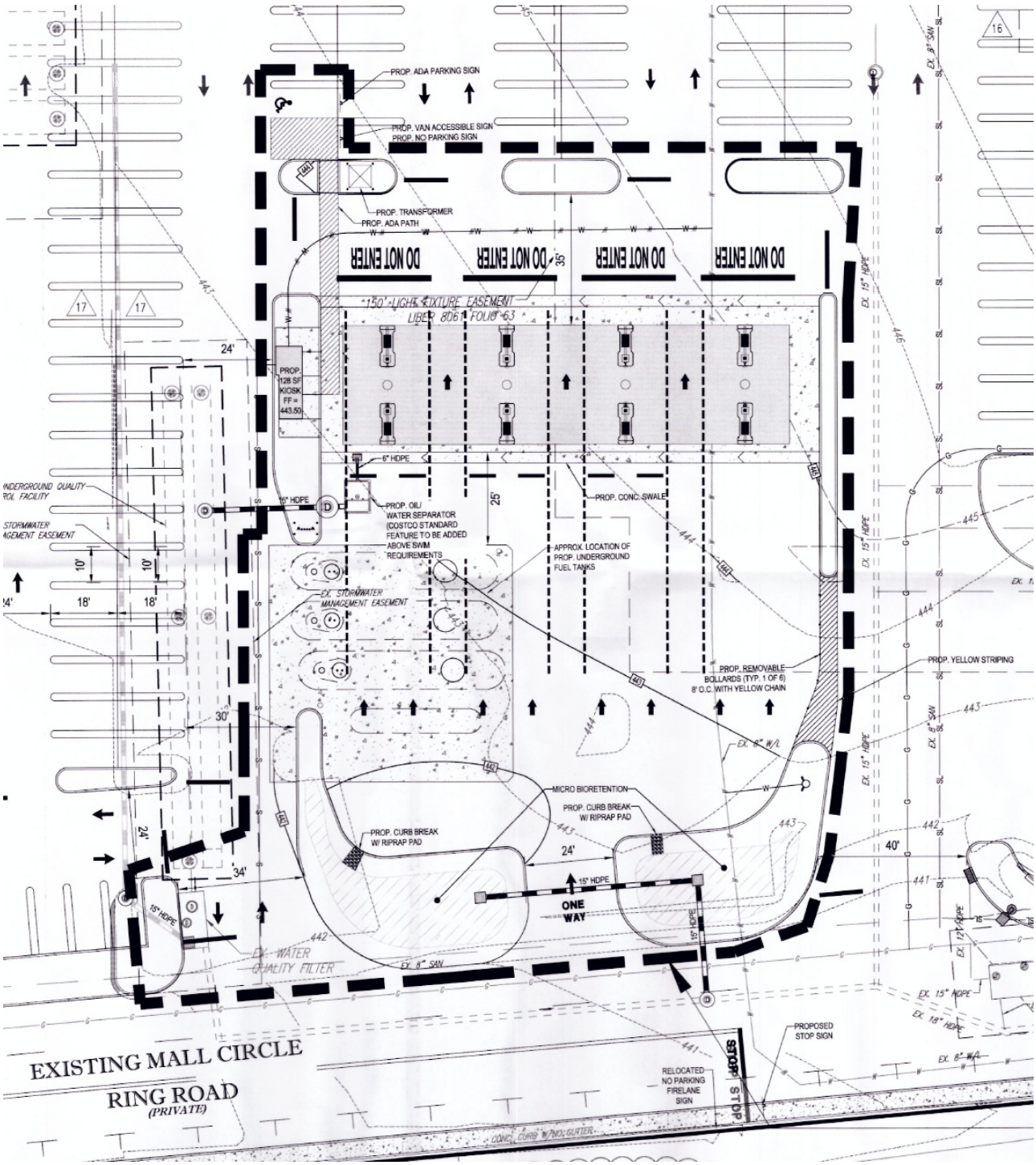


3. The Special Exception Plan

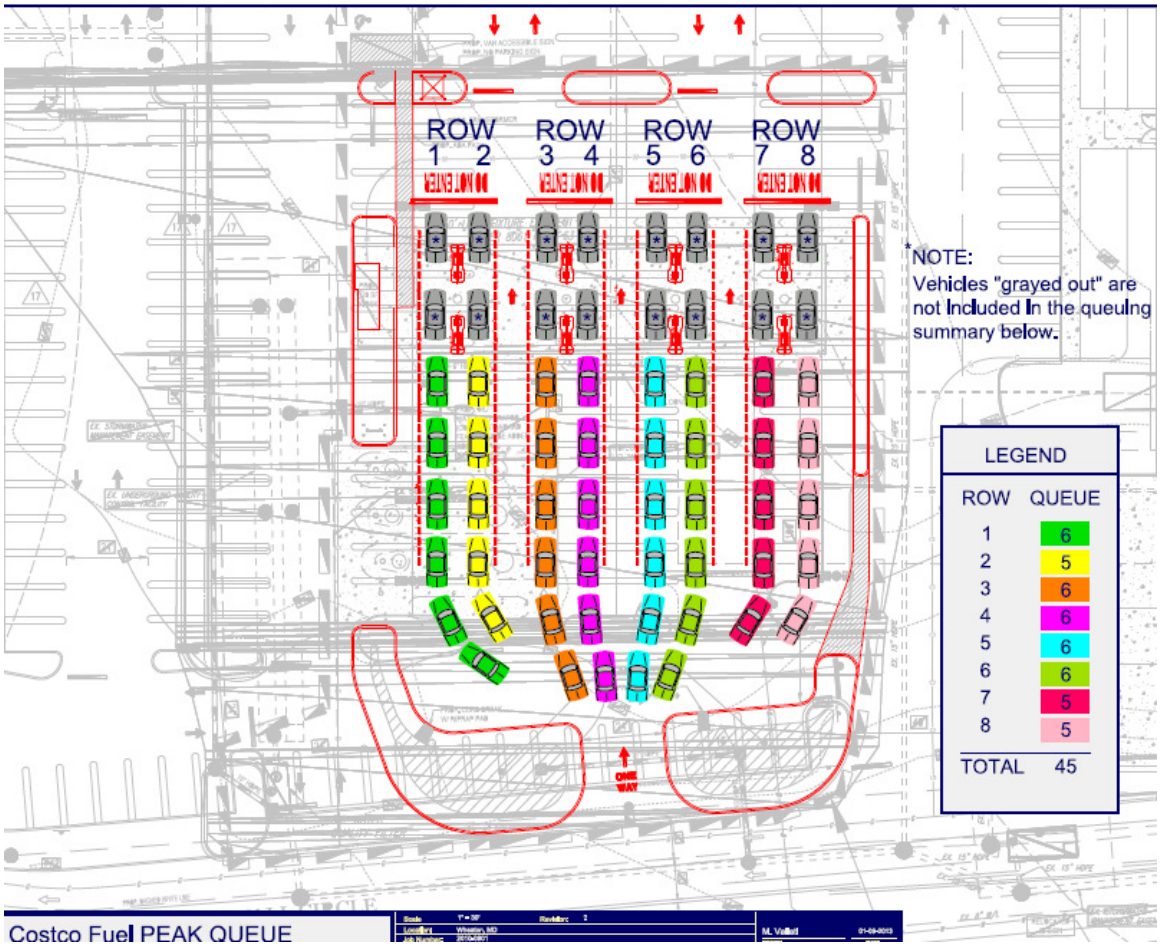
As previously mentioned, the special exception plans were modified numerous times based on developments at the hearing. The final Special Exception Plan (Exhibit 229(c)) is reproduced below and on the following pages. Immediately below is the overall view of the subject site and the surrounding parking lot, with the existing ring road to the south and west, the proposed concrete pedestrian path along the ring road's southern and southwestern border and the proposed green screening wall just south and west of the pedestrian path. It is also just north and east of the forest buffer.



It should be noted that the subject site, the parking lot, the ring road, the proposed pedestrian path and the proposed green screening wall are all on property owned by Westfield, and its permission was given for all the proposals outlined in this report (Exhibits 3(b) and 149(c)). The following plan is a blowup of the subject site, from the special exception plan shown above:



It is undisputed in this case that there will be a great deal of queuing of vehicles on the subject site while they wait for their turns to access the pumps. Petitioner produced the following graphic to display the anticipated peak queue at the site (Exhibit 56(f)):

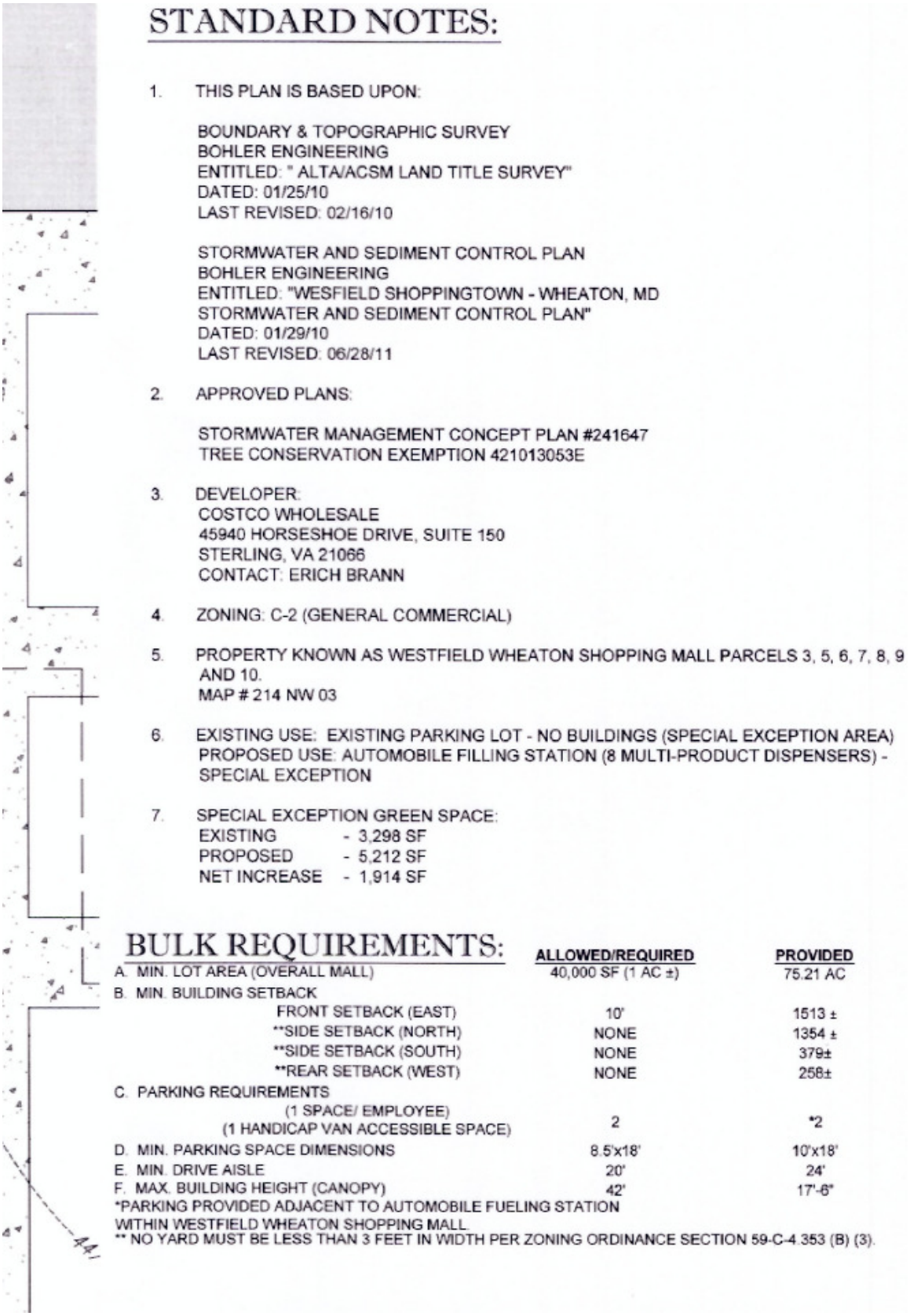


Technical Staff analyzed the potential queues as follows (Exhibit 70, p. 10):

> The Applicant has provided real-time queuing data at Sterling Costco Gas Station. The counts were taken on a Friday and Saturday, and were minute-by-minute counts for the entire day. Based on this analysis, Staff estimates that during half of the operational hours [at Wheaton], 22 vehicles or less are expected to be in the queue to purchase gas. Approximately 3% of the time, more than 40 or more vehicles are estimated to be in the queue waiting to purchase gas. The proposed configuration of the gas station allows for a maximum of 40 cars to queue without overcrowding the entrance. . . .

The accuracy of Petitioner's queuing estimates was challenged in great detail by the Opposition. Issues relating to queuing will be discussed elsewhere in this report.

The following printout contains text from the special exception plan:



STANDARD NOTES:

1. THIS PLAN IS BASED UPON:

   BOUNDARY & TOPOGRAPHIC SURVEY
   BOHLER ENGINEERING
   ENTITLED: " ALTA/ACSM LAND TITLE SURVEY"
   DATED: 01/25/10
   LAST REVISED: 02/16/10

   STORMWATER AND SEDIMENT CONTROL PLAN
   BOHLER ENGINEERING
   ENTITLED: "WESFIELD SHOPPINGTOWN - WHEATON, MD
   STORMWATER AND SEDIMENT CONTROL PLAN"
   DATED: 01/29/10
   LAST REVISED: 06/28/11

2. APPROVED PLANS:

   STORMWATER MANAGEMENT CONCEPT PLAN #241647
   TREE CONSERVATION EXEMPTION 421013053E

3. DEVELOPER:
   COSTCO WHOLESALE
   45940 HORSESHOE DRIVE, SUITE 150
   STERLING, VA 21066
   CONTACT: ERICH BRANN

4. ZONING: C-2 (GENERAL COMMERCIAL)

5. PROPERTY KNOWN AS WESTFIELD WHEATON SHOPPING MALL PARCELS 3, 5, 6, 7, 8, 9 AND 10.
   MAP # 214 NW 03

6. EXISTING USE: EXISTING PARKING LOT - NO BUILDINGS (SPECIAL EXCEPTION AREA)
   PROPOSED USE: AUTOMOBILE FILLING STATION (8 MULTI-PRODUCT DISPENSERS) - SPECIAL EXCEPTION

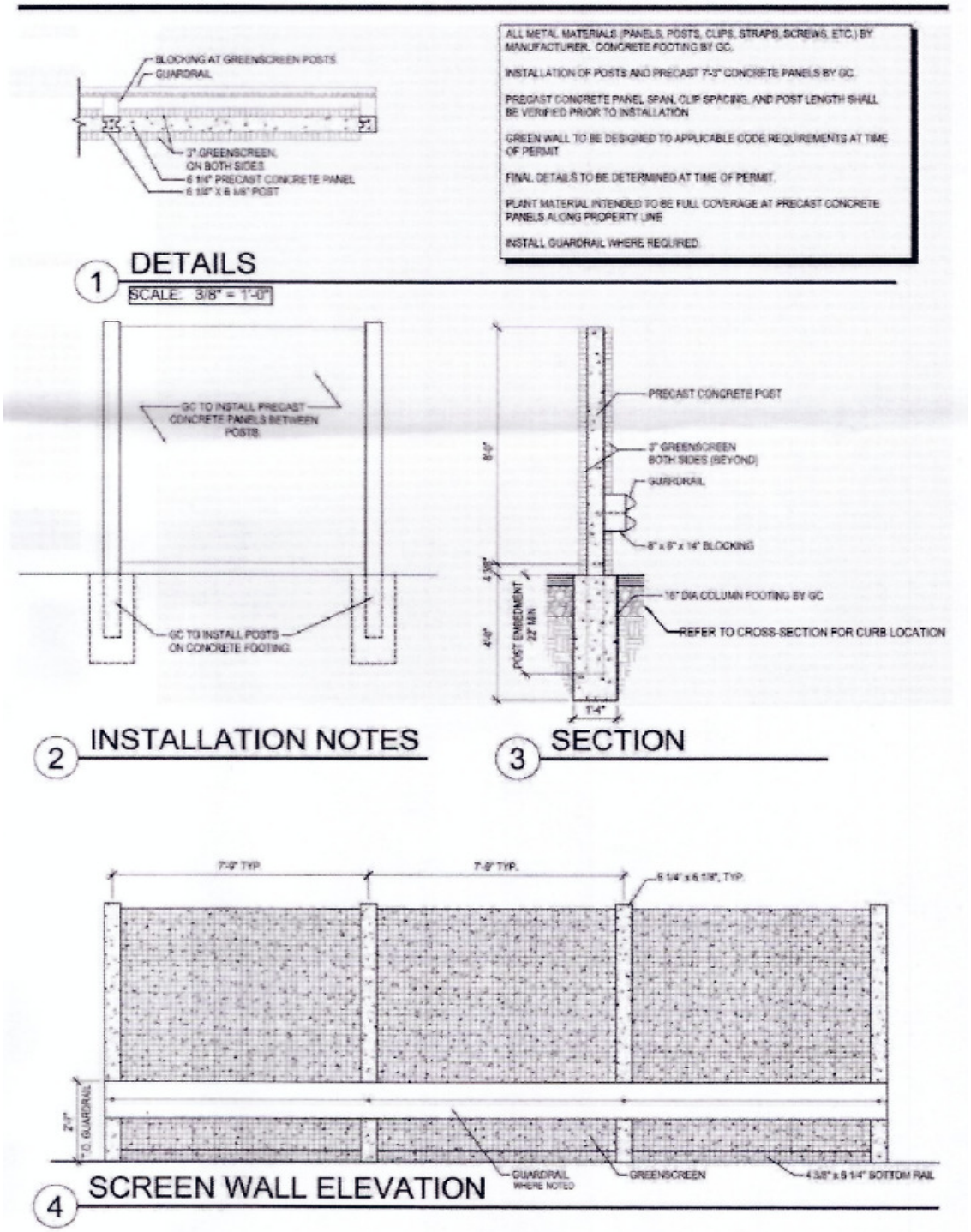
7. SPECIAL EXCEPTION GREEN SPACE:
   EXISTING - 3,298 SF
   PROPOSED - 5,212 SF
   NET INCREASE - 1,914 SF

BULK REQUIREMENTS:

	ALLOWED/REQUIRED	PROVIDED
A. MIN. LOT AREA (OVERALL MALL)	40,000 SF (1 AC ±)	75.21 AC
B. MIN. BUILDING SETBACK		
FRONT SETBACK (EAST)	10'	1513 ±
**SIDE SETBACK (NORTH)	NONE	1354 ±
**SIDE SETBACK (SOUTH)	NONE	379±
**REAR SETBACK (WEST)	NONE	258±
C. PARKING REQUIREMENTS		
(1 SPACE/ EMPLOYEE) (1 HANDICAP VAN ACCESSIBLE SPACE)	2	*2
D. MIN. PARKING SPACE DIMENSIONS	8.5'x18'	10'x18'
E. MIN. DRIVE AISLE	20'	24'
F. MAX. BUILDING HEIGHT (CANOPY)	42'	17'-6"

*PARKING PROVIDED ADJACENT TO AUTOMOBILE FUELING STATION WITHIN WESTFIELD WHEATON SHOPPING MALL.
** NO YARD MUST BE LESS THAN 3 FEET IN WIDTH PER ZONING ORDINANCE SECTION 59-C-4.353 (B) (3).

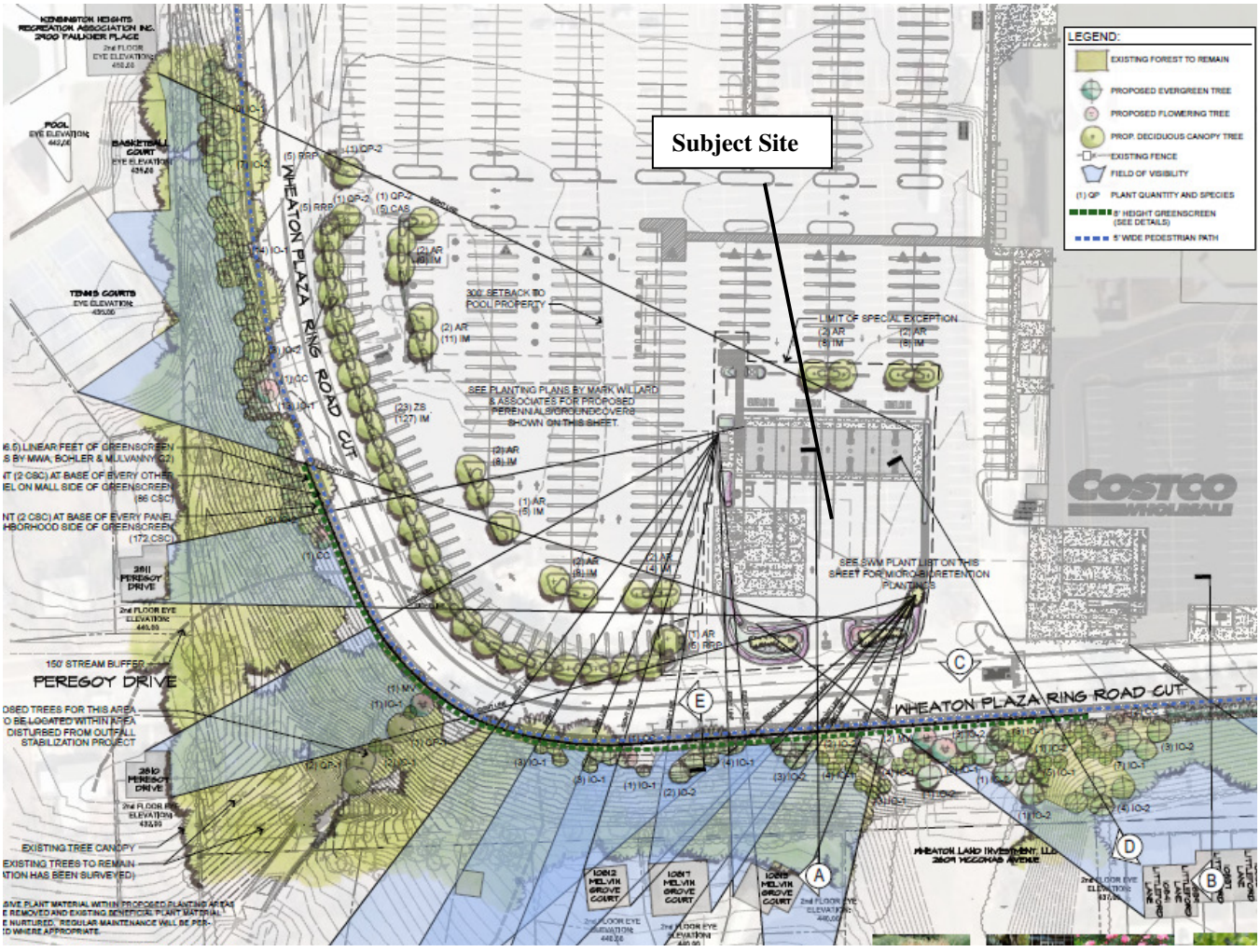
The final section of the special exception plan relates to the construction of the proposed green screening wall to the south and west of the site, along the outer curb of the Mall's ring road. The green wall will have steel lattice to hold plant material. It will be eight feet high, installed through drilled "sonotubes" (16" diameter, variable depth), and its panels will be covered with American Bittersweet vine.



4. The Landscape (Planting) Plans and Lighting Plan

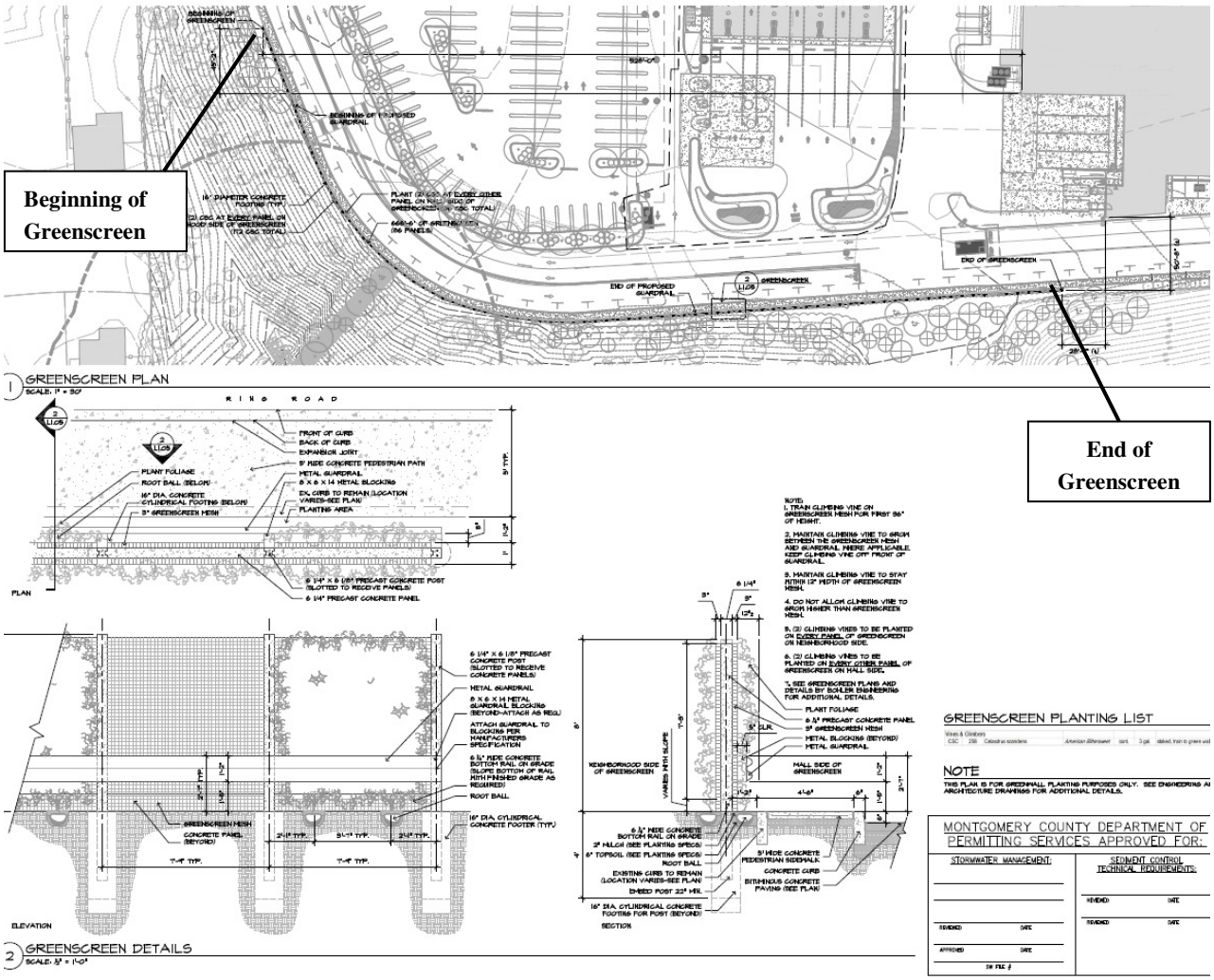
In addition to the special exception plan, Petitioner produced a number of other plans outlining its proposal. These included the Landscape Plans, a Lighting Plan, Pedestrian Circulation Plans and a Truck Turning Plans. Due to space limitations, only a selection of those plans can be reproduced in this report.

The final landscape plans include the Landscape Master Plan (Exhibit 265(d)); Planting Plan L1.01 (Exhibit 265 (a)); Planting Plans L1.02 and L1.03 (Exhibits 256(c) and (d)); SWM Planting Plan L1.04 (Exhibit 265(b)); Greenscreen Plan L1.05 (Exhibit 265(c)); and the Landscape Sections (Exhibits 245(b) and (c)). Shown below is a portion of the Landscape Master Plan (Exhibit 265(d)):

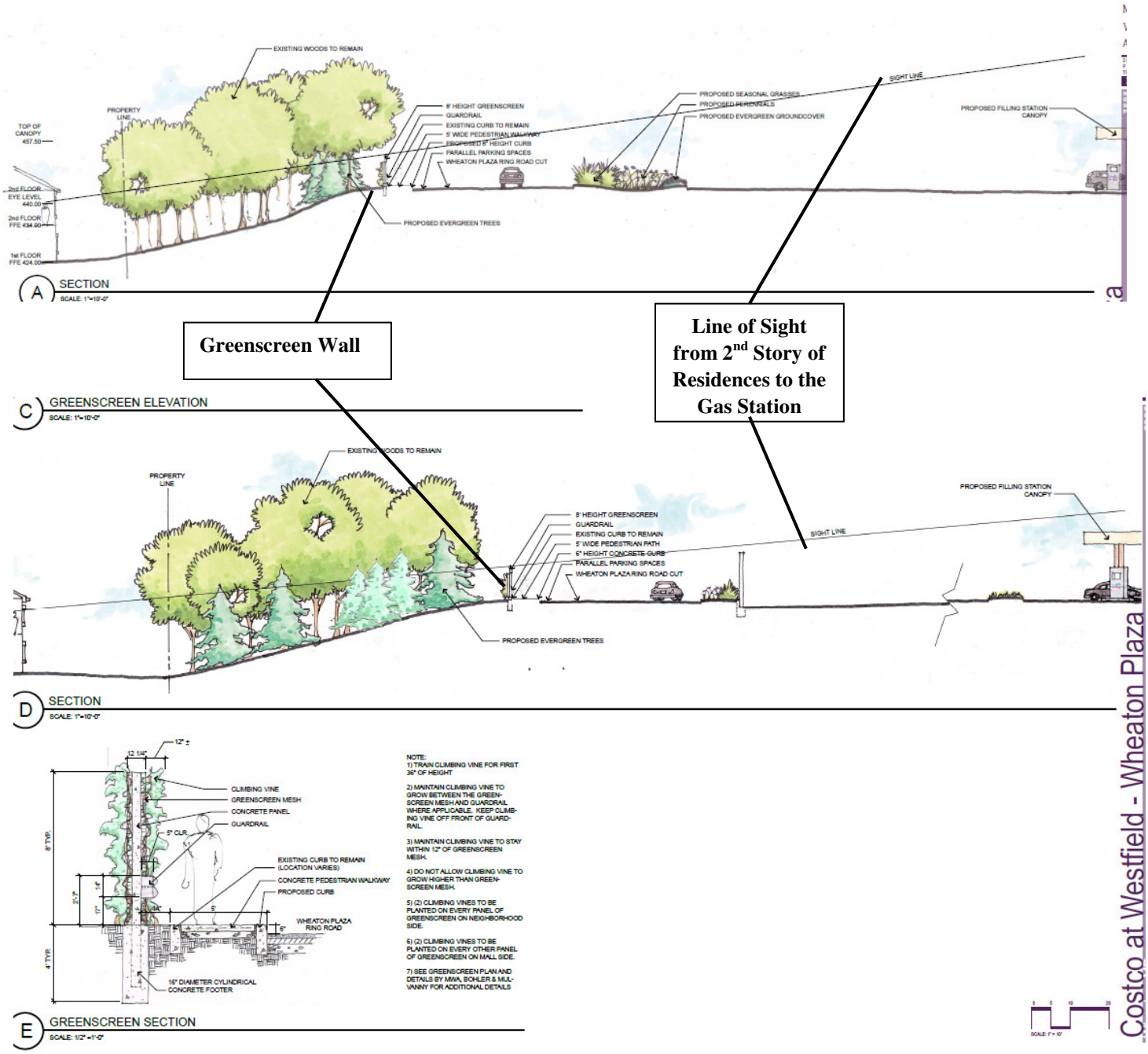


As shown above, Petitioner is proposing to supplement the existing green buffer area between the Mall's ring road and the adjacent community with additional native tree species. There will also be landscaped islands surrounding the subject site and a landscaped stormwater retention area on the southern portion of the site.

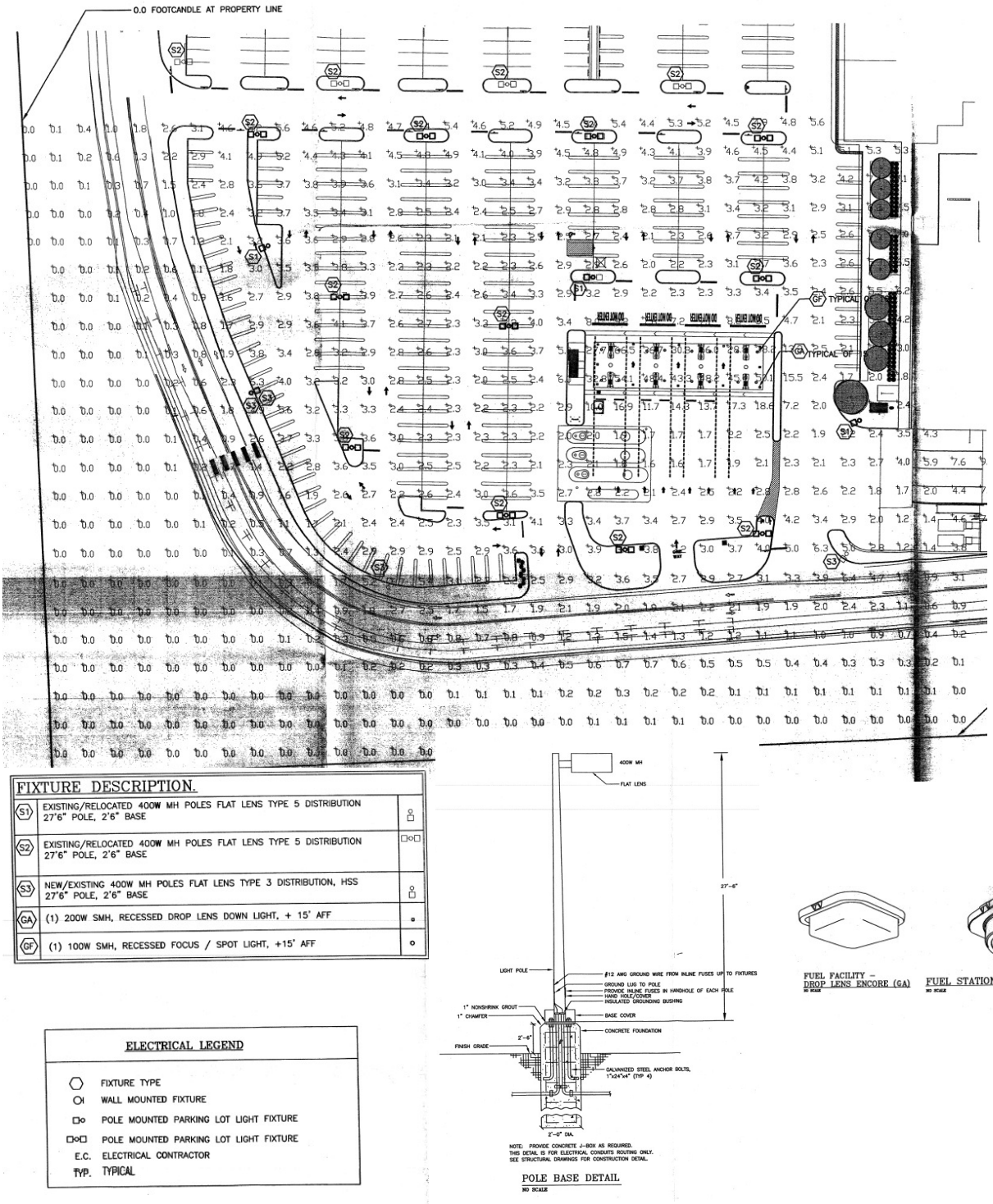
In addition to the extensive plantings shown on the Landscape Master Plan, above, Petitioner is committed to building an eight-foot tall, "greenscreen" wall along the southern and southwestern forest buffer to further block the proposed gas station from the view of residences to the south and west. The wall will be covered with climbing vines and will be maintained by Petitioner. Westfield has given its written permission for erection of this wall on its property (Exhibit 149(c)). Issues raised by the Opposition regarding this wall will be discussed later in this report. A portion of Petitioner's "Greenscreen Plan" (Exhibit 265(c)) is reproduced below:



The effectiveness of the proposed greenscreen wall in blocking the view of the gas station from locations outside of the mall is demonstrated in "Sections" provided by Petitioner (Exhibits 245(b) and (c)), portions of which are reproduced below:



Lighting will consist of 175-watt metal halide, recessed flat lens, down lights, and 100-watt metal halide recessed focus spot lights, designed to reduce glare and focus the lighting to eliminate spill off outside the property boundary (Exhibit 10, pp. 4 and 12). Petitioner's Lighting Plan (Exhibit 6) demonstrates that light from the proposed gas station will not exceed applicable standards for residential areas:



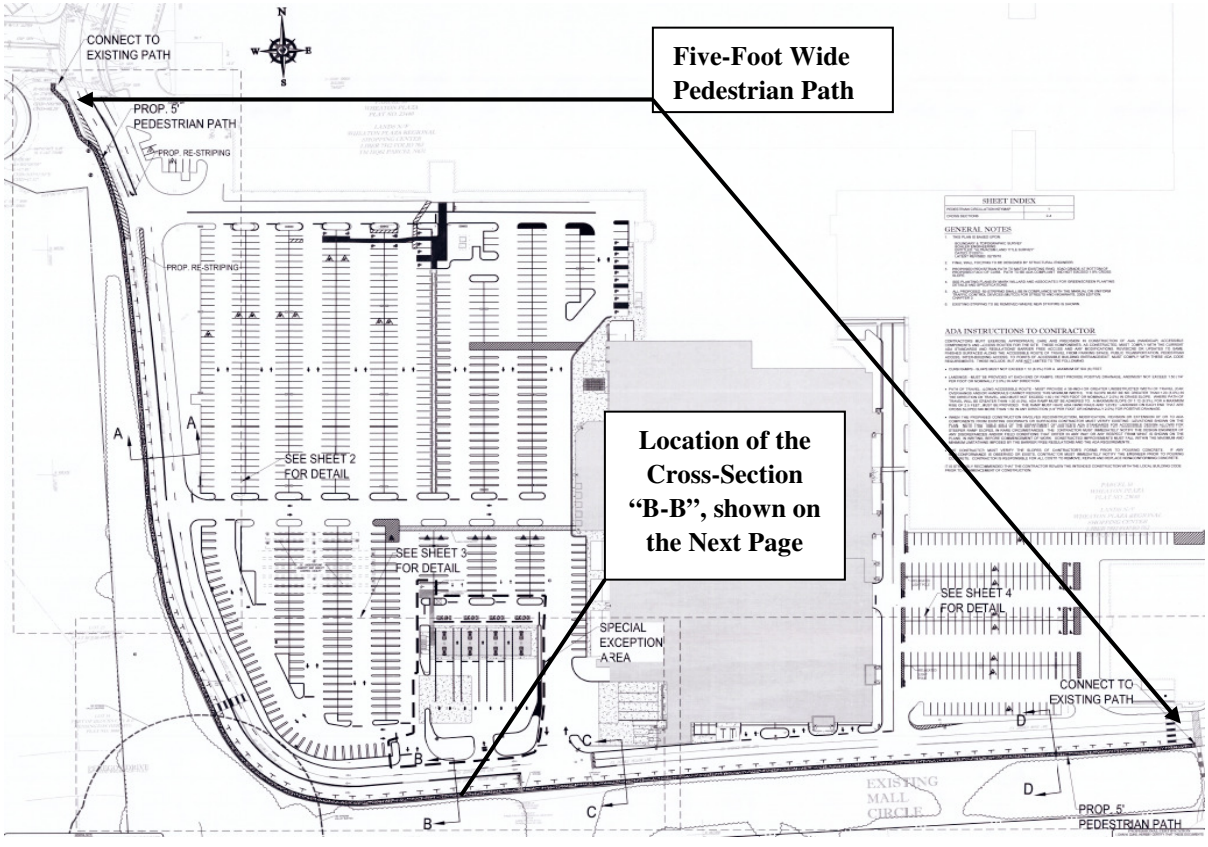
In addition to the lighting for the proposed gas station, there are 18 existing light poles distributed approximately equidistant across the southwest parking area of the Mall parcel, with six of the poles located along the ring road. Exhibit 10, p. 12. Zoning Ordinance §59-G-1.23(h) is entitled, "Lighting in residential zone." Although the subject site is not in a residential zone, the text of the section provides that all outdoor lighting must be located, shielded, landscaped, or otherwise buffered so that no direct light intrudes into an adjacent residential property. The section sets a standard of no more than 0.1 footcandles at the side and rear property lines.

The subject site is not abutting or adjoining a residential area because the specified gas station area is entirely surrounded by other Mall property; however, it is "adjacent" to residences under the definition of that term, as those residences are nearby, the closest one being 118 feet away. Tr. 4/26/13, 202-209. Mr. Gang opined in his Land Use report (Exhibit 10, p. 18) that the lighting will more than meet the 0.1 footcandle standard at the property line. He also noted that all of the lights associated with the filling station, except for a few dimly lit lights under the canopy, will be extinguished shortly after 9:30 p.m. Monday through Friday and shortly after 7:00 p.m. on Saturday and Sunday when the station closes. Technical Staff agreed that the proposed lighting will meet the statutory standard. Exhibit 70, pp. 21 and 24. The photometric study supports this conclusion because it shows 0.0 footcandle readings at the Mall property line at all locations near the area of residential properties.

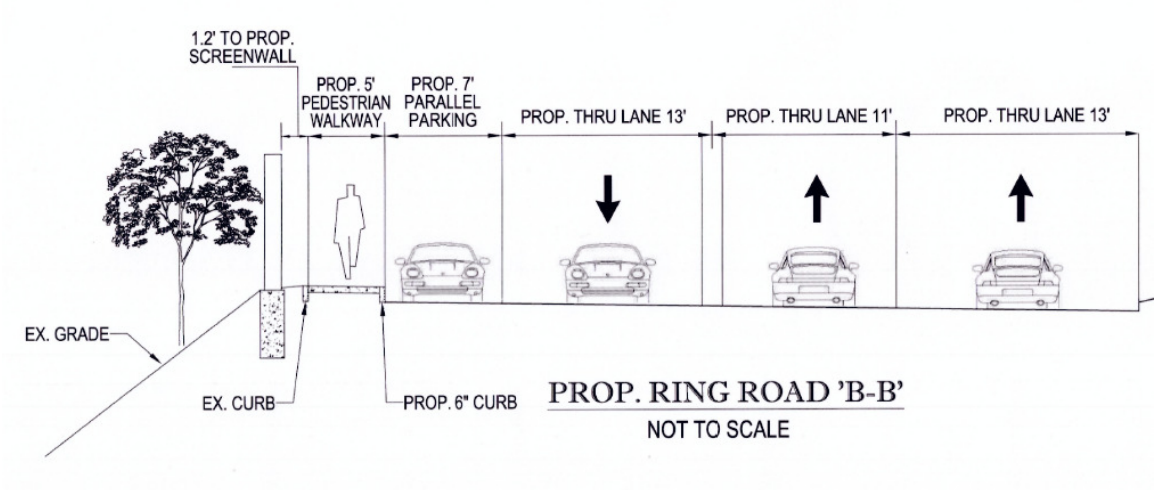
5. Pedestrian Circulation Plans and Truck Turning Plans

Two other sets of plans are worthy of note – the Pedestrian Circulation Plans (Exhibits 233(a)-(d)) and the Truck Turning Plans (Exhibits 232(a) and (b)). Questions relating to safe pedestrian circulation on and around the site and as to whether there would be adequate room for trucks to maneuver around the subject site were issues raised by the Opposition. Portions of these plans are reproduced on the following pages.

When the hearing began in this case, Petitioner's plans did not include a pedestrian path along the southern ring road (Tr. 4/26/13, 237), an omission which the Opposition found disturbing since they felt that such a path had been promised by Westfield to the County Executive (Exhibits 122-123 and Tr. 5/6/13, 108-112), and failure to include it would, in their opinion, potentially endanger pedestrians (Tr. 5/6/13, 112) and be inconsistent with the Sector Plan[20] (Tr. 6/7/13, 83-86). Ultimately, Petitioner agreed to include a pedestrian path in its plans, and after considerable wrangling about its contours and review by Technical Staff, the path proposed in the current plans was finalized. Under the new plans (Exhibits 233(a) through (d)), a five-foot wide, concrete, elevated, pedestrian path will be installed behind the curb, starting from the area in front of Target and running along the eastbound lanes of the ring road, continuing in front of the Costco store itself, and terminating at the crosswalk near where the Stephen Knolls School is located. Tr. 8/2/13, 94-101. Below is Exhibit 233(a), followed by a view of cross-section "B-B" from Exhibit 233(c):



[20] Item LB-5 of Table 3 on page 66 and the map on page 67 of the Sector Plan (Exhibits 9 and 150).



The final set of plans displays truck turning paths for both tanker trucks delivering gas to the station (Exhibit 232(a)) and trailer trucks delivering goods to the Costco Warehouse (Exhibit 232(b)). The first plan shows a tanker delivering gasoline to the site. After the Opposition raised safety issues during the hearing, Petitioner modified the Special Exception Site Plan to allow more space for the fuel delivery trucks to park in order not to block the abutting north-south drive aisle.

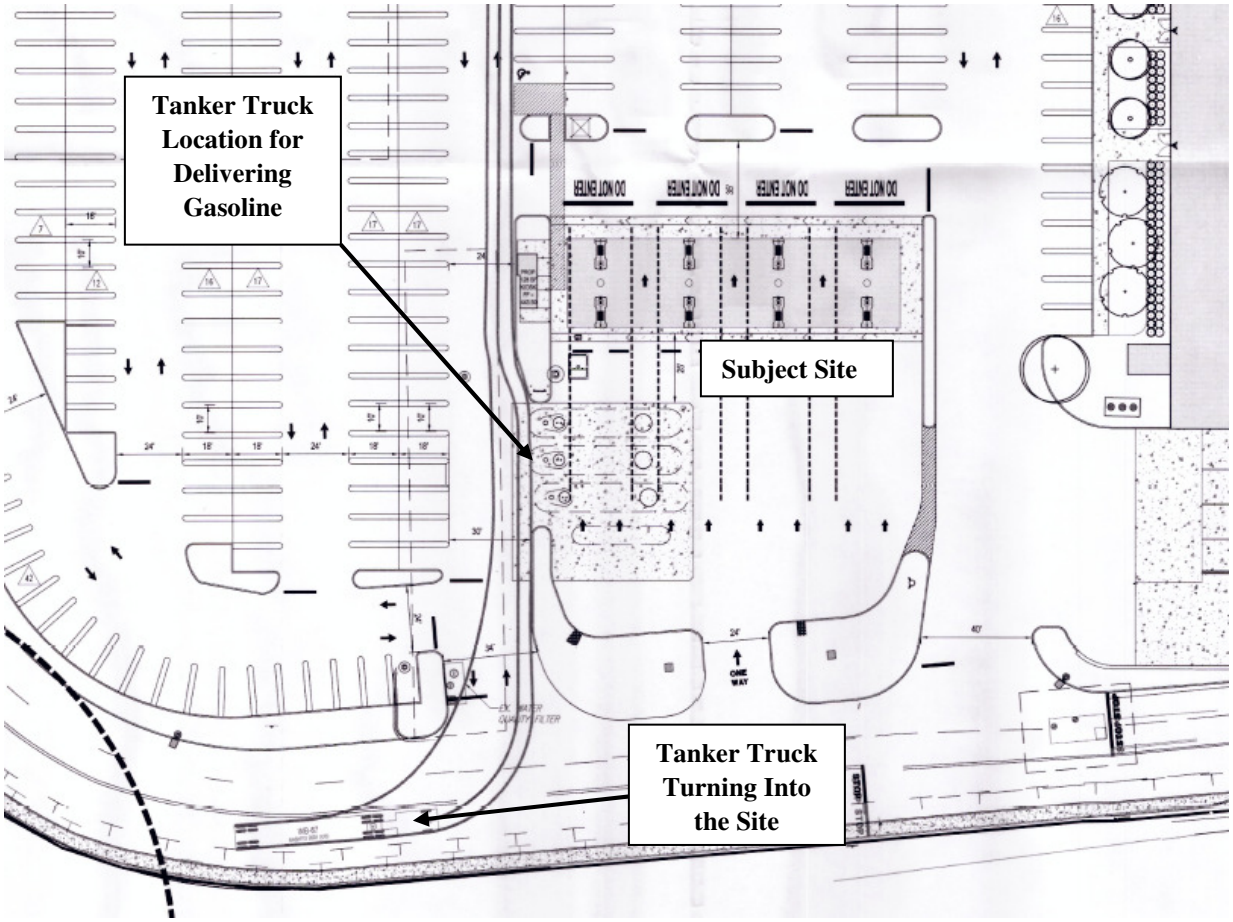
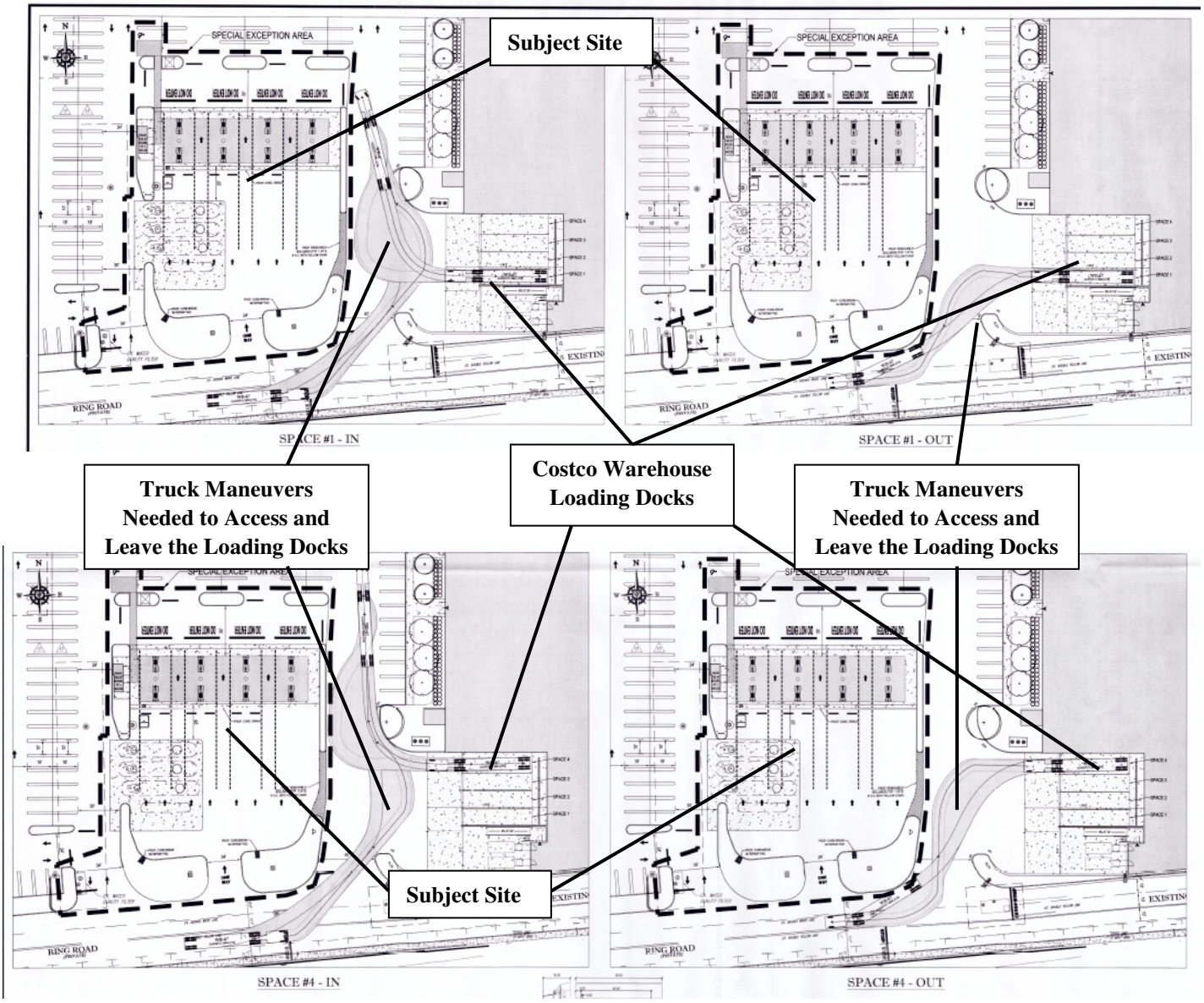


Exhibit 232(b), below, displays the turns and maneuvers of the Costco Warehouse delivery trucks necessary to access the Warehouse loading docks, just to the east of the subject site:



The Opposition contends that the proposed location of the gas station site is too close to the existing Costco Warehouse loading docks to allow the delivery trucks to enter safely (Exhibit 624, pp. 81, 98. One Opposition witness, Karen Cordry, showed pictures of the ruts in the safety islands that the trucks make currently to demonstrate that there is insufficient space for them to operate even without the gas station, and that the space constraints will worsen when the gas station is added to the mix (Exhibit 375, slides 8-18).

Petitioner's engineering expert, Dan Duke, testified that the turning movements needed by the gas delivery trucks are shown in Exhibit 232(a), and that there is adequate room for the gas delivery trucks to make the necessary turn into the drive aisle and to position themselves on the site for unloading. He noted that the standard drive aisle width is 20 feet, and the revised Special Exception Plan will leave a drive aisle width of 22 feet when the truck is parked on the site, thus exceeding the minimum width requirement. Tr. 8/2/13, 92-93. Mr. Duke also testified that truck access to the Costco Warehouse docks is explained in Exhibit 232(b), and the trucks will not be impeded by the addition of the removable bollards on the east side of the special exception site. Tr. 8/2/13, 101-102. He admitted on cross-examination that during the truck turning movements to access the Costco Warehouse docks, they will temporarily occupy both directions of that drive aisle; however, he noted that this is a very typical movement for this type of retail facility, and he expected truck drivers to be able to execute these maneuvers. Tr. 8/2/13, 180-182, 192. No contradictory expert evidence was presented by the Opposition.

Based on the unrebutted expert evidence, the Hearing Examiner finds that both the gas delivery trucks and the Costco Warehouse delivery trucks can safely enter and exit their designated areas; however, the tightness of the access to the Costco Warehouse docks is one additional element considered by the Hearing Examiner in evaluating the compatibility of the proposed gas station at this location with its surroundings.

C. Adequacy of Public Facilities

For a special exception to be granted, Zoning Ordinance §59-G-1.21(a)(9) requires that a determination be made that the proposed use "[w]ill be served by adequate public services and facilities [*i.e.*, the "APF" determination], including schools, police and fire protection, water, sanitary sewer, public roads, storm drainage, and other public facilities." The Code also specifies which public entity is to make that APF determination. The Hearing Examiner and the Board of

Appeals are empowered to make that determination only "[i]f the special exception . . . does not require approval of a new preliminary plan of subdivision; and . . . the determination of adequate public facilities for the site is not currently valid for an impact that is the same as or greater than the special exception's impact . . ." [Emphasis added.] Zoning Ordinance, Section 59-G-1.21 (a)(9)(B). Technical Staff indicated in its report that the determination of adequate public facilities for the site is currently valid for the whole Wheaton Plaza and that approval is sufficient to cover the impacts on public facilities anticipated from this proposed gas station. As stated by Technical Staff (Exhibit 70, p. 17):

> Staff Response: Staff evaluated the impact of the proposed gas station on public facilities as part of the special exception review because no Preliminary Plan review is needed for the proposed use. On November 18, 1999, the Planning Board approved an Adequate Public Facilities test for 579,625 additional square feet for a total of 1,595,269 square feet of retail space at the Mall. The APF was documented in the Local Area Transportation Review Agreement (LATR Agreement) executed July 18, 2001. Since then, approximately 212,032 square feet of retail space, equating to 793 peak-hour trips remain unbuilt. The proposed gas station generates 138 new peak hour trips, which is within the existing trip credit approved in 1999.
> . . .

Although an APF determination was not required, questions relating to the adequacy of public facilities were reviewed both by the Petitioner (Exhibit 11) and by the transportation planners at Technical Staff (Exhibit 70, Attachment 7). Staff determined that:

> The proposed gas station application has satisfied the LATR and TPAR tests and would have no adverse impacts on area roadways, nearby pedestrian facilities, or the Mall's ring road, subject to the following conditions:
> 1. The proposed gas station must be limited to 16 fueling positions.
> 2. The Applicant must have at least one employee directing traffic if the queuing vehicles start to back up onto the entrance from the ring road into the queuing area.
> 3. The Applicant must work with the Mall to ensure that adequate traffic control measures are in place along the ring road and at the site entrance such as directional arrows and signage.

Technical Staff's conclusion that there would be "no adverse impacts on area roadways, nearby pedestrian facilities, or the Mall's ring road," was hotly contested by the Opposition at the hearing, as will be discussed later in this report. Suffice it to say, at this point, that significant contrary evidence was presented at the hearing, and cross-examination of Petitioner's traffic expert,

Wes Guckert, revealed that some of Petitioner's evidence relating to traffic matters contained errors. Nevertheless, the record clearly establishes that an additional APF determination is not required at this time. In that connection, it should also be noted that the Water Resources Section of the Department of Permitting Services accepted Petitioner's proposed stormwater management concept plan (Exhibit 103) on December 11, 2012 (Exhibit 70, Attachment 9), and Technical Staff found that "[t]he Site will be adequately served by water, sanitary sewer and police and fire protection, and the proposed use will have no impact on the school system." Exhibit 70, p. 18.

The determination that neither the Board of Appeals nor the Hearing Examiner is empowered to address the question of adequate public facilities does not mean that those bodies cannot evaluate traffic impacts in this case. The Zoning Ordinance requires the Hearing Examiner and the Board to consider traffic hazard and nuisance issues, as specified in Zoning Ordinance §59-G-2.06(a)(2)), as well as the possible impact of station-generated traffic on compatibility with the general neighborhood, as referenced in Zoning Ordinance §§59-G-1.23(a)(4) and (5) and §59-G-2.06(a)(3). The adequate public facility tests do not necessarily determine compatibility, hazard and nuisance issues within the Mall, nor the proposed station's effect on the general neighborhood just outside the Mall. Those issues will be addressed in Part III.C. of this report.

D. Community Response

There has been an enormous community response to the subject proposal, both for and against allowing the auto filling station sought by Petitioner. As mentioned in Part I of this report, approximately 50 community members asked to be parties of record in this case. *See, e.g.,* Exhibits 27, 36, 45, 50, 55, 61 and 65. Many letters of support for this application have been received (*e.g.*, Exhibits 38 – 42, 47, 74, 75, 84,[21] 183,[22] 184,[23] 185[24] and 186[25]) and many letters in opposition

[21] Exhibit 84 consists of 184 form letters in support of the petition.
[22] Exhibit 183 is a compact disc imaging 5,053 form postcards received by Costco in support of the proposal, and samples of the postcards are attached as Exhibit 183(b).

(*e.g.*, Exhibits 72, 76, 78, 80, 82, 94, 97, 113, 130, 145 and 164). Among the Opposition are a number of organizations – the Kensington Heights Civic Association (KHCA), the "Stop Costco Gas Coalition" (SCGC), Kensington View Civic Association (KVCA), the Audubon Naturalist Society, the Montgomery County Group of the Sierra Club and the Coalition for Smarter Growth (CSG). Fourteen individuals from the community testified in support of the petition. Seventeen witnesses testified on behalf of groups opposing the petition in the Opposition's case-in-chief, and in addition, fourteen individuals from the community testified in opposition to the petition. One individual testified about the case without taking a position for or against the petition.

Generally, the community evidence in support of the petition emphasized the need to have easy access to the affordable gasoline available at a Costco gas station and the opinion of those supporters that the station would be compatible with the neighborhood and would not adversely affect the community. *See* the Summary of the Costco Hearing, pp. 83-89, attached hereto as Appendix I, and the exhibits listed above as supporting the petition.

Not surprisingly, the community evidence in opposition emphasized potentially adverse health effects from the proposed gas station, questions about whether there is a neighborhood need for the station, alleged inconsistency with the Wheaton CBD Sector Plan, and concerns about traffic impacts, parking problems, pedestrian safety, environmental issues and possible effects on nearby property values. *See* the Summary of the Costco Hearing, Appendix I, pp. 89-169. The exhibits in support of the Opposition's case are too numerous to list, but the ones that were most influential in leading to the Hearing Examiner's recommendation will be discussed in Part III of this report.

Given the volume of the community response to this petition, the Hearing Examiner must point out that the decision on a zoning application "is not a plebiscite," and the Hearing Examiner

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[23] Exhibit 184 is a support letter signed by 24 Wheaton small business owners.
[24] Exhibit 185 consists of 32 letters from individuals supporting the proposal.
[25] Exhibit 186 consists of 11 form letters in support of the petition.

must evaluate this case based on the evidence. *Rockville Fuel v. Board of Appeals*, 257 Md. 183, 192, 262 A.2d 499, 504 (1970). It is not the Hearing Examiner's function to determine which position is more popular, but rather to assess the Petitioner's proposal against the specific criteria established by the Zoning Ordinance. With that in mind, the next part of this report, Part III, will analyze the evidence bearing on the major issues in this case.

III. MAJOR ISSUES

A. The Sector Plan

A prerequisite to granting a special exception is the requirement of Zoning Ordinance §59-G-1.21(a)(3) that the proposed use,

> *Will be consistent with the general plan for the physical development of the District, including any master plan adopted by the Commission. Any decision to grant or deny a special exception must be consistent with any recommendation in a master plan regarding the appropriateness of a special exception at a particular location. If the Planning Board or the Board's technical staff in its report on a special exception concludes that granting a particular special exception at a particular location would be inconsistent with the land use objectives of the applicable master plan, a decision to grant the special exception must include specific findings as to master plan consistency.* [Emphasis added.]

The special exception site is subject to the Wheaton CBD and Vicinity Sector Plan (the "Sector Plan"), which was approved and adopted in January 2012. Exhibits 9 and 150. This part of the report is divided into five parts to better reflect the diverging views not only of the parties, but within the Planning Board and between the Planning Board and its own Technical Staff:

1. Technical Staff's View of the Proposal's Consistency with the Sector Plan
2. The Planning Board's View of the Proposal's Consistency with the Sector Plan
3. Petitioner's View of the Proposal's Consistency with the Sector Plan
4. The Opposition's View of the Proposal's Consistency with the Sector Plan
5. The Hearing Examiner's Findings as to the Proposal's Consistency with the Sector Plan

1. Technical Staff's View of the Proposal's Consistency with the Sector Plan

Technical Staff's analysis regarding the Sector Plan is contained in pages 7-8 and 26 of its report (Exhibit 70). Staff "concludes that the proposed gas station is generally consistent with the 2012 *Wheaton CBD and Vicinity Sector Plan.*" Exhibit 70, p. 8. It's rationale is set forth below:

The Site is within the 2012 *Wheaton CBD and Vicinity Sector Plan* (Sector Plan), which describes Wheaton as a "specialized urban center, serving local and regional retail demand" (page 9), and the Mall is identified as "eastern County's regional shopping mall" (page 48). The Sector Plan does not provide any specific recommendations for the proposed use or general guidance for special exception uses (see Attachment 6).

The Sector Plan's focus is to promote high quality redevelopment within the business core by encouraging mixed-use redevelopment while retaining most of the existing small businesses. The Sector Plan recommended rezoning the Mall's frontage along Veirs Mill Road from C-2 Zone to the CR Zone, but it maintained the C-2 Zone on the rest of the Mall property since the current set of CR Zones was not considered suitable for existing regional malls (pages 48-49).

The Sector Plan specifically limits maximum building height to 45 feet, with a depth of 200 feet along the south side of the Mall property to make sure new construction along the Mall's ring road does not overwhelm the adjoining residential areas in the Kensington Heights community. The height and location of the proposed canopy would be within the maximum building heights described in the Sector Plan (see Attachment 6).

The Sector Plan specifically recommends retaining the "existing green buffer along the property's southern edge" to "reduce the impact of new development on adjacent residential areas and the nearby school" (page 48). The proposed project includes a green wall and multiple plantings, which will help mitigate possible visible impacts from the proposed use on adjacent residential properties. The Applicant is reinforcing the green buffer with native plantings.

Staff does not believe that the goals of walkability, connectivity, and other smart growth principles necessarily lead to a general prohibition against uses such as the proposed gas station within the Mall property. For example, on page 33, the Sector Plan states that its zoning recommendations are based on five goals.

- Encourage Class A office development at the Metro station.
- Allow for retail in the center of the CBD and along the three main roads.
- Increase housing mixed with some retail surrounding the center of the CBD.
- Place highest densities and building heights in the center of the CBD.
- Protect existing residential neighborhoods.

Staff believes that language such as "protect existing residential neighborhoods" in the fifth goal above should be interpreted in the context of the zoning recommendations in the Sector Plan. These five goals were the guiding principles for reviewing and developing new zoning recommendations for the Sector Plan. The application of CR and other zones recommended in the Sector Plan followed these principals. More specifically, the fifth goal above was the basis for Sector Plan's recommendation to retain existing zoning for the single-family residential neighborhoods surrounding the core. It was not meant as a general recommendation against uses like the proposed gas station in the Sector Plan area.

The Sector Plan has a brief section on Health (page 77), but it does not contain any general or specific language that can be interpreted to determine the consistency, or lack thereof, of the proposed use with the Sector Plan on the basis of health issues.

> The Health section focuses on opportunities for active and passive recreation, integration of natural and built environment, promotion of walking and cycling on safe streets, provision of a variety of choices for fresh, local food, convenient access to health care, "Safe Routes to School" program, safe access to local amenities, community gardens and urban farms, green roofs and walls, innovative stormwater management, provision of community clinics and expanded local health care facilities, and adequate bicycling and trail connections to local destinations. Staff does not believe the typical health impacts associated with a use allowed by the recommend zone are a basis for non-compliance with a sector plan's general goals absent clear proof that the use will have significant adverse health impacts on the surrounding residential areas.
>
> Based on the above analysis, staff concludes that the proposed gas station is generally consistent with the 2012 *Wheaton CBD and Vicinity Sector Plan.* [Emphasis added.]

On page 26 of its report, Technical Staff directly addresses the Opposition's argument "that the proposed use does not conform to the letter or spirit of the 2012 *Wheaton CBD & Vicinity Sector Plan*, is the opposite of smart growth and transit-oriented development, and violates the Sector Plan's vision of Wheaton's future," stating:

> Staff believes that the goals of walkability, connectivity, and other smart growth principles do not necessarily lead to a general prohibition against uses such as the proposed gas station within the Mall property . . .. Staff believes that the proposed use is not in violation of the Sector Plan's vision. It is not uncommon for CBDs to include gas stations even though other means of travel are encouraged. [Emphasis added.]

2. The Planning Board's View of the Proposal's Consistency with the Sector Plan

The majority of the Planning Board disagreed with its Technical Staff on the Sector Plan issue. By letter to the Hearing Examiner dated March 27, 2013, the Planning Board summarized its meeting of February 28, 2013, and stated the rationale for the majority's recommendation of denial and the minority's disagreement (Exhibit 89):

> . . . the Board recommended (3-2) that Special Exception Petition S-2863 be denied on the grounds that the proposed special exception use did not meet the vision of the 2012 *Wheaton CBD and Vicinity Sector Plan*, and that the proposed use did not meet the findings of §59-G-2.06(a)(3), which states that "the use at the proposed location will not adversely affect nor retard the logical development of the general neighborhood or of the industrial or commercial zone in which the station is proposed, considering service required, population, character, density and number of similar uses."

* * *

The Planning Board's discussion focused on three items: conformance with the master plan; conformance with §59-G-2.06(a)(3) (no adverse effect on development in the area); and whether the Applicant met the finding under §59-G-1.21(a)(8) (no adverse health impacts). Chair Carrier, Vice Chair Wells-Harley, and Commissioner Anderson found that although the current Wheaton Mall with 40-year leases is auto-centric, the overall vision of the Wheaton Sector Plan is to move Wheaton towards transit-oriented development and that any redevelopment of the mall should not perpetuate its current suburban-style land use pattern dominated by automobiles. Specifically, they noted that at the time of the most recent Sector Plan update, the main part of the mall was not rezoned to CR because that area would have non-conforming use problems for the existing mall, which cannot meet all the development standards of the CR Zone. The Sector Plan asserted that the "main portion of the property could be rezoned for mixed-use development as part of the comprehensive rewrite of the County's Zoning Ordinance underway at the time of the Plan adoption" (page 53).

The Board cited another Sector Plan recommendation on page 53, which recommends future expansion of the green buffer along the ring road. Members of the majority believe that the Plan's vision is based on Metrorail, future bus rapid transit and other transit options. Approving such an auto-centric use at this location would prevent progress towards that end, "retard the logical development of the general neighborhood," and be contrary to the Sector Plan's overall goal for Wheaton to become transit-oriented.

Commissioners Presley and Dreyfuss agreed with staff's interpretation that the Sector Plan recognizes the Mall as a regional use that is a part of Wheaton (pages 9 and 48). They believe that the proposed use is compatible with the current uses in the Mall and that the denial of the proposed use based on the vision of a transit-oriented Wheaton is not supported by the language of the Sector Plan. [Emphasis added.]

3. Petitioner's View of the Proposal's Consistency with the Sector Plan

In its Closing Brief (Exhibit 616(a), pp. 16-32), Petitioner critiqued the Planning Board's determination on the Sector Plan issue and stated its own argument that its proposal is consistent with the Sector Plan. Petitioner noted that large volume gas stations are expressly permitted in the C-2 zone, "a zone designed to support auto-centric uses." Exhibit 616(a), p. 16. Petitioner stated that the gas station is consistent with the Sector Plan's specific recommendations for the Mall parcel; it promotes several of the Sector Plan's more general goals; and would have no effect on its remaining general goals. Petitioner argued that because the Mall is already dominated by

automobiles, the proposed gas station represents only an incremental increase in activity and will not change the auto-centric character of the Mall parcel. In addition, Costco will take several steps to preserve and enhance existing environmental features, pedestrian safety and walkability, providing real benefits to the neighborhood. The gas station is physically separated from the residential properties as well as any CR zoned properties and will not interfere with the future development of these areas.

Petitioner challenged the Planning Board's conclusion that even though the Mall is currently an "auto-centric" use, the Mall's redevelopment should not perpetuate a land use pattern dominated by automobiles. Petitioner argued that the Planning Board glossed over the significance of the C-2 Zone and incorrectly relied on an assumption that rezoning the whole area CR would have created non-conforming use problems for the existing Mall. Given the current auto-centric uses on the Mall, and Westfield's right to continue such uses, the Planning Board 's conclusion that any redevelopment of the Mall should not allow auto-centric uses is inconsistent with the Sector Plan. The Sector Plan recommended this area for a zone that specifically permits auto-centric uses. Moreover, the Planning Board failed to explain why the Mall cannot co-exist with transit oriented development ("TOD"). Indeed, there is significant mixed use development already surrounding the Mall and an abundance of available public transportation options.

Petitioner also relies on the decision in *Trail v. Terrapin Run, LLC*, 403 Md. 523, 534 (Md. 2008) for the proposition that the requirement for consistency with a Master Plan connotes only a "*general compatibility with the purpose and intent of the plan as opposed to a strict adherence of the plan*."[26] In other words, Master Plans represent only a basic scheme generally outlining planning and zoning objective and serve as a guide rather than a strait jacket.

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[26] Petitioner fails to mention that the State of Maryland passed the "Smart and Sustainable Growth Act of 2009" Md. Ann. Code Art. 66B, § 1.02 (2009) **---** in an effort to overturn the *Terrapin Run* case. That issue will be discussed Part III.A.5, below.

Petitioner notes that Section 59-G-1.21(a)(3) of the Zoning Ordinance requires a finding that the proposed special exception be *consistent with* the recommendations of the Sector Plan. "Thus, the proposed Special Exception, need only *generally* comply, or be in harmony, with the purpose and intent of the Sector Plan." Exhibit 616(a), p. 20. Petitioner argues that Costco's proposed gas station will be consistent with the recommendations of the Sector Plan because the Sector Plan does not specify any desired uses for the Mall parcel; the gas station will not exceed the 45-foot height limit recommended in the Sector Plan; and the proposed use will more than carry out the Sector Plan's goal of maintaining the green buffer zone between the Mall and the residential properties by planting more than 100 new trees, in addition to preserving the exiting green buffer. Tr. 8/2/13, 100-101. In addition, Petitioner argues that locating a gas station in the C-2 Zone is permitted and appropriate; that the Council rejected a 2011 recommendation of the County Executive to rezone the Mall parcel in its entirety to a mixed use zone (Exhibit 464(a)), deciding instead that the Sector Plan would recommend keeping the majority of the Mall parcel (including the planned gas station site) in the C-2 zone; and that the County-wide District Map Amendment (DMA G-956), effective October 30, 2014, rezones the site to GR, which also allows gas stations.

While noting that a special exception use need not be consistent with every Sector Plan recommendation, Petitioner argues that Costco's plans are consistent with many of the more general recommendations of the Sector Plan. It will improve pedestrian connections and promote environmental goals by the planting of native plants, increasing the tree canopy and using environmental site design for stormwater management. Moreover, the gas station will not interfere with the remaining recommendations in the Sector Plan, such as transit oriented development (TOD). Petitioner's traffic expert, Wes Guckert, testified that the additional new trips to be generated by the gas station will have at most an imperceptible effect on traffic volumes within the CBD, where the vast majority of the TOD is planned. Tr. 3/11/14, 139.

Petitioner's argument vis-à-vis the Sector Plan was buttressed by the testimony of its land use expert, Stephen Gang,[27] who opined that the filling station would be in complete conformance with the applicable Sector Plan's specific goals for the mall district and the general goals of the Sector Plan. Moreover, the filling station would not undermine the specific goals of the other districts within the Sector Plan or adversely impact the opportunity for mixed-use developments within the Sector Plan area. He noted that the Sector Plan has specific recommendations for the Westfield District, and also has recommendations for the other districts, as well as general overall goals for the Sector Plan area. In his opinion, specific recommendations outweigh the general in interpreting a Sector Plan, for purposes of land use planning. The proposed use would meet the Sector Plan's specific recommendations for the Westfield parcel, and would still be in conformance with all the general goals of the Sector Plan, but every parcel cannot meet every general goal in a Plan covering 485 acres. Mr. Gang feels that the Planning Board, in finding that the proposal was not supported by the Sector Plan, failed to look at the specific recommendations for this site. This proposal does not undermine any of the objectives regarding mixed-use development at the locations where it is proposed within the Sector Plan. Tr. 6/4/13, 93-104.

Mr. Gang pointed out that the Sector Plan area is broken down into five unique Districts (Exhibit 180, pp. 42-43), and the Mall is situated in its own "Westfield District," which has its own specific recommendations on pages 52-55 of the Sector Plan. In his opinion, the proposed use complies with all those recommendations. Tr. 6/4/13, 107-113. Mr. Gang also discussed general goals of the Sector Plan and opined that the proposal was consistent with them. Tr. 6/4/13, 113-123. He noted that, for the Westfield District and specifically the location of this filling station, the C-2 Zone is retained and there are no recommendations for mixed use within that area. Tr. 6/4/13, 123-125.

[27] Mr. Gang's testimony is summarized in Appendix I, pp. 38-45. His resume is contained in Exhibit 17(b).

In Mr. Gang's opinion, the Planning Board overstated the transit-oriented development concept in terms of its application in the Sector Plan; his interpretation of the Sector Plan is that TOD is intended for the CR zone area and the CBD Zone, but not for the C-2 zoned area, which the Sector Plan recognizes as a regional mall to attract cars, and it is not transit-oriented. If in fact the gasoline station were established as planned, in Mr. Gang's opinion, it would have no impact on transit ridership, or on the decisions by employees or residents within the sector plan area as to whether they choose to drive or whether they choose to take transit because the filling station is basically dependent upon outside users from the area. The establishment of the gas station won't impede the Sector Plan's vision of creating TOD areas within the Sector Plan; nor will the proposed pedestrian path impede mobility in the sector. Tr. 6/4/13, 125-134.

Mr. Gang opined that the proposed use is also consistent with the environmental goals of the Sector Plan (pages 73-76), and the specific land use recommendations within the Westfield District of the Sector Plan. The mixed-use component of the Sector Plan is recommended for other Districts (*i.e.*, in the CR zone areas). Tr. 6/4/13, 134-140.

4. The Opposition's View of the Proposal's Consistency with the Sector Plan

It will come as no surprise that the Opposition disagreed strongly with Petitioner's argument regarding the Sector Plan, although the Opposition supplied no expert testimony on the subject. Instead, testimony was offered by the Coalition for Smarter Growth, by the Montgomery County Sierra Club, and by one of those "learned laypersons" referenced earlier in this report, Donna Savage, past president of KHCA.[28] Ms. Savage has lived in Kensington Heights since 1992 and has served in a number of positions with KHCA, and as a member of the Wheaton Urban District Advisory Committee for six years, from 2001 to 2007.

Ms. Savage testified that, in her opinion, the proposed gas station would deeply and

[28] Ms. Savage's testimony is summarized in Appendix I, pp. 153-156.

permanently undercut the plans and expectations for redevelopment in the area. She stated that the primary goal of the Sector Plan is to capitalize on Wheaton's significant transit infrastructure, which is repeatedly touted throughout this plan as a major asset for Wheaton. The Sector Plan is designed to make Wheaton a more walkable community, to increase transit use, and to decrease reliance on automobiles. She pointed out that Westfield Wheaton, including the proposed gas station location, is within the Wheaton Urban District and also within Wheaton's enterprise zone. Page 74 of the Sector Plan talks about the desire to reduce energy consumption, vehicle miles, and carbon emissions. Tr. 2/24/14, 125-154. Nothing in the Sector Plan suggests that it is proposing or encouraging auto-related development, *i.e.*, a gas station or an auto dealership or a service station. Tr. 2/24/14, 164-178.

In Ms. Savage's opinion, the proposed gas station would also make it more difficult to walk and bike in and around the mall. It would lengthen the safe path to the Metro and various stores, even if a sidewalk is added along the southern ring road (Exhibit 460(i)). Ms. Savage also believes that the Petitioner's proposed sidewalk will be provided whether or not there is a gas station. Tr. 2/24/14, 179-209.

Ms. Savage introduced Exhibit 461(b), describing transit-oriented development (TOD) as a dense, mixed-use, deliberately-planned development within a half mile of transit stations that is designed to increase transit ridership. TOD supports the use of transportation alternatives by including transit accessibility by bicycles and pedestrians. Since the proposed gas station would be about a third of a mile from Metro and the bus station, and TOD is a goal of the Sector Plan, Ms. Savage feels that the proposed gas station is not transit-oriented and would therefore violate that goal and what the County is trying to do with transit-oriented development. Tr. 2/24/14, 235-247.

When asked by the Hearing Examiner whether every development on the Mall or anywhere else had to meet every goal of a Sector Plan, Ms. Savage answered, "you certainly don't have to

meet every single goal . . . [but] you probably should not be developing in something that is the polar opposite of what the development goals are." Tr. 2/24/14, 256-257.

Witnesses representing the Coalition for Smarter Growth and the Montgomery County Sierra Club made similar observations. Ms. Cheryl Cort, testifying on behalf of the Coalition for Smarter Growth, stated (Tr. 11/21/13, 21-22):

> With such a large-scale gas station, additional vehicle trips will be attracted to the transit district from outside the local area simply for the purpose of refueling vehicles with cheaper gasoline. This regional automobile service use contradicts the sector plan's and our goals to reduce vehicle miles traveled. Introduction of a new large-scale gas station would directly oppose the plan's guidance to provide better pedestrian connectivity and support safe, secure, and appealing street-level activity.
>
> . . . The sector plan accommodates the existing automobile-oriented regional mall surrounded by surface parking but seeks to manage the negative impacts to pedestrians by proposing pedestrian access improvements, pedestrian-oriented street design changes, and encouragement of redevelopment to more pedestrian-friendly designs. Preventing new uses that would further degrade the transit district is also an important part of progressing towards a more pedestrian-friendly Wheaton Sector Plan area. The large-scale gas station would degrade the pedestrian environment by attracting additional automobile trips to the area, force more automobile-oriented designs in the public rights-of-way to accommodate automobile-oriented uses.

Mr. Ethan Goffman, testifying on behalf of the Montgomery County Sierra Club, stated (Tr. 10/24/13, 80-81):

> In any event, the proposed Costco gas station will mean more cars and traffic in the mall and surrounding areas, making walking and biking more difficult. The station will also compete with transit and undermine efforts to move Montgomery County to a new paradigm. With young people increasingly rejecting automobile use and a rising number of seniors, we need to create pleasant communities that encourage mobility without a car. We need buildings and infrastructure easily accessible by transit, with walking and biking unhindered by automobile congestion. This will increase the economic vitality and quality of life in the county.
>
> . . . Wheaton's location at the junction of a major Metrorail and bus station makes it especially important for transit-oriented development. Plans for a rapid bus transit network encompassing Georgia Avenue and Veirs Mill Road further enhance Wheaton's position as a major smart growth node that would only be undermined by adding an enormous gas station.
>
> . . . Indeed, this station will act as a magnet, pulling cars away from other gas stations near and far, and increasing vehicle miles traveled, exactly the opposite of the county's goals.

The closing briefs filed by the Opposition also reflected these concerns. KHCA's closing brief (Exhibit 624) observes:

> The station is inconsistent with the general plan for development of the area because it places the largest gas station in the County, which draws auto traffic from a huge geographic area, within a third-mile of a major transit hub and in the middle of a smart growth, transit-oriented development area, contrary to the objectives of the Sector Plan. [Exhibit 624, p. vii.]

> Encouraging transit-oriented development and reducing energy use are two primary [Sector Plan] goals; the proposed gas station is inconsistent with both. . . . The proposed station would result in more vehicles and more driving and would degrade the transit district; it does nothing to encourage Costco to support [Sector Plan] goals or to support and promote driving alternatives. . . . Idling cars at the proposed station are a non-inherent operational characteristic of this station that would uniquely contravene [Sector Plan's] goal of reducing energy consumption and Wheaton's carbon footprint. [(Exhibit 624, pp. 49-51.]

Similarly, SCGC wrote in its closing brief (Exhibit 621, p. 12):

> The gas station will encourage more cars to come to the Mall, even if the patron coming to the Mall was primarily planning to shop for some other product and could have used Metro (or buses). Thus the addition of the proposed gas station will cause an incremental increase in autocentricity that is neither necessary nor in conformity with the Section Plan goal of achieving a more acceptable balance between use of automobiles and use of mass transit.

5. The Hearing Examiner's Findings as to the Proposal's Consistency with the Sector Plan

As demonstrated, opinion on the issue of consistency with the Sector Plan is quite divided. The Technical Staff, the Planning Board minority and Petitioner's land use expert argue that the proposed use would be consistent with the Sector Plan, but the Planning Board majority and the Opposition argue that it would, at the very least, undermine general goals of the Sector Plan, especially the central goals of encouraging mixed use TOD and reducing reliance on automobiles.

In the "nutshell," Petitioner's view is that because the Sector Plan specifically approved the C-2 Zone for this commercial mall area, and the proposed use is perfectly consistent with that Zone, the use is consistent with the Sector Plan, even if it does not necessarily promote every goal of the whole plan. The Opposition's argument, and perhaps the Planning Board majority's concept, of the

Sector Plan is that the goals of a transit-oriented Sector Plan apply across the board to the whole of the Plan and are central to the "vision" of that Plan, so no use should be allowed that is inconsistent with TOD, even in the C-2 Zone.

Before addressing the substance of these views, a few words should be said about the legal definition of the term "consistent with the . . . Master Plan," as it is used in Zoning Ordinance §59-G.1.21(a)(3). As mentioned above, Petitioner relies on the case of *Trail v. Terrapin Run*, 403 Md. 523, 548, 569 and 573-574; 943 A.2d 1192 (2008), for the proposition that legislative words such as "conform to" a master plan and "consistent with" a master plan were intended to convey the concept of being generally "in harmony with" the master plan, unless the legislation specified otherwise. Petitioner does not mention that subsequently, the Maryland legislature enacted the *Smart, Green, and Growing - Smart and Sustainable Growth Act of 2009*, effective July 1, 2009. That Act amended Md. Ann. Code Art. 66B, § 1.02,[29] in an express attempt to legislatively overturn the *Terrapin Run* holding by specifically defining the term "consistent with," as used in land use legislation. Essentially, the Act defines the term "consistent with" as a requirement that proposed legislation or regulation regarding land use further (or at least not impede) master plan policies and goals. Thus, if one were to apply this definition of consistency, it would strengthen the Opposition's argument that the proposed gas station does not further the Sector Plan's TOD goals and may actually impede them.

On the other hand, it appears from the wording of the Act that the state legislature did not intend to apply its definition of "consistency" to cover actions on individual special exception applications, because it limited the definition of "action" to "the adoption of a local law or regulation" concerning special exceptions and specified other matters, not to the review of the special exception application itself. *Maryland Code, Land Use Article, § 1-301.* Moreover, the

[29] The law has been re-codified into *Maryland Code, Land Use Article, §§ 1-101 and 1-301 et seq.*

Act's definition of "consistency" does not apply to "land uses, densities or intensities" in areas of the state, such as Wheaton, classified as Priority Funding Areas (PFAs). *Maryland Code, Land Use Article, §1-304,* as compared to *§1-303*.

The Hearing Examiner therefore concludes that the 2009 legislation does not apply to the instant special exception application, and that we should still be guided by the holding in *Terrapin Run*. Moreover, even if the definition of consistency in the *Smart and Sustainable Growth Act of 2009* were applied here, the Hearing Examiner concludes that the Sector Plan policy of encouraging TOD and the use of non-automobile transportation does not negate its express and specific policy of leaving the relevant portion of the Mall in the C-2 Zone and continuing to allow a regional, auto-centric Mall to operate there.

The Planning Board stated in its letter to the Hearing Examiner (Exhibit 89, p. 2) that "the overall vision of the Wheaton Sector Plan is to move Wheaton towards transit-oriented development and that any redevelopment of the mall should not perpetuate its current suburban-style land use pattern dominated by automobiles." The Hearing Examiner finds that it is not the proposed "redevelopment" (*i.e.* the single use of a pad site on the Mall as a gas station) that may "perpetuate" the Mall's current land use pattern dominated by automobiles, but rather the Sector Plan adopted by the Planning Board, which endorses the continuation of the C-2 Zone.

The Planning Board's opinion is entitled to considerable weight in interpreting the Sector Plan, but it must be considered along with all the other evidence submitted during the hearing. Unlike a court reviewing the record of an administrative proceeding to determine whether there is substantial evidence in the record to support the agency's findings and conclusions, the Hearing Examiner must make his own findings based on the entire record. Zoning Ordinance §59-A-4.61. Moreover, the Planning Board's opinion in this case was based on a split vote (3 to 2). It appears to the Hearing Examiner that the majority's interpretation was more aspirational than interpretive of

the existing language of the Sector Plan, which specifically allowed for the continued existence of an auto-centric mall.

It is illogical (and ironically inconsistent) for the Planning Board to recommend continued existence of a regional, autocentric mall, as well as the C-2 Zone, in its Sector Plan and to simultaneously suggest that a use aimed at serving the expected vehicles in that C-2 Zone is contrary to the Sector Plan policy. The majority of the Planning Board may be uncomfortable with that portion of the Sector Plan, but that is what the Planning Board and the Council adopted in 2012. While the Planning Board majority may blanche at the thought of a use that will facilitate cars utilizing the Mall, the Sector Plan that the Board recently adopted clearly approves that use in this part of the Westfield District. The Hearing Examiner agrees with Mr. Gang's assertion (and Ms. Savage's admission) that not every use allowed in a Master Plan area will promote every goal of that Master Plan. While Ms. Savage is correct that the use should not be approved if it would defeat the central purpose of a Master Plan, the Hearing Examiner finds that allowing the proposed gas station in the C-2 Zone would not have that dramatic an effect on TOD, given the ongoing development of TOD in the CR Zone area of the Sector.

As stated by Technical Staff (Exhibit 70, p. 26):

> Staff believes that the goals of walkability, connectivity, and other smart growth principles do not necessarily lead to a general prohibition against uses such as the proposed gas station within the Mall property . . .. Staff believes that the proposed use is not in violation of the Sector Plan's vision. It is not uncommon for CBDs to include gas stations even though other means of travel are encouraged.

In sum, the Hearing Examiner finds that while mixed use TOD and reducing reliance on automobiles may be laudable goals, and they are certainly goals of the Sector Plan, that Plan, as adopted, does not call for them in lieu of the auto-centric, regional mall and its necessarily auto-centric uses, but rather in addition to those existing and planned uses.

Despite the Hearing Examiner's disagreement with the majority of the Planning Board on the question of consistency with the Sector Plan, he finds that the Planning Board's conclusions in

this regard should be considered as part of the evaluation of compatibility with present and planned development in the neighborhood. The sense of the Planning Board's letter is that the proposed gas station does not fit within the Board's concept of development in the area covered by the Sector Plan. The Hearing Examiner finds that issues of compatibility arise in this case not because the proposal here is for a gas station, but because it is for this particular type of gas station (a very large one with lines of idling cars) located in this particular neighborhood (*i.e.*, 118 feet from single family residences, 375 feet from a neighborhood pool and 874 feet from a school with severely disabled children.) It is these particulars which render the proposal incompatible, not the mere fact that it calls for a gas station in a mall parking lot, and it is these particular facts which render the Planning Board's conclusion about Sector Plan non-compliance relevant to the issue of compatibility. The compatibility issue will be discussed in Part III.C., below.

B. Health Impacts, Standards, Sources and Causes

Zoning Ordinance §59-G-1.21(a)(8) provides that:

> *A special exception may be granted* [assuming other criteria are met] *when the Board or the Hearing Examiner finds from a preponderance of the evidence of record that the proposed use: . . . (8) Will not adversely affect the health, safety, security, morals, or general welfare of residents, visitors, or workers in the area at the subject site, irrespective of any adverse effects the use might have if established elsewhere in the zone.* [Emphasis added.]

The "health issue" was perhaps the knottiest of the many issues raised in this case, and it certainly occupied the greatest portion of the hearing. The fundamental question is whether the Petitioner has demonstrated, by a preponderance of the evidence, that the proposed use will not adversely affect the health of residents, visitors,[30] or workers in the area at the subject site. In order to facilitate understanding of the various aspects of the "health issue," this section of the report is divided into seven discrete parts:

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[30] The Hearing Examiner interprets the term "visitors" to include, *inter alia,* people visiting or passing through the Mall area, people shopping at the Mall, people using the nearby Kenmont swimming pool, people getting gas at the proposed gas station and people attending the Stephen Knolls School.

1. Which pollutants may create significant health risks in this case?
2. What standard should be applied in assessing whether Petitioner has met its burden?
3. How is the standard affected by the Council's adoption of ZTA 12-07?
4. What are the sources of pollution increases that may affect health?
5. What methodologies are acceptable in determining the potential adverse health effects?
6. The Pollutant Levels of NO_2, $PM_{2.5}$, CO and VOCs.
7. Assessing all the evidence, has Petitioner met its burden on the health issue?

The evidence addressing the health issue includes an extensive analysis by Technical Staff (Exhibit 70, pp. 11-12, 27-29 and its Appendix 8, pp. 1-27); a few sentences in the Planning Board letter (Exhibit 89); the memorandum from the Council's legislative attorney, Jeff Zyontz, regarding ZTA 12-07 (Exhibit 290); the reports and follow-up reports filed by Petitioner's air quality and health experts, as listed in the footnote below[31]; the reports and follow-up reports filed by the Opposition's air quality and health experts, as listed in the footnote below;[32] the scientific studies referenced by the experts and lay witnesses on both sides, which will be referred to in this report where relevant; the federal Environmental Protection Agency's (EPA's) National Ambient Air Quality Standards (NAAQS) (Exhibit 277); the EPA's Final Rule [Establishing] Primary National Ambient Air Quality Standards for Nitrogen Dioxide (NO_2), 40 CFR Parts 50 and 58, as reported in the Federal Register of February 9, 2010, Part III, pp. 6479-6494 (Exhibit 424(a) & (b)); the EPA's

[31] Exhibit 11(a) & (b), the traffic analysis of Petitioner's traffic expert, Wes Guckert;
Exhibit 15(a) Petitioner's November 2012 environmental report by air quality expert, David Sullivan. Mr. Sullivan's initial report was supplemented a number of times:
Exhibit 56(a), Mr. Sullivan's' supplemental report of January 16, 2013 (replacing a 12/18/12 report)
Exhibits 125(a), (b) & (c), Mr. Sullivan's additional analysis
Exhibit 174, Mr. Sullivan's modified PowerPoint presentation
Exhibits 189(a) – (h), supplemental materials for Mr. Sullivan's testimony
Exhibit 255(a), Mr. Sullivan's supplemental report of August 2013 to correct a major mathematical error in his earlier reports
Exhibit 466, Mr. Sullivan's Rebuttal report of February 21, 2014
Exhibit 542, Mr. Sullivan's reply to Dr. Cole's response to Mr. Sullivan's rebuttal report
Exhibit 15(b), Petitioner's health impact analysis by Dr. Kenneth Chase (supplemented in Exhibit 269)

[32] Exhibit 76(i) & 87(f), Pre-hearing Statement by the Opposition's air quality expert, Dr. Henry Cole. Dr. Cole's report was supplemented in a number of exhibits:
Exhibit 262(b) & 310(a), Dr. Cole's affidavit in support of the Opposition's motion for summary disposition.
Exhibit 423(a), Dr. Cole's PowerPoint presentation
Exhibit 531, Dr. Cole's comments in response to Mr. Sullivan's rebuttal report
Exhibits 88(a) & (b) and 96(c), the report of Dr. Patrick Breysse, one of the Opposition's health impact experts
Exhibits 88(d) & (e) and 96(d), the report of Dr. Maria Jison, the Opposition's other health impact expert.

Guidelines on Air Quality Models, 40 CFR Part 51 Appendix W (Exhibit 285); an EPA memorandum clarifying Appendix W Guidance (Exhibit 407); OSHA Regulations regarding ambient air quality for workers (Exhibit 287); the testimony of Petitioner's air quality expert, David Sullivan (summarized in Appendix I, pp. 45-70 and 180-196);[33] the testimony of Petitioner's health expert, Dr. Kenneth Chase (summarized in Appendix I, pp. 78-83);[34] the testimony of the Opposition's air quality expert, Dr. Henry Cole (summarized in Appendix I, pp. 126-134 and 210-213);[35] the testimony of the Opposition's health expert, Dr. Maria Jison (summarized in Appendix I, pp. 141-147);[36] the testimony of the Opposition's second health expert, Dr. Patrick Breysse (summarized in Appendix I, pp. 147-153);[37] a host of written evaluations, comments and submissions by learned lay persons; and the testimony of numerous other witnesses, summarized in Appendix I to this report.

Technical Staff's review led to its conclusion that Petitioner had failed to demonstrate "that the proposed use will not adversely impact the health of the residents, and visitors within the neighborhood as required by §59-G-1.21(c)." Exhibit 70, p. 29. Based on that finding, Technical Staff recommended denial of the application.

The majority of the Planning Board disagreed with its Technical Staff on the health issue. In its letter to the Hearing Examiner dated March 27, 2013, the Planning Board stated its rationale (Exhibit 89):

> The majority of the Planning Board did not agree with the technical staff recommendation of denial, which was based on staff's conclusion that the Applicant did not provide enough evidence for staff to make the finding required by §59-G-1.21(a)(8) that the proposed use will not have an adverse impact on the health of residents and workers in the area.
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> * * *

[33] Tr. 6/17/13, 153-283; Tr. 6/19/13, 15-302; Tr. 7/8/13, 40-154; Tr. 7/30/13, 44-165; Tr. 9/20/13, 8-206; Tr. 5/1/14, 12-174; Tr. 5/8/14, 18-311; Tr. 5/12/14, 8-238.
[34] Tr. 9/16/13, 22-203; Tr. 9/20/13, 206-241.
[35] Tr. 12/5/13, 13-219; Tr. 12/6/13, 5-137; Tr. 5/22/14, 7-186; Tr. 5/29/14, 34-154.
[36] Tr. 1/10/14, 193-260; Tr. 2/25/14, 16-105.
[37] Tr. 2/10/14, 49-349.

> Commissioners Dreyfuss, Presley, and Anderson disagreed with staff's determination that the applicant had not provided enough evidence to demonstrate that there would be no adverse health impacts. In their view, satisfying the National Ambient Air Quality Standards (NAAQS), used by the Maryland Department of Environment and the Environmental Protection Agency for permitting and regulating gas stations, is sufficient to satisfy the findings of the special exception for the proposed gas station

The Planning Board said nothing else regarding the health issue, but it is important to note that it reached its conclusions prior to the revelation, which will be discussed below, that Petitioner's air quality expert, David Sullivan,[38] had made a dramatic calculation error in reporting background levels of one of the pollutants, NO_2, and therefore the figures in his November 2012, December 2012 and January 2013 reports, the only ones available to the Planning Board, significantly understated the levels of that pollutant. In any event, the Planning Board's application of the NAAQS standards to reach its conclusion leads us directly to the first two sub-issues that must be addressed – Which pollutants may create significant health risks in this case?; and What standard should be applied in assessing whether Petitioner has met its burden?

1. Which Pollutants May Create Significant Health Risks in this Case?

A variety of air pollutants were studied in this case. As stated by Technical Staff (Exhibit 70, p. 11),

> The Clean Air Act requires the EPA to establish National Ambient Air Quality Standards (NAAQS) for air toxics with public health and environmental impacts. The six primary pollutants are carbon monoxide (CO); lead; nitrogen dioxide (NO_2); ozone (O_2); particulate matter ($PM_{2.5}$ and PM_{10}); and sulfur dioxide (SO_2). Each toxic has specific national ambient air quality standards.

Petitioner's air quality expert, David Sullivan, conducted air quality modeling analysis "based on EPA standard emission factors and the state-of-the-art U.S. EPA approved AERMOD

[38] David Sullivan testified as an expert in meteorology, air quality modeling and analysis, noise and odor analysis, and in determining potential exposure to toxic chemicals. He has a B.S. degree in meteorology/oceanography from New York University in 1972 and a master's degree in meteorology from Penn State University in 1974. He is certified by the American Meteorological Society as a consulting meteorologist, and is the president of Sullivan Environmental Consulting, Incorporated. Mr. Sullivan has 38 years of experience in air quality analysis and has considerable experience in air quality modeling and analysis, including assessing toxic levels of air pollutants. He has done work as a contractor for the federal Environmental Protection Agency (EPA), the World Bank, environmental organizations, and other state and federal agencies. Tr. 6/17/13, 153-167. His CV is contained in Exhibit 17(f).

dispersion model[39] . . . ." Exhibit 15(a), p. 6. The particular pollutants analyzed by Mr. Sullivan were VOCs (volatile organic compounds), NOx (nitrogen oxides, including especially, NO-nitric oxide, and NO_2 – nitrogen dioxide)[40], $PM_{2.5}$ (particulate matter at or under 2.5 microns[41] in diameter) and CO (carbon monoxide). Exhibit 15(a), p. 34. It is not disputed that each of these pollutants is known to have potentially harmful health effects at sufficient levels, and the VOCs (especially Benzene, 1,3 butadiene, Formaldehyde and Acetaldehyde) are known carcinogens depending on concentrations. Thus, the central question addressed at the hearing with regard to adverse health effects came down to determining what levels of these pollutants can reasonably be expected at various locations and what levels are potentially harmful.

That question will be discussed after we address issues relating to the appropriate standard to apply in assessing the health issue, the potential sources of these pollutants and the methodologies used to assess the pollution levels. A few words should be said here about which of these pollutants are of the greatest concern in this case. Technical Staff reported that ". . . the air toxics of most concern are those associated with automobile idling – carbon monoxide (CO), particulate matter ($PM_{2.5}$), and nitrogen dioxide (NO_2)." Staff report, Attachment 8, p. 4 (Exhibit 70).

Actually, two of the listed pollutants became the major focus of attention at the hearing – NO_2 and $PM_{2.5}$. Nitrogen dioxide (NO_2) is a highly reactive gas that forms when fuel is burned at high temperatures, and comes principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. Exhibit 70, Attachment 8, p. 11. According to Technical Staff (Exhibit 70, Attachment 8, pp. 8-9), particulate matter is the general term used for a mixture of solid particles and liquid droplets found in the air, and the chemical composition and physical

[39] AERMOD is a computer model used to estimate levels of chemicals in the air at specified locations based on numerous factors. There is no evidence challenging the choice of AERMOD as the appropriate tool for use in this case.
[40] As will appear below, NO, one of the constituents of NOx, is readily converted to the more dangerous NO_2, when in the presence of ozone.
[41] The term "micron" describes a length of one millionth of a meter. It is also called a "micrometer."

properties of these particles vary widely. $PM_{2.5}$ is a form of particulate matter known as "fine particles"—those whose diameter is less than or equal to 2.5 microns (or micrometers). That category includes even smaller ultrafine particles because the EPA has not established a separate category for ultrafine particles.

We now turn to the question of what standard is appropriate to apply in assessing the health effects evidence in this case.

2. What Standard Should be Applied in Assessing Whether Petitioner Has Met its Burden?

As mentioned by Technical Staff (Exhibit 70, p. 11), neither Montgomery County nor the State of Maryland has air quality standards that can be applied in this case. However, pursuant to the Clean Air Act, the federal Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for air pollutants with public health and environmental impacts. Exhibit 277. Petitioner argues that the NAAQS are the only objective standard that can be fairly applied here, and to vary from them would be arbitrary. Exhibit 616(a), pp. 72-73; Exhibit 629, pp. 7, 54-56.

The Opposition argues that the actual standard specified in the Zoning Ordinance is adverse health effects, and that the Hearing Examiner should consider many factors in addition to NAAQS, including the World Health Organization (WHO) Air Quality Guideline (Exhibit 421(b)). *See* the testimony of Abigail Adelman, president of SCGC, Tr. 1/10/14, 53-69. As stated by KHCA, in its closing Brief, "[M]eeting [the NAAQS] standard alone does not satisfy the broader requirements of the Montgomery County Zoning Code, which is not specifically tied to or limited by the NAAQS." Exhibit 624, p. 108.

KHCA further explained (Exhibit 624, p. 109):

> While the NAAQS are set on an individual pollutant basis, an operating gas station does not expose anyone to just nitrogen dioxide, or just fine particulate matter, or any of the other components of tailpipe emissions; it exposes them to the whole complex mixture often referred to as "traffic-related pollution" or "TRP." To answer whether

> this station with its dozens of idling cars will affect the "health, safety, and general welfare" of those exposed thereto, the entire combination of emissions becomes relevant – whether or not governed by the NAAQS. While, it would be simpler for the Applicant if it need only address the NAAQS issues and demand the right to refuse to address anything else, the Special Exception requirements are not so narrowly limited.

As noted by the Petitioner in its Reply Brief (Exhibit 629, pp. 54-56), the Hearing Examiner shared Petitioner's concern about the risk of imposing an arbitrary standard, especially in light of some of the Opposition's expert testimony to the effect that there is no established level at which some pollutants are safe.[42] He therefore repeatedly asked the Opposition and its health experts for their input in determining how to apply a fair standard in this case. Tr. 1/10/14, 237-238, 244-247; Tr. 2/25/14, 28-33.

In an effort to answer this question, let us first turn to EPA's NAAQS standards to see if they can supply us with a self-sufficient standard to assess this application. The Clean Air Act requires the EPA to set NAAQS that protect the public health with an adequate margin of safety, even considering the most sensitive populations, such as those with asthma. Tr. 6/17/13, 187-188, 256; Tr. 9/16/13, 51-54. EPA reviews and updates the NAAQS every five years, and the NAAQS process is strenuous and thorough, involving extensive input from the public, as well as the recommendations from stakeholders in environmental groups, industry, academia, and the EPA's Clean Air Scientific Advisory Committee ("CASAC").

Petitioner correctly stated that this process allows the EPA to determine standards based on established scientific and medical literature; however, as observed by the Opposition's health expert, Dr. Patrick Breysse,[43] the review process is so thorough and lengthy, that a standard in place

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[42] Testimony of Dr. Maria Jison (Tr. 1/10/14, 215-218) and Dr. Patrick Breysse (Tr. 2/10/14, 101-113), referencing the Final Rule establishing National Ambient Air Quality Standards for Nitrogen Dioxide in Federal Register 2/9/10 Part III, pp. 6479-6500 (Exhibit 424(b)).

[43] Dr. Patrick Breysse testified on behalf of KHCA as an expert in industrial hygiene, epidemiology and health issues from vehicular emissions, and in establishment and measurement of air quality standards and evaluation of scientific studies and methodologies, including exposure science. Dr. Breysse works at Johns Hopkins University Bloomberg School of Public Health in Maryland, and he is a full professor in the Department of Environmental Health Sciences, Division of Environmental Health Engineering. Dr. Breysse received his Masters and his Ph.D.

for five years could end up being six to seven years behind the times in terms of the scientific literature. According to Dr. Breysse, after the cutoff for the submissions of studies to the EPA, it takes a year of review before the standard is issued. By the end of its cycle, there could be five or six years' worth of literature that is not reflected in the current standard. That is the case with NO_2, where the cutoff date was mid-2008. Thus, more than five-and-a-half years of studies have occurred since then. Tr. 2/10/14, 133-139.

This concern about the currency of the standards is not the only issue in directly applying the NAAQS standards as the only measure of the potential for adverse health effects. There is also an issue of what standard to apply at a distance from the pollution source. Petitioner argues that if its modeling estimates for a location (*e.g.*, the residences to the south of the Mall) indicate that a pollutant will not exceed the NAAQS standard for that pollutant, it has met its burden no matter how far the measured location is from the pollutant source (*i.e.,* the gas station). Dr. Breysse testified that the NAAQS standards should not be applied in this manner because the EPA designed the standards to apply at the source (*e.g.*, at a roadway), in order to ensure lower pollution away from the source. The following is a summary of Dr. Breysse's testimony on this point (Tr. 2/10/14, 140-152):

> The EPA says that the evidence suggests that that safe level of a one-hour NO_2 exposure, in general, should be somewhere around 75 to 85 parts per billion, but readings close to sources can be high, while farther away, they can be lower. The EPA can't put monitors everywhere, but by putting monitoring equipment next to roadways (a high source) and specifying that the level cannot exceed 100 parts per billion, the peak value far from that roadway will be less than 75 to 80 parts per billion. So it's a little bit nuanced because the standard says 100 parts per billion, but if you read the evidence, it's very clear that the EPA administrator thinks that the health threshold for one-hour NO_2 is clearly 75 to 85 parts per billion, and they even say in their record that there's pretty good evidence that it's down to 50 parts per billion. That's really the EPA's target; however, the evidence becomes less certain down to 50. Tr. 2/10/14, 140-143.

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from the Johns Hopkins Bloomberg School of Public Health, and his Ph.D is in the environmental health engineering program, with a focus on occupational safety, health and air pollution. He has specialized in the last 10 years on indoor and outdoor air quality and health both to children and adults, and he has written about 180 scientific articles, including about 20 related to health effects resulting from exposure to pollutions from vehicular emissions. Tr. 2/10/14, 49-78. His CV is contained in Exhibit 88(c).

> One should not treat the one-hour NO_2 standard as 100 parts per billion everywhere because it really just represents the peak value. That's the approach that CASAC recommended to EPA for this kind of spatial regulation dealing with the spatial heterogeneity, and that's the approach the administrator took. From a health perspective, the National Ambient Air Quality Standards are not fine lines. As stated by the EPA Administrator, "Given these considerations, epidemiologic evidence provides strong support for setting a standard that limits the 98th percentile of the distribution of one-hour daily maximum area-wide NO_2 concentrations to below 85 parts per billion." Exhibit 424(b), p. 6501. In considering specific standard levels supported by the epidemiologic evidence, the administrator notes that the level of 100 parts per billion would be expected to maintain the area-wide NO_2 concentrations well below 85 parts per billion. Dr. Breysse stated that if there was a concentration of NO_2 at 100 parts per billion near a roadway, he would expect concentrations be 850 feet from a roadway to be in the range of roughly half to 70 percent of what's at the roadway. Tr. 2/10/14, 143-152.

Dr. Breysse's testimony is buttressed by the statements of the EPA Administrator in the *Final Rule [Establishing] Primary National Ambient Air Quality Standards for Nitrogen Dioxide* (NO_2), 40 CFR Parts 50 and 58, as reported in the Federal Register of February 9, 2010, Part III, pp. 6479-6494 (Exhibit 424(b)):[44]

> For example, given that near-road NO_2 concentrations can be 30% to 100% higher than area-wide concentrations (see section II.E.2), an area-wide concentration of 50 ppb could correspond to near-road concentrations from 65 to 100 ppb. [pp. 6482-6483.]
>
> Given these uncertainties, the Administrator concluded in the proposal that controlled human exposure studies provide support for limiting exposures at or somewhat below 100 ppb NO_2 . . .
>
> The Administrator concluded that these studies provide support for a 1-hour standard that limits the 99th percentile of the distribution of 1-hour daily maximum area-wide NO_2 concentrations to below 90 ppb (corresponds to a 98th percentile concentration of 85 ppb), and that limiting area-wide concentrations to considerably below 90 ppb would be appropriate in order to provide an adequate margin of safety. The Administrator noted that, based on available information about the NO_2 concentration gradient around roads, a standard level at or somewhat below 100 ppb set in conjunction with the proposed approach would be expected to accomplish this. Specifically, she noted that given available information regarding NO_2 concentration gradients around roads (see section II.A.2), a standard level at or below 100 ppb (with either a 99th or 98th percentile form) would be expected to limit peak area-wide NO_2 concentrations to approximately 75 ppb or below.
> [p. 6494, Emphasis added.]

[44] The reader should bear in mind that the NAAQS standard for one-hour NO_2 is 100 parts per billion (abbreviated, "ppb").

In addition to the wrinkle in how to apply the NAAQS standards outlined by the EPA Administrator and Dr. Breysse, Dr. Maria Jison,[45] the Opposition's other health expert, testified that the NAAQS standards are just not designed to cover this kind of situation, and that adverse health effects will be experienced below the NAAQS standards (Tr. 1/10/14, 244-245):

> . . . the EPA standards are not the be-all/end-all of effects. I mean, just because the standard is at a particular level doesn't mean that there is zero, absolutely no risk related to that level. But I think what we're trying to show here is that there are effects below levels and that adding sources of pollution to a particular area, based on these scientific studies, are going to be associated with increased risk to those who are being exposed in that area and an increased risk of adverse health effects. So that just because you're within an EPA standard doesn't guarantee that there's not going to be any effects. . . .
>
> The EPA standards are designed to protect public health. There is no possible way that regulations can cover every possible situation. This is an incredibly unique situation here and an incredibly unique community given, you know, the residents and the other surrounding people who are going to be affected. So I don't think that the EPA standards are going to be the be-all/end-all of this. I think it's going to have to be based on the scientific evidence of the adverse health effects. Dr. Jison amplified on this point in later testimony (Tr. 2/25/14, 28-30):
>
> Well, I think you have to look at individual aspects of this particular application and the location, the population that's going to be affected and the particular sensitivities. You know, when the -- the EPA is trying to set standards nationally and they can't possibly cover every potential specific situation. It's not going to be completely protective, but they're using the scientific evidence and they have a certain requirement for the amount of evidence that they need to be able to set it at a particular level.
>
> With respect to this particular situation, I think we really have to, we can't rely on the EPA standards because they don't get down into the weeds of what the situation is. I think you need to look at the sensitivities of the population. I mean, you know, 1 in 12 people have asthma which is from the EPA standards, a sensitive population for which they specifically set a lower level for the standard but in addition to that, there are other people with chronic illnesses in the community, children at the Steven Knolls School, which is a very unique population to our neighborhood, are extremely vulnerable.

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[45] Dr. Maria Jison testified on behalf of KHCA as an expert physician and an expert in pulmonary and respiratory medical conditions. She is board-certified in internal medicine and in pulmonary disease and critical care medicine. Dr. Jison has over 10 years of clinical attending experience as a pulmonary/critical care physician in the inpatient and outpatient settings, over 10 years of experience as an ICU physician, and three years experience as a pulmonologist. She does not claim expertise in occupational or environmental medicine. Dr. Jison lives within the defined neighborhood, just south of the ring road near the Sears Outlet building, at 10818 Torrance Drive, in Kensington, Maryland. Tr. 1/10/14, 193-201. Her CV is contained in Exhibit 88(g).

> This station, with its size and the amount of idling that's going to be occurring with the number of, the volume of gas station, gas buyers is going to create a source of added pollution in, in close proximity to this neighborhood, in close proximity to all these sensitive populations. These people in the neighborhood are not going to have a choice, like mall patrons or gas patrons, to just go and then leave the site. They're going to be chronically exposed and several studies, and the scientific evidence is growing that health effects do exist at levels well below the EPA standards and this community is going to have a chronic exposure which is going to be cumulative.
>
> . . . Studies . . . show that the effects of $PM_{2.5}$ deposition deep into the lungs can go systemic and can last long after the initial exposure event, and you're going to be cumulatively be adding to that for these people who live here and have no choice but to be near the station all the time.

In contrast to the testimony of Drs. Breysse and Jison, Petitioner's health expert, Dr. Kenneth Chase,[46] testified that, in his opinion, it is very unlikely that an individual would suffer adverse health effects at something lower than the EPA one-hour NO_2 standard. Tr. 9/20/13, 231-241.

Considering all this evidence, the Hearing Examiner concludes that even though he accepts the NAAQS standards as the yardstick to help measure compliance in this case, those standards must be applied in a more nuanced manner than suggested by Petitioner. While the NAAQS standards may be applied directly in an EPA permit procedure where the NAAQS is the specified statutory standard,[47] applying the NAAQS standards in that fashion in this case would not be

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[46] Dr. Kenneth Chase testified as an expert in occupational, environmental and internal medicine. His qualifications include being a practicing physician, Board-certified in internal medicine and in occupational and environmental medicine. He is the founder and the president of the Washington Occupational Health Associates, and the lion's share of what he does deals with work-related issues and environmental issues. He has done work for the Army Corps of Engineers, the FBI, Fannie Mae, the architect of the Capitol and the GSA. He has a Bachelor's of mathematics and a medical degree from UCLA. He did his internship and first year residency at University of Michigan and his third year medical residency at Georgetown University, following which he joined the full-time faculty at George Washington University. He has testified as an expert witness all over the country, mostly as an expert in occupational and environmental medicine. Tr. 9/16/13, 22-43. His CV is contained in Exhibit 17(h).

[47] The Opposition's own air quality expert, Dr. Henry Cole, admitted that he had not seen the EPA apply a lower standard based on distance from a source when reviewing a permit applications. Tr. 5/22/14, 70-73. Dr. Henry Cole testified as an expert in the field of meteorology, air quality, air modeling and its scientific protocols and methodologies. He has a Ph.D. in meteorology from the University of Wisconsin. From 1969 to 1977, he served as an assistant professor, then associate professor at the University of Wisconsin-Parkside in the field of earth sciences, teaching meteorology, climatology, and other courses on environmental science. From 1977 to 1983, he served as a senior scientist with the modeling section of the EPA, which is the branch that writes guidelines for modeling. He later became the section chief of the model application section. His role was not doing the modeling, but in reviewing modeled information and analyzing it. In 1983, he became the science director of Clean Water Fund and Clean Water

appropriate. They are just not designed to be applied "off the shelf" to this kind of situation, where you have very vulnerable populations in the vicinity of the source; nor should it be assumed that, for example, a level of 100 ppb of one-hour NO_2 (the NAAQS standard) is safe when the EPA Administrator has clearly stated that that level was established as the standard at the source to result in lower, safer levels, away from the source.

Moreover, the NAAQS standards do not address the adverse synergistic effects on health that may occur from the combination of pollutants (*e.g.* NO_2 plus $PM_{2.5}$). Dr. Breysse testified that a mixture of pollutants, such as NO_2 and $PM_{2.5}$ (minute particulate matter), can result in health effects even though the individual components are below the applicable NAAQS standards. A number of scientific studies were referenced during Dr. Breysse's testimony (Exhibit 440-449). Tr. 2/10/14, 198-217. Petitioner's health expert, Dr. Kenneth Chase, admitted that some of the chemicals interact with each other in the air, and that it is theoretically possible for a combination of NO, NO_2, ozone and $PM_{2.5}$ to exacerbate health effects; however, in his opinion, it would not happen at the levels discussed here. Tr. 9/20/13, 221-228.

Another factor to be considered is the high level of uncertainty involved in the use air quality modeling results. This point will be discussed in greater detail later in this part of the report, but it should be mentioned that the strict application of the NAAQS standards cannot fairly be a determining factor when the air modeling numbers to be measured against that standard are subject to a 10-40% error rate, according to the EPA's Appendix W, Section 9.1.2.a.[48] This fact was admitted by Petitioner's own air quality expert, David Sullivan. Tr. 5/12/14, 188-206.

The Hearing Examiner is not suggesting that the NAAQS standards should be ignored; in

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Action, where he engaged in multiple studies involving hazardous waste sites. In 1993, he founded Henry S. Cole & Associates, an environmental science consulting firm, and his clients have ranged from community organizations to very large corporations and the federal and county governments. He has written several publications, including one on the air pollution of coastal meteorology as it affects air pollution, and did a lot of work on the Urban Airshed Model. Tr. 12/5/13,13-62. His CV is contained in Exhibit 76(h).

[48] Federal Register / Vol. 70, No. 216 / Wednesday, November 9, 2005, p. 68246.

fact the NAAQS standards are the best tool we have for estimating the potential health impacts of the proposed gas station. But they are just that – a tool to be used. They are a yardstick to help us to determine whether Petitioner has met its burden of proving that the proposed gas station will not cause adverse health effects, but they are not themselves the standard. The standard is, as the Opposition correctly points out, the one specified in the Zoning Ordinance – adverse health effects. The Hearing Examiner will therefore consider evidence in addition to the NAAQS standard in determining whether Petitioner has met its burden of proving that the proposed gas station will not cause adverse health effects. This additional evidence includes the numerous items listed in the first part of this section of the report (*i.e.*, Section III.B.), especially the testimony of Mr. Sullivan and Drs. Chase, Cole, Breysse and Jison. Of course, the Hearing Examiner must also consider this evidence in light of the Council's recent modification of Zoning Ordinance §59-G-2.06 in Zoning Text Amendment (ZTA) 12-07. The effect of that Council action is addressed below.

3. How is the Standard Affected by the Council's Adoption of ZTA 12-07?

Zoning Ordinance Section 59-G-2.06 provides the specific standards that must be met for an auto filling station special exception. Effective August 13, 2012, the Council, sitting as the District Council for that portion of the Maryland-Washington Regional District in Montgomery County, amended Zoning Ordinance §59-G-2.06, in ZTA 12-07, Ord. 17-19 (Exhibit 99). The most significant change in the provision was the addition of a new subsection (b)(1), which specifies:

> *(b) In addition, the following requirements must be satisfied:*
> *(1) After August 13, 2012, the area identified by a special exception application for a new automobile filling station designed to dispense more than 3.6 million gallons per year must be located at least 300 feet from the lot line of any public or private school or any park, playground, day care center, or any outdoor use categorized as cultural, entertainment and recreation use.* [Emphasis added.]

This amendment clearly establishes a bright line separating large gas stations from other specified uses by at least 300 feet, and it is undisputed that the currently proposed site meets the express

terms quoted above. However, the amendment also raises questions regarding the appropriate setbacks from uses it did not specify in the amendment, as well as whether the adoption of a 300-foot setback evidences an intent by the Council to establish the 300-foot setback as the safe distance from any use, regardless of other evidence of health impacts in particular cases.

To answer these questions, we first turn to the best evidence of the Council's legislative intent, the "Opinion" accompanying the legislative action. In that Opinion (Exhibit 99, p. 2), the Council points out that when the ZTA was first introduced, it proposed a 1,000-foot setback ". . . from any public or private school or any park, playground or hospital, or other public use, or any use categorized as a cultural, entertainment and recreation use." The Council amended that list of land uses that have a required buffer area "in order to focus on places where children have an opportunity for active outdoor play. The list is more in line with sensitive land uses identified in the EPA School Siting Guidelines than ZTA 12-07 as introduced." Exhibit 99, p. 4. The alternative of additionally establishing a minimum setback from residences was clearly placed before the Council by the recommendation of its staff. *See* the July 20, 2012 Memorandum of Council Legislative Attorney, Jeffrey Zyontz, which was the Cover Memo to Agenda Item 10 on the Council Docket of July 24, 2013 (*i.e.*, the date ZTA 12-07 was adopted in Ordinance No. 17-19), (Exhibit 290, p. 10):

> The Deputy Director or the Air and Radiation Management Administration said, "the more distance that can be placed between a source and residences and community gathering places is certainly beneficial to minimizing risk." If, as Costco's expert emphasized, the duration of exposure is critical in determining risk, then some minimum distance should apply to dwelling units.
>
> Virtually all schools, parks, playgrounds, swim clubs, and athletic fields are in one-family residential zones. Every yard around a single family house is a potential area for children at play. Staff would recommend, as a conservative approach, requiring a minimum 300 foot buffer between a gas station pumping 3.6 million gallons or more and one-family residentially zoned land as an alternative to ZTA 12-07 as introduced; . . . [Emphasis added.]

The Council nevertheless adopted ZTA 12-07 without specifying any additional setback from residences.

In addition to modifying the original uses specified for buffering from large gas stations, the Council also reduced the size of the 1,000-foot buffer initially suggested, finding that "the minimum buffer necessary to protect public health and welfare is 300 feet from the edge of the special exception area of a large gasoline station to the lot line of any public or private school or any park, playground, day care center, or any outdoor use categorized as a cultural, entertainment and recreation use." Exhibit 99, p. 4.

The Opposition argues that the intent of the Council in enacting ZTA 12-07 was to impose a buffer of a size that proportionally increases as the size (in terms of gasoline sales) of the large gas station increases. As stated in KHCA's closing brief (Exhibit 624, pp. 8-9),

> The Opposition submits that, properly understood, the ZTA was intended and should be interpreted to give every community at least roughly the same degree of buffer zone protection – which means that a 12 million gallon station cannot expect to operate within the same 300 feet appropriate for a 3.6 million gallon station.

Petitioner disagrees. In its reply brief (Exhibit 629, p. 22), Petitioner asserts that the Council was well aware of the potential size of the proposed Costco gas station, and

> The Opposition's efforts to re-interpret ZTA 12-07 (and the process that created it) in a manner that obligates the Hearing Examiner to impose a greater setback of unknown distance is based on both a misrepresentation and mischaracterization of the ZTA process and should be rejected.

Petitioner concedes that "the Board of Appeals is free to impose additional requirements to ensure the compatibility of a particular use," but notes that "there must be a sound factual basis for doing so." Exhibit 629, pp. 22-23.

On this point, the Hearing Examiner agrees with the Petitioner. The statutory language, as amended by ZTA 12-07, cannot fairly be interpreted as setting the buffer (*i.e.* the mandated minimum setback) on a sliding scale depending on annual gasoline sales projected for the gas station. While the Opposition is clearly correct that the Council intended ZTA 12-07 to afford additional protection to the community from the effects of large gas stations, it established a very

specific minimum setback from very specific uses, and one cannot fairly stretch the 300-foot setback language into a 1,000 foot setback that the Council rejected. That does not mean that the Council intended to preclude the Board of Appeals from making a finding of adverse health effects beyond that 300 foot setback, but as suggested by Petitioner, such a finding would have to be supported in the record.

As noted by Kathleen Michels, a Wheaton area resident who testified at the Hearing, the Zoning Text Amendment imposed a 300-foot minimum buffer for stations above the 3.6-million-gallon size, but that text amendment doesn't address whether a buffer of that size would be sufficient to avoid adverse health effects from stations way above the 3.6-million-gallon size, which the Costco gas station will be. Tr. 11/21/13, 267-271. Moreover, it does not address (nor could it) the question of whether other uses in the general neighborhood of the site of a proposed gas station of this size are particularly sensitive to the pollutants that can be expected. These are questions that must be addressed in an evaluation of the evidence in each special exception case.

In reviewing the legislative history, the Hearing Examiner concludes that the Council's adoption of the 300-foot setback did not indicate an intent by the Council to preclude consideration of health risks to uses beyond the 300-foot buffer as part of the special exception review process; nor did it intend, by failing to include residences in its designated 300-foot buffer, to preclude consideration of health risks to nearby residences as part of the special exception process. The Hearing Examiner reaches this conclusion because the Council specifically found, in its Opinion (Exhibit 99, p. 3), that,

> . . . a minimum buffer area is required, in addition to the other standards for a special exception. [Emphasis added.]

The Council was made well aware, by its own staff memo (Exhibit 290) and by the recommendation of M-NCPPC Technical Staff, that "the other standards for a special exception" included a review of health impact issues. Those existing special exception standards (*i.e.*, those contained in Zoning

Ordinance §59-G-1.21(a)) are listed in the Zyontz Memo to the Council (Exhibit 290, pp. 14-15.) M-NCPPC Technical Staff recommended rejecting the proposed ZTA as unnecessary because "[t]he existing special exception process provides adequate standards and requirements to address issues that potentially could impact properties near a proposed gas station. The public input requirement of the special exception process further provides opportunity to address concerns unique to a particular site." Attachment to Zyontz Memo (Exhibit 290). Although the Council elected to impose a specific buffer from some uses, it clearly and expressly stated that it was a "minimum buffer," and that it was "in addition" to the other special exception standards.

In sum, the Hearing Examiner does not see ZTA 12-07 as a legal impediment to assessing the health impacts on uses not mentioned in the ZTA and those uses located at distances greater than the specified 300-foot setback. Rather, it appears that the Council, while setting a minimum setback for specified uses, relied on the special exception process and standards to enable the Hearing Examiner and the Board of Appeals to make the health evaluation for other uses based on the circumstances of individual cases.

In the subject case, those circumstances include a proposal for a gas station more than three times as large (12,000,000 gallons of gasoline sales a year) as the Council's definition of "large," to be located almost three times closer to residences (118 feet) than the 300-foot setback provided for schools and outdoor recreation in the ZTA. It will also be only 375 feet from one of the uses directly protected in the ZTA, the Kenmont Swim and Tennis Club, and approximately 874 feet from another protected use, the Stephen Knolls School. It is undisputed that a gas station of this size will result in significant queuing of cars waiting to fill up, and the queuing of idling cars will clearly result in some level of pollution in the area. We now turn to questions regarding the various sources of pollution that may impact this case.

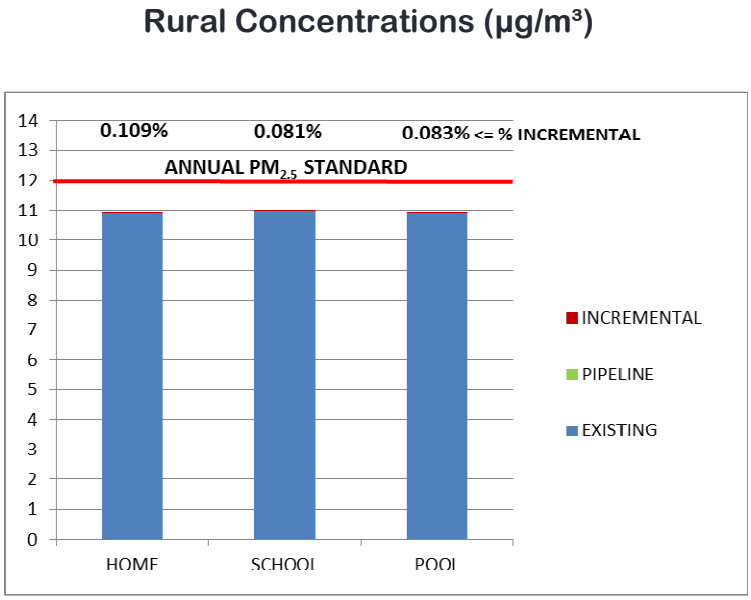
4. What are the Sources of Pollution Increases that May Affect Health?

The addition of the proposed auto filling station will create a number of potential sources of pollution which were studied by Petitioner's air quality expert, David Sullivan. He references them, along with other existing sources of pollution, in his first air quality report of November 19, 2012 (Exhibit 15(a), pp. 5, 9 and 12):

a. The number of idling cars waiting to pump gas (*i.e.*, the gas queue)
b. Emissions from the filling of the underground storage tanks (Stage 1 emissions)
c. Underground tank vent breathing losses
d. Emissions from dispensing of the gasoline into vehicles and spillage (Stage 2 emissions)
e. Roadway emissions along the Ring Road and adjacent roadways from additional cars

Mr. Sullivan also modeled existing sources of air pollution, such as the Costco parking lot to the west, the Costco parking garage to the east, the Costco Warehouse loading dock, and traffic along the Ring Road and all major adjacent roadways and intersections (*e.g.*, Georgia Avenue, University Boulevard and Veirs Mill Road). He then added those levels to the general background levels, as measured by various EPA monitoring sites, and compared the results to the NAAQS standards.

As with everything else in this case, Mr. Sullivan's methodologies in measuring these sources of pollution and in choosing monitoring sites to determine background levels were heavily challenged. Those issues will be discussed in the next section of this report. This section addresses mostly the issues regarding the number of cars that will be queuing while waiting to fill up, since the idling cars are the main source of *incremental* air pollution in this case. The word "incremental" is highlighted because other sources of pollution (especially existing background levels) are much greater contributors to the overall pollution levels, as illustrated by Mr. Sullivan's Slide 37 in his revised PowerPoint presentation (Exhibit 174):



Even though Petitioner may be responsible for only the incremental impacts from the proposed Costco gas station, the Hearing Examiner must consider those incremental impacts in conjunction with other sources of pollution in the area (including background levels) in order to determine whether Petitioner has met its burden of demonstrating that the addition of the proposed gas station will not create adverse health effects. That is, in fact, the way Petitioner approached the presentation of its case, for Mr. Sullivan's reports do consider all these factors.

This section also does not contain a further discussion of items b, c and d listed above because Petitioner's evidence regarding potential air pollution from these stationary sources was not effectively contested at the hearing. The Hearing Examiner is satisfied from the evidence that the various pollution control devices, such as the "ARID Permeator,"[49] will almost eliminate harmful underground tank venting emissions, and other devices will significantly reduce Stage 1 and Stage 2 emissions. To the extent they do increase air pollution (essentially from VOCs), the Hearing Examiner will discuss their possible effects in Section III.B.7. of this report, in conjunction with Technical Staff's analysis on the point. Questions raised by the Opposition with regard to the

[49] The ARID Permeator is a filtering device that attaches to the underground tank vents and prevents large organic compounds from escaping into the air when the tanks vent.

potential for underground stream pollution from accidental gasoline spillage and underground tank leaks will be addressed in Part III. D. of this report.

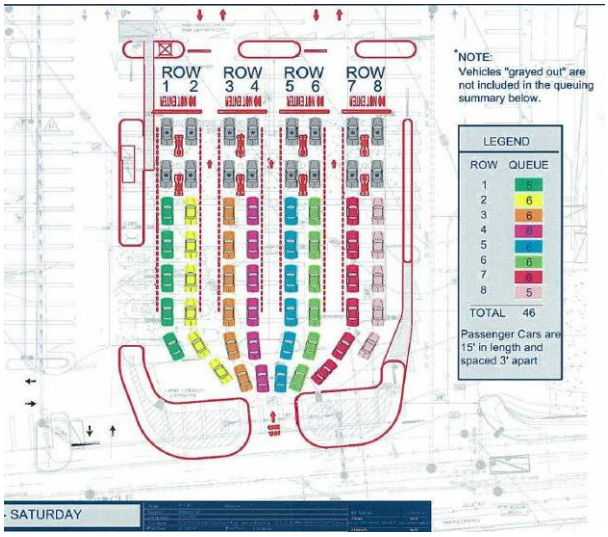
There are two sources of potentially significant air pollution from automobile emissions (*i.e.*, mobile sources) listed above. They are Item "a," the number of idling cars queuing at the pumps and Item "e," roadway emissions from additional cars. We now turn to the issue of cars queuing at the pumps as a source of pollution.

It is not disputed that slow moving or idling cars will produce higher levels of harmful pollutants than rapidly moving cars. The Opposition's air quality expert, Dr. Henry Cole, testified that for all of the pollutants of concern -- CO, NOx, VOCs and $PM_{2.5}$, emissions all go up as speed goes down. Cars that are idling, or running at slow speeds, are less efficient than cars that are moving freely. Tr. 12/5/13, 173-175. Mr. Sullivan applied traffic figures calculated by Petitioner's traffic expert, Wes Guckert, to determine the level of pollution to be expected from vehicle exhausts. To do so, he used a vehicle emission simulation model known as MOBILE6 to calculate emissions because the input data he needed to apply the newer model, known as MOVES (Motor Vehicle Emission Simulator), was not available at the time he did his analysis. Tr. 6/17/13, 184-186. While the results from these models differ, as will be discussed later in this report, there was no evidence to dispute Dr. Cole's testimony that idling vehicles and slower moving vehicles produce greater emission levels than rapidly moving cars.

Petitioner's submissions to Technical Staff suggested that for 50% of the operating time, 22 or fewer vehicles will be in the queue at the Wheaton station waiting (and idling) to purchase gasoline. According to the Petitioner, the refueling happens quickly (four minutes per vehicle,). Exhibit 70, p. 14. The expected queuing, as first anticipated by Petitioner, is reflected in a chart appended to Attachment 7 of the Technical Staff report, purporting to show that 76% of the time, the queue per lane will be four cars, or less. These projections were based on an assumption that

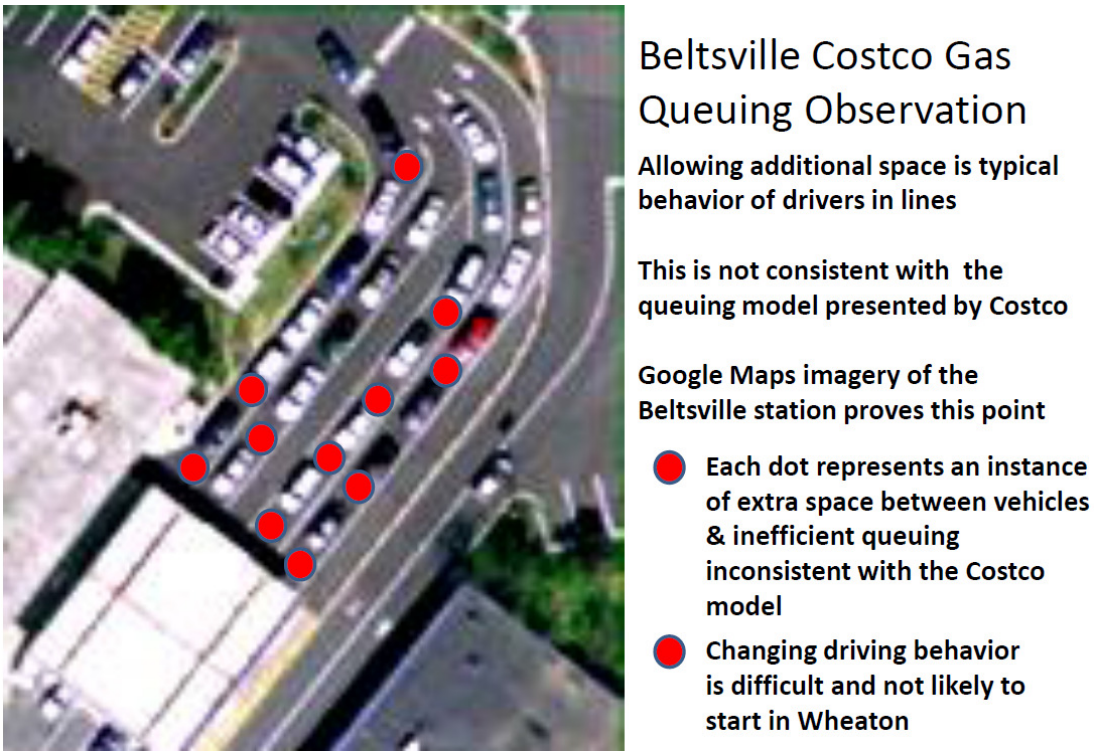
the Wheaton station would sell 12 million gallons a year, which is 86% of the sales at the Sterling Virginia Costco station.

Wes Guckert admitted in testimony at the hearing that he had made an error on Exhibit 56(b) and (c) (concerning queues at the Sterling gas station), but he stated that the errors were not in the data but in the formula used.[50] He substituted Exhibit 509(b), a vehicle queue summary at Sterling Costco gas station on Friday, January 11, 2013, and Exhibit 509(a), a vehicle queue summary at the Sterling Costco gas station on Saturday January 12, 2013. Projecting that to the proposed Wheaton station, the peak on a weekday would be 33 or 34 cars, all of which would fit within the queuing area. The average total queue for Friday is calculated at 8.2. The average total queue for Saturday is calculated at 24.8, and this yielded a projection of about 21 cars average combined queue inside the Wheaton special exception area on Saturdays. The peak on a Saturday was about 46-48 cars in the queue. (Exhibit 510). Tr. 4/1/14, 64-81. Petitioner provided a diagram showing what the queuing will look like when there are 46 car waiting for gas on a Saturday at the Wheaton station (Exhibit 511, p. 5):



[50] This was not Mr. Guckert's only error. Mr. Guckert admitted that the testimony he gave on May 6, 2013 (Tr. 5/6/13, 117-118) was incorrect in that it purports to say that 90 cars in an hour on the ring road amounts to one every four or five minutes. He also admitted errors in his supplemental traffic analysis (Exhibit 128) which was prepared by a former employee of his firm. The error resulted in an underestimate of transactions per hour. Tr. 3/11/14, 209-233.

Mr. Guckert testified that the queuing box can hold 45 to 48 cars before a car would not be able to get in from the ring road, and then a Costco attendant would have to waive that car off. This backup would last only a minute or two and then it would dissipate. Tr. 5/1/13, 69-71. Although the Opposition did not produce a traffic expert to contradict Mr. Guckert's testimony, they did discover a number of errors in his calculations, as mentioned above, and they demonstrated in testimony and photographically that vehicles in the real world do not line up in the neat ways Mr. Guckert's diagrams and testimony suggested. Testimony of Jim Core, Tr. 10/21/13, 135-138, 183-186, introducing Exhibit 80(j) and testimony of Karen Cordry, Tr. 10/21/13, 240-266, introducing Exhibits 346-351, 356-357 and 371. One of the photos in Mr. Core's presentation (Exhibit 80(j)) neatly demonstrates the point:



We will return to the question of queuing overflow and its impacts on traffic congestion and the neighborhood in Part III.C. of this report. The queuing is discussed here only insofar as it significantly increases the level of pollutants, which the Hearing Examiner concludes it will do.

Another source of pollution resulting from the gas station would be emissions along the Ring Road and adjacent roadways from additional cars generated by the new use. A great deal of evidence was presented by the Opposition to the effect that the level of congestion predicted by Mr. Guckert understated both the current situation and the likely effect of the added gas station. Mr. Guckert admitted some errors and submitted corrected estimates, but his bottom-line opinion is that the new gas station would add only minimally to the traffic congestion. He testified that the additional new trips to be generated by the gas station will have at most an imperceptible effect on traffic volumes within the CBD. Tr. 3/11/14, 139. Even at the intersection of MD 193 and Valley View Avenue, a key entrance to the Mall to access the proposed gas station, there would be only about a two-second delay per car with the additional cars generated by the gas station. Tr. 3/11/14, 74-78. The added delay at Intersection 16 would be only about five seconds. Tr. 4/29/14, 85-108.

In contrast, the Opposition presented evidence from Karen Cordry,[51] and Dr. Mark Adelman[52] suggesting that traffic congestion was already bad in the area since the opening of the Costco Warehouse and would only get worse if the gas station were opened. Using a PowerPoint presentation (Exhibit 375), Ms. Cordry introduced photos of Intersection 16 showing a backup of traffic all the way from the ring road up to University Boulevard, which is approximately 550 to 600 feet. See, for example, a photo from Slide 20 of Exhibit 375:

[51] Ms. Cordry is an attorney, but did not appear in this case in that capacity. She testified as a lay witness on behalf of KHCA and assisted its counsel throughout the hearing. She lives on Torrance Drive, just south of the defined neighborhood. Ms. Cordry has a bachelor's in biochemistry from Michigan State University, a J.D. from Wayne State University, and an LLM from George Washington University in labor law. She is KHCA's treasurer and is a member of the Wheaton Redevelopment Advisory Committee, which she chaired in 2008 and 2009. Tr. 9/23/13, 8-15. Ms. Cordry's testimony covered a broad range of topics (traffic congestion issues, pedestrian safety issues, neighborhood need issues, queuing issues, compatibility issues and interpretation of EPA regulations) and is summarized in Appendix I, pp. 89-106; 197-200. She also played a large part in the evaluation of Petitioner's exhibits, discovering significant computational errors by Petitioner's experts, Mr. Sullivan and Mr. Guckert.

[52] Dr. Adelman has a PhD in Biophysics (Exhibit 321(a)), but did not testify as an expert. Rather, he testified as a lay witness on behalf of SCGC. He lives about a mile from the subject site. Tr. 10/24/13, 205-228. His testimony is summarized in Appendix I, pp. 120-124.

Intersection 16 is the intersection of the ring road with the extension of Valley View Avenue into the Mall from University Boulevard West. It is a key intersection for accessing the special exception site. Ms. Cordry feels that the intersection is failing even without the gas station, and therefore the usual critical lane volume (CLV) analysis does not work. She noted that Mr. Sullivan based his pollution estimates on the weekday peak hour traffic estimates from Mr. Guckert, but the weekend traffic is actually greater. She argued that if Mr. Guckert's numbers are low, then Mr. Sullivan's pollution estimates were actually not based on conservative assumptions. Even Mr. Guckert's revised HCM analysis (Exhibit 504) shows overall delays of over 50 seconds at Intersection 16. Tr. 4.29.14, 85-108. Ms. Cordry also played a video of traffic backups at Intersection 16 and at the University Boulevard-Valley View Intersection (Exhibit 376(a), a thumb drive). Tr. 11/19/13, 130-165.

Dr. Adelman did his own traffic count at "Intersection 16," and his results were 15 percent higher than what Mr. Guckert reported. Tr. 11/14/13, 166-188. Dr. Adelman admitted that only a

small amount of additional traffic will be added to any intersection by the proposed gas station if it is approved, but he noted that the additional cars will feed into a parking lot that is already very heavily used and congested. He observed that any number of cars brought to that parking lot will add to the congestion that already exists. Tr. 11/14/13, 203-219. On cross-examination, Dr. Adelman admitted that his counts were made during the 90-day period following the opening of the Costco Warehouse (*i.e.,* during the period that Petitioner's witnesses testified represents a surge in business). Tr. 11/14/13, 244-250.

In addition to the pollution sources mentioned above, Dr. Cole testified that there were other pollution sources which, in his judgment contribute to emissions and concentrations that were not included in the source inventory, such as other commercial establishments in the Mall which have loading docks and which also have parking lots. Dr. Cole feels those sources are not subsumed in general background data, and should have been added to the model as local sources. He also believes that to the extent that traffic was underestimated by Mr. Guckert's evidence and thus by Mr. Sullivan, the emissions would be underestimated. In addition, added congestion would result in slower speeds, and that would increase the emission rate for things like oxides of nitrogen and other pollutants as well, including particulate matter. These factors would be additive, and some of these effects interact in a synergistic fashion, compounding the impact. Tr. 5/29/14, 149-152.

Mr. Sullivan testified that the model concentrations of $PM_{2.5}$ from ring road traffic is only 0.028, or about .03 micrograms per cubic meter. Even adding the extra 23% of traffic indicated by Mr. Guckert's new figures (from 639 vehicles on the southern ring road to 783, plus added traffic all around, including the parking lots), the increase in NO_2 would take the maximum projection up from 121 to only about 123 micrograms per cubic meter (*i.e.*, not a significant increase). Mr. Sullivan concludes that Mr. Guckert's changes did not have a material effect on his bottom line estimates for NO_2 , $PM_{2.5}$, or for CO because the peak Saturday value occurs for an hour or two, and

the Mall is open for 15 hours every day. Generally, during the five days of the week, the numbers are significantly lower than that peak weekend value. Tr. 5/1/14, 76-81.

The Hearing Examiner's review of all this evidence leads to the following finding – Although it is indisputable that additional cars and congestion on and near the ring road will cause some additional air pollution, the Hearing Examiner agrees with Mr. Sullivan's conclusion that the additional roadway congestion from the gas station is likely to add little to the pollution totals arising from the new use; however, it will certainly add to inconvenience in the neighborhood and thus will affect compatibility, as will be discussed in Part III.C. of this report.

5. What Methodologies are Acceptable in Assessing Potential Adverse Health Effects?

As discussed in Subsection III.B.2, above, the Opposition disputes the application of the EPA's NAAQS standards as the sole litmus test of adverse health effects, and the Hearing Examiner agrees with the Opposition on this point. However, as stated above, the NAAQS standards are an important yardstick, and indeed a starting point, for evaluating the potential for adverse health effects from the proposed use. Thus, the manner in which potential pollutant levels were calculated and compared to the NAAQS standards in this case is an important question, and as it turned out, a source of controversy. The Opposition contends that Petitioner's air quality expert, David Sullivan, employed improper methodologies in applying the EPA NAAQS standards and thus reached an incorrect, or at least an insufficiently proven, conclusion that the proposed gas station would meet those NAAQS standards.

Mr. Sullivan began his study of the proposed gas station's potential effects on air quality by establishing a 151 page "Modeling Protocol." Exhibit 615(a). Although Mr. Sullivan consulted the Opposition's air quality expert, Dr. Henry Cole, in putting together this protocol, it is clear from the hearing record that these two scientists did not agree on many of the methodologies Mr. Sullivan ultimately employed in this case. The details of their many disagreements are too voluminous to be

included in a report of this type, so the Hearing Examiner will outline the sources of disagreement and his findings as to each category. The Opposition's challenge to Mr. Sullivan's methodology falls into the following categories:

a. The choice of air dispersion coefficients (urban v. rural)
b. The error in converting parts per billion to micrograms per cubic meter
c. The relaxing of some conservative assumptions
d. The alleged failure to include some pollution sources
e. The use of the MOBILE6 simulator rather than the MOVES simulator
f. The choice of EPA monitors for background pollution data and how to apply the data
g. The Ozone Limiting Method (OLM) and other variants for calculating the conversion of NO into NO_2 and the alleged one-third reduction of one-hour NO_2 levels in the queue

a. The Choice of Air Dispersion Coefficients (Urban v. Rural)

Mr. Sullivan's first air quality report in this case was his November 19, 2012 "Air Quality, Noise Analysis, and Odor Analysis Conducted for the Proposed Costco Gas Station in Wheaton, MD" (Exhibit 15(a)). Mr. Sullivan claims that he made many conservative assumptions in this 186 page report. When he uses the term "conservative," Mr. Sullivan is referring to his asserted efforts "to ensure that the modeling conservatively (overstates) expected concentrations." Exhibit 15(a), p. 4. However, the Opposition challenges one of his key assumptions, the choice of "urban" rather than "rural" air dispersion characteristics for some of his modeling, as being the opposite of conservative.

Mr. Sullivan admits that "the rural land use treatment produces modeled estimates that generally are approximately 2-3 times higher than the urban treatment at the closest residential areas." Exhibit 15(a), p. 26. Under established EPA procedures, to determine whether to apply rural or urban coefficients, the modeler looks at the land use within a three-kilometer radius of the proposed pollution source. EPA defines certain types of land use as urban or rural, and the modeler determines which one predominates in the area and uses that for the general modeling. Mr. Sullivan admits that the predominant land use within the three-kilometer radius is rural, and so he used rural standards for some of his analysis. On the other hand, he observed that the key points of

review in this case are the closest residence, the Stephen Knolls School and the Kenmont swimming pool, all of which are adjacent to the Mall. He reasoned that the plume traveling from the gas station's queuing and the fueling area is going predominantly over the Mall's asphalt and concrete, and the land use is urban in that area. When interpreting the data for any results adjacent to the Mall, he therefore used the most applicable urban dispersion characteristics for the Mall, and in that setting, the dilution of pollutants is not as restricted as in a rural setting. Further away from the Mall, where most of the flow is over rural conditions, he used the rural standard. Tr. 6/19/13, 190-193. Mr. Sullivan noted in his report that "The most accurate characterization of nearby sources would be expected to be between the urban and rural results." Exhibit 15(a), p. 26.

The Opposition contends that the EPA's guidelines would require Mr. Sullivan to apply the rural standards for the whole area, including the Mall. As stated by Dr. Cole (summarized by the Hearing Examiner in Appendix I, p. 127):

> [Mr. Sullivan has] done the analysis that shows, following EPA guidance, that the site should be classified as a rural dispersion site, using dispersion coefficients. That's important because rural dispersion coefficients are more conservative, give you higher numbers. So if you go to urban, the numbers, the predicted concentrations will be lower. He did not follow EPA guidance because his conclusions tend to favor the urban dispersion coefficients, whereas EPA guidance says if it's mostly rural, you need to use rural dispersion unless there are other circumstances. His best judgment would be an intermediate value, but he didn't incorporate that judgment into the modeling. Tr. 12/5/13, 63-80.

Mr. Sullivan had two responses to this criticism. He rejected the idea of using an "intermediate value" between urban and rural coefficients when modeling the Mall area because the air travelling from the rural area off the Mall to the subject site would have to travel 50 to 70 feet over the paved area before it gets to the start of the queue, and it would have adjusted to the urban coefficients by then. "[I]t's going to be urban modeling by the time it gets . . . to the queue area." Tr. 5/1/14, 41-47.

Mr. Sullivan's second response to this criticism was to testify that part of EPA's guidance specifies that the most accurate modeling methodology for the case at hand should be applied.

That's the overarching guidance on air quality modeling from EPA, and for this site-specific matter, he has used judgment to model in an accurate and appropriate way. Tr. 5/8/14, 203-216. When asked why the EPA calls for calculations on the basis of a radius of three kilometers in making the urban and rural distinction, Mr. Sullivan replied that most facilities that are getting a permit have elevated stacks, and the maximum impacts can occur well out to one, two, three or more kilometers. In that context, if you're modeling a broad area, the EPA wants you to use whatever area predominates, whether it be urban or rural, and they have a procedure identified for that purpose. Thus, the EPA uses the 3 kilometer scale in general. But the real controlling point is that you are always supposed to seek the most accurate estimate of concentrations in the area of interest. In this context, if you know that the focus is on the gas queue, for example, or the loading dock, those are on urban ground, and their receptors are inside of them. If the whole domain is classified urban, it would not make sense to go out three kilometers to see if there's grass out there and use that analysis for this estimate. Tr. 9/20/13, 108-112.

The Hearing Examiner agrees with Mr. Sullivan on this point. "Appendix W" (Exhibit 285) contains the EPA Guidelines for air modeling. As noted by Mr. Sullivan (Tr. 9/20/13, 64-68), Section 1(d) of Appendix W (Exhibit 285, p. 68230), supports his assertion that although the Guidelines seek consistency, the ultimate objective in air modeling is to achieve an accurate answer:

> The model that most accurately estimates concentrations in the area of interest is always sought. However, it is clear from the needs expressed by the States and EPA Regional Offices, by many industries and trade associations, and also by the deliberations of Congress, that consistency in the selection and application of models and data bases should also be sought, even in case-by-case analyses. Consistency ensures that air quality control agencies and the general public have a common basis for estimating pollutant concentrations, assessing control strategies and specifying emission limits. Such consistency is not, however, promoted at the expense of model and data base accuracy. The Guideline provides a consistent basis for selection of the most accurate models and data bases for use in air quality assessments. [Emphasis added.]

In the quest for accuracy, it does not make sense to follow a general formula designed to evaluate

impacts on large areas, when the area being studied is small, and applying the general formula would characterize the Mall area in question as rural, when it is clearly urban. Thus, the Hearing Examiner credits Mr. Sullivan's interpretation on the EPA Guidelines on this point. It should also be pointed out that the Opposition argued successfully that the Hearing Examiner should not blindly apply the NAAQS standards to the exclusion of other health evidence when those standards alone may not give the complete answer. By the same token, we should not slavishly follow a general EPA formula to resolve the rural-urban controversy in a way that doesn't fit the specific facts of our case.

We now turn to the second methodology issue, Mr. Sullivan's error in converting parts per billion to micrograms per cubic meter, and its impacts.

b. The Error in Converting Parts per Billion to Micrograms per Cubic Meter

During his testimony at the ninth hearing session (July 30, 2013), Mr. Sullivan conceded that he had made a significant mathematical error that understated the area background levels of NO_2 (Nitrogen Dioxide, an air pollutant) by approximately 350%. Those background levels, as determined by EPA approved monitors, are usually stated in parts per billion (ppb); however, they can also be represented in terms of a unit labeled "micrograms per cubic meter ($\mu g/m^3$)," which is a unit generally utilized in Mr. Sullivan's calculations. In order to work with the same units in his calculations, Mr. Sullivan had to convert the readings given in parts-per-billion units to micrograms-per-cubic-meter units. It is undisputed in this case that the correct conversion methodology is to multiply the "ppb" figure by the conversion factor of 1.88, which would have resulted in an one-hour NO_2 background level, if properly converted, of 98 $\mu g/m^3$. Instead of multiplying, Mr. Sullivan divided by the conversion factor, resulting in the erroneous one-hour NO_2 background level of 28 $\mu g/m^3$. This error was discovered by the Opposition and confirmed by Mr. Sullivan during his cross-examination at the hearing, Tr. 7/30/13, 121-135. Thus, he listed the

erroneous one-hour NO_2 background level of 28 $\mu g/m^3$ in his November 2012 report (Exhibit 15(a), pp. 58, 59, 60, 66 and 80) and in his January 2013 report (Exhibit 56(a), pp. 17, 23, 24, 35 and 37).[53] Since this error was not corrected until the OZAH hearing, both the Technical Staff and the Planning Board evaluations were based on the understated NO_2 background figures.[54]

Mr. Sullivan corrected the error in his supplemental report of August 16, 2013 (Exhibit 255(a)) and in his subsequent reports and testimony, but such a significant calculation error could not help but damage his credibility as an expert, and it led to the relaxation of some of Mr. Sullivan's initially conservative assumptions, the effect of which will be discussed in the next section.

c. The Relaxing of Some Conservative Assumptions

As mentioned, when Mr. Sullivan corrected his calculation error regarding NO_2 background levels, he simultaneously relaxed some of his previous conservative assumptions. As stated by Mr. Sullivan (Exhibit 255(a), p. 3):

> . . . It was determined at the hearing on July 30, 2013 that the background concentration for NO_2, which accounts for the contribution from sources other than the gas station, was incorrectly stated in the modeling protocol, which was then followed as the basis for this modeling. . . . It was necessary to reduce some of the conservatism (overstatement) of emissions because the opposition to the gas station has now focused attention on 1-hour NO_2 concentrations at locations that are not typically modeled, such as within a transient gas queue and in close proximity to a loading dock; the public will not be exposed at such locations for an hour or more.

The Opposition challenged the relaxing of numerous conservative assumptions specified in the modeling protocol, characterizing this practice as "a result-driven approach that repudiates numerous aspects of the original protocol." Exhibit 624, p. 141. As stated by KHCA (Exhibit 624, pp. 142-143):

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[53] The reader looking directly at the January 16, 2013 report (Exhibit 56(a)) should note that it bears the erroneous header of January 16, 2012 on all its headers. The January 16, 2013 Sullivan report superseded and replaced the December 2012 Sullivan report.

[54] In spite of this fact, Technical Staff still recommended against approval of the special exception based, in part, upon concerns over NO_2 exposure.

> The fact that the conversion had been done wrong should not have required changing the analysis – except that, with the correct background, the Mall Parcel (and surrounding roadways) now clearly violated the NAAQS limit, and, hence, were no longer acceptable. Indeed, even after seeing his error and being asked to correct his values on July 30 with respect to the "homes, school, and pool," Mr. Sullivan continued to say the new values would not "change the conclusion," (i.e., that the Special Exception would be under the standard). (7/30/13 Tr. 126-28). That lasted only until he was then asked to apply the same correction to the values on the Mall Parcel, at which point he abruptly asserted that his modeling assumptions were too conservative, the urban analysis should be used, etc., etc. (7/30/13 Tr. 129-30).

Petitioner responded to this challenge by stating that Mr. Sullivan had merely followed EPA guidelines in relaxing his conservative assumptions to achieve more accuracy, and by arguing that the Opposition had failed to present any modeling of its own (Exhibit 629, p. 49):

> The EPA air modeling guidelines recommend that air modelers use conservative assumptions and then reduce the conservatism in the assumptions until either the model shows levels that comply with the NAAQS, or further reductions are deemed necessary. Once the error converting background levels from parts per billion to micrograms per cubic meter was discovered, EPA guidance required Mr. Sullivan to re-model emissions with less conservative (and more accurate) assumptions. The Opposition's insistence that Mr. Sullivan should not have been permitted by the Hearing Examiner to adjust his assumptions is wrong and contradicts the scientific methodology set forth in the EPA guidelines.
>
> Moreover, as with almost every other issue in this case, the Opposition presents virtually no evidence supporting its arguments but instead merely criticizes Costco's evidence, employing a strategy of "death by a thousand cuts." The Opposition submitted no report showing any calculations applying its revised assumptions or establishing any anticipated violation of the NAAQS.

The relaxed assumptions following the discovery of Mr. Sullivan's calculation error were not the only "refinements" to Mr. Sullivan's analysis presented by Petitioner. He also started using more updated background figures for NO_2, which reduced the one-hour background level in his calculations from 98 $\mu g/m^3$ to 90 $\mu g/m^3$. Exhibit 255(a), p. 4. Even more dramatically, Mr. Sullivan's rebuttal report of February 21, 2014 (Exhibit 466) employed new methodologies for calculating the amount of nitrogen oxides (NOx) that would be assumed to be NO_2. In his earlier reports, Mr. Sullivan employed the conservative assumption built into the AERMOD model that all

NOx was NO_2.[55] This approach is conservative because the harmful chemical is NO_2 which is only one constituent of NOx. Thus, assuming that all NOx is NO_2 may overstate the level of NO_2 in any given area. In Mr. Sullivan's rebuttal report, he employs various methodologies which relax that assumption. As stated by Mr. Sullivan (Exhibit 466, p. 2):

> In response to Dr. Cole's testimony, Sullivan Environmental conducted a more refined modeling analysis, which provides resolution of all of the above issues. This analysis more realistically estimates actual levels of NO_2 **and thus is less conservative** than prior modeling. [Emphasis added.]

The methodologies Mr. Sullivan used will be discussed below, but the question here is whether the relaxing of another conservative assumption was inappropriate. The opposition had objected to much of the Sullivan rebuttal report on a number of grounds (Exhibits 470(b), 497(a) and 505(a)), including that it was improper rebuttal and that it did not have an established scientific basis. The Hearing Examiner ruled that Mr. Sullivan should not be barred, as a matter of law, from presenting further refinements to his analysis. Tr. 5/29/14, 180-181. The rationale for that ruling will be discussed further below, but the Hearing Examiner shares the Opposition's general concern about Petitioner's pattern of continuously relaxing conservative assumptions in an effort to achieve what Mr. Sullivan and Petitioner have characterized as greater accuracy or more realistic estimates. While it is true that the EPA permitting process allows an applicant to proceed to more sophisticated analysis of NO_2 levels if the Tier 1 approach indicates an exceedance of NAAQS NO_2 standards (*i.e.*, Tier 2 and Tier 3, in Appendix W, Section 5.2.4 (Exhibit 285, pp. 68236)), the special exception process is a quasi-adjudicatory process, not a permitting process, and an expert witness's continual retreat from his previous projections when the results turn out to be problematic for his client do raise credibility concerns. The Hearing Examiner must decide whether these changes were merely an effort to protect the interests of a client, or as Mr. Sullivan suggests, a

[55] This assumption reflects what EPA Guidelines (Appendix W) characterizes as the Tier 1 approach. EPA's Appendix W, Section 5.2.4 (Exhibit 285, pp. 68235-36).

search for greater accuracy in his model.

Based on a reading of Mr. Sullivan's numerous reports, as well as observation of him on the witness stand for many days, the Hearing Examiner finds that Mr. Sullivan is a generally credible witness who made an incredibly bad math error. It is clear to the Hearing Examiner that his subsequent efforts, including the relaxation of more conservative assumptions, were a reaction to the fact that the old assumptions, when combined with the corrected math, led to results that exceeded some EPA NAAQS standards. On the other hand, the real question is whether the reports Mr. Sullivan issued on August 16, 2013 (Exhibit 255(a)) and February 21, 2014 (Exhibit 466) bring us closer to, or further away from, the truth about the likely NO_2 levels, if the proposed gas station is allowed to operate. While Mr. Sullivan's late-in-the-day revisions should (and did) invite skepticism, they deserve to be examined along with Dr. Cole's criticism of them, and not rejected merely because his retreat from conservatism was motivated by a realization that his earlier assumptions yielded uncomfortable results. That examination will be made in Part III.B.6. of this report.

A similar issue arose from Mr. Sullivan's change in the way he obtained data regarding $PM_{2.5}$ background levels. In his November 2012 report (Exhibit 15(a)), Mr. Sullivan had included an annual average of all three EPA monitors at the Beltsville, Maryland site to show $PM_{2.5}$ background levels. He admitted in cross-examination that he had done so based on the agreed-upon protocol; however, after the EPA lowered the NAAQS standard for annual $PM_{2.5}$ levels from 15 $\mu g/m^3$ to 12 $\mu g/m^3$, Mr. Sullivan decided to limit the sources of his data for $PM_{2.5}$ background levels to only the two "reference monitors" at the Beltsville site. Tr. 5/8/14, 160-180. According to Mr. Sullivan, the EPA considers the reference monitors to be "the definitive monitors that relate to the standards." He thus excluded data of $PM_{2.5}$ background levels from the third monitor at the

Beltsville monitoring site, which was not a reference monitor, but a "BAM" monitor.[56] In his judgment, the BAM (or TEOM, as he called it) was not representative, in that it "conflicted" with two "gold standard methods" at the same spot. Tr. 5/1/14, 115. The conflict was that the BAM monitor gave consistently higher background readings than the standard monitors.

Mr. Sullivan admitted on cross-examination that his change was motivated by the fact that, ". . . the standard [for $PM_{2.5}$]changed in . . . January of 2013, and the approach of using an extremely conservative value . . . was not appropriate at that point in time." Tr. 5/8/14, 160-180. Mr. Sullivan stated his understanding that the EPA allows individual states the discretion of whether to rely on just the reference standard monitors or to also consider the BAM monitors (which are also known as Federal Equivalent Monitors or "FEMs"), since the BAM monitor results are consistently higher than the EPA standard monitors. Mr. Sullivan also introduced an EPA publication entitled "Display of Bias of Federal Equivalent Monitors (FEMs) in comparison to reference methods" and a summary of EPA position on the use of such equipment (Exhibit 572). The EPA uses the standard monitor readings. Tr. 5/12/14, 208-219.

The Hearing Examiner is concerned about Mr. Sullivan's departure from the protocol, which by Mr. Sullivan's own admission, was motivated by the EPA's reduction in the NAAQS standard for $PM_{2.5}$ from 15 to 12 micrograms per cubic meter. That reduction in the standard brought Mr. Sullivan's modeling results very close to the new standard, and including the BAM monitor readings for $PM_{2.5}$ apparently brought them over the new standard at some locations;[57] however, the Opposition produced no expert evidence to the effect that omitting the BAM readings improperly skewed the results. Therefore, the Hearing Examiner has no basis for rejecting Mr.

[56] "BAM" stands for "a beta-attenuation mass monitor." Mr. Sullivan initially called that monitor a "TEOM," but it was later identified as a "BAM."

[57] Table 1-11 on page 66 of the November 2012 Sullivan report (Exhibit 15(a)), shows a projected $PM_{2.5}$ reading at the Kenmont pool of 12.1 $\mu g/m^3$ and at the Stephen Knolls School of 12. 2 $\mu g/m^3$. At that time the NAAQS standard was 15 $\mu g/m^3$. These projections changed dramatically after the NAAQS standard was lowered to 12 $\mu g/m^3$, as evidenced by Slide 37 in Mr. Sullivan's PowerPoint presentation (Exhibit 174), which shows levels at or below 11 $\mu g/m^3$.

Sullivan's revised approach of using data only from the standard monitors, which appears to be consistent with EPA practice, although it is clearly another example of a retreat from his initial conservatism.

d. The Alleged Failure to Include Some Pollution Sources

As mentioned in an earlier section, Dr. Cole testified that there were other pollution sources which, in his judgment contribute to emissions and concentrations that were not included in Mr. Sullivan's inventory of pollution sources. He mentioned other commercial establishments in the Mall which have loading docks and which also have parking lots. Dr. Cole feels those sources are not subsumed in general background data, and should have been added to the model as local sources. Tr. 5/29/14, 149-152.

Mr. Sullivan responded that Dr. Cole had requested that he broadly model the Mall sources and even some local gas stations to get a more direct indication of their contribution to Kensington Heights. According to Mr. Sullivan, that is not the standard for modeling because there is no defined ending to that kind of an approach. The normal procedure that EPA follows is to model the proposed facility and add to that a conservative representation of all other sources, using available regional-measured data, and adding the highest values on to what is being modeled. In the end, he did model all the loading docks, and he built in tremendous embedded conservatism that overstated the impacts from the Mall. Tr. 6/17/13, 206-226.

It appears to the Hearing Examiner that Mr. Sullivan's approach in this regard was reasonable, especially since he included the nearby Costco Warehouse loading docks in his modeling. There was no evidence that adding in the additional sources referenced by Dr. Cole would have had a significant effect on the modeling results, and the Hearing Examiner therefore finds that any such omission was not shown to be material to this case.

e. The Use of the MOBILE6 Simulator rather than the MOVES Simulator

As mentioned above, part of the analysis to determine airborne pollutant levels is use of a vehicle emission simulation model in conjunction with the AERMOD computer model. Mr. Sullivan used a vehicle emission simulation model known as MOBILE6 to calculate vehicle emissions because the input data he needed to apply the newer model, known as MOVES (Motor Vehicle Emission Simulator),[58] was not available at the time he did his analysis. Dr. Cole took issue with Mr. Sullivan's use of the MOBILE6 simulator to calculate emissions, rather than the MOVES simulator, because MOVES gives $PM_{2.5}$ values for slow speeds and idling approximately 10 times higher than MOBILE6 for that same class of speeds. MOBILE6 also under-predicts NO_2 by a factor of 2 to 1, according to Dr. Cole. Because more traffic is being added to a place that already has a lot of traffic, Dr. Cole opined that it is important to get an accurate input for emissions from motor vehicles, as reflected EPA's current model, which is MOVES10. Tr. 12/5/13,123-141.

Mr. Sullivan rejected the assertion that his use of the MOBILE6 model instead of the newer MOVES simulator was inappropriate. He stated that he approached the Washington Council of Governments, which is the source of input data for a model like that, but those inputs weren't available. Mr. Sullivan initially testified that if he had used MOVES, based on the literature, there would have been some higher numbers, but not much higher. Tr. 6/17/13, 184-186. According to Mr. Sullivan, even applying a scale up to the MOVES model, the modeling of Costco's particulate emissions is 30 times lower than what EPA defines as insignificant for incremental emissions. Tr. 6/17/13, 206-226. On March 2, 2013, the EPA officially transferred from the MOBILE6.2 Model to MOVES, which is approximately four months after his November 2012 report was completed. Tr. 6/19/13, 193-197.

Mr. Sullivan added that particulates from cars in 2013 technology is so low that there is no

[58] MOVES is sometimes referred to as "MOVES2010" or "MOVES10."

reason to be worried about the gas station violating any standard. Even scaling up to account for the difference between the MOBILE6 model and the newer MOVES model that Dr. Coles suggested should be used still leaves the fine particulate number for the gas station at only .01 $\mu g/m^3$ (Exhibit 177). That is very small compared with the background of 10.8 $\mu g/m^3$ and the EPA standard of 12 $\mu g/m^3$. He suggested that the EPA defines insignificant contributions to fine particulates for this region as 0.3 $\mu g/m^3$, *i.e.* Costco's maximum impact is 30 times lower than EPA's defined level for insignificant contributions, even if maximum Costco impacts are doubled under the MOVES model. In his opinion, there's no objective or rational basis for concern based upon ultrafine particulate concentrations from the Costco gas station. It is so far below what's defined as a significant level that there is no reason, based upon the available facts at hand, to conclude that ultrafine particles at this particular gas station would cause a health concern. Tr. 6/19/13, 77-96.

Mr. Sullivan agreed with Dr. Cole that the MOVES model would project higher emissions for particulates. Therefore, he scaled up his modeling of $PM_{2.5}$ on a qualitative basis, trying to be consistent with MOVES. In his opinion, the dispersion modeling that he conducted for this project, using peak emissions all the time within the ring road, overstating the loading docks and overstating the parking lots, ultimately overstated the actual concentrations for all pollutants. Tr. 6/19/13, 193-197. In his initial assessment, he used a very conservative treatment of the loading dock, which in terms of the fine particulate matter, allowed him to compensate for differences between MOVES and MOBILE6. It was conservative for $PM_{2.5}$, and it was extremely conservative for NO_2 and CO. Tr. 9/20/13, 13-18. In addition, the original assumptions had scaled up both NO_2 and $PM_{2.5}$ for idling vehicles by a factor of 10 to allow for the difference between the MOBILE6 model and the new MOVES model, but while appropriate for $PM_{2.5}$, it unduly exaggerates the difference with regard to CO and NO_2. While this has less impact over a broader area, it skews the results over a

small area. He therefore refined his assumptions in his August 2013 report (Exhibit 255) to more accurately predict the emissions. Tr. 9/20/13, 25-29.

In rebuttal testimony, Mr. Sullivan agreed with Dr. Cole that MOBILE6 estimates of $PM_{2.5}$ are 10 times lower than that MOVES model, and he took that into account, but he opined that MOVES overstates NO_2 for this gas station because it uses an average fleet estimate, which includes heavy diesel trucks, and diesel trucks would not be filling up at this station. He contends that MOBILE6 results for NO_2 are higher than MOVES by 30 to 40 percent for this proposed gas station. Tr. 5/1/14, 81-86.

Mr. Sullivan further testified that in his February 2014 rebuttal report, he increased the $PM_{2.5}$ emissions by a factor of 10 for the gas queue, to address the fact that MOVES is higher. However, he scaled down for NO_2 impact in MOBILE6 at the gas queue because MOVES included diesel trucks which would not be present at the gas queue. Thus, while $PM_{2.5}$ went up, NO_2 went down a little bit. Tr. 5/12/14, 38-45.

In surrebuttal testimony, Dr. Cole further explained his disagreement with Mr. Sullivan's testimony regarding MOVES v. MOBILE6. Previously, Mr. Sullivan had agreed that the MOVES model showed a level of NOx twice as high as the MOBILE6 model, but in his rebuttal report, Mr. Sullivan argues the reverse – that MOBILE6 would yield an NOx value 30 to 40 percent higher than MOVES for this proposed gas station at the gas queue. The difference, according to Mr. Sullivan, was based on the MOVES assumption being based on fleet averages, which includes heavy diesel trucks, while the proposed gas station would not be fueling diesel trucks. Dr. Cole felt that this change was a further retreat from conservatism and was not justified by the evidence. He introduced a study called Emission Inventories Development Using MOVES Model, a Dallas-Fort Worth, Texas area case study by North Central Texas COG (Exhibit 603), which purports to show MOVES NOx results at twice the level of MOBILE6 NOx levels. Tr. 5/22/14, 116-130.

According to Dr. Cole, if you adjust for the correction from MOBILE6 to MOVES, which he asserted is a factor of two in an area where there are queues and slow-moving traffic, and add in the background levels, you get an NO_2 value of 287 micrograms per cubic meter, compared to the NAAQS standard of 190 for NO_2. Tr. 12/5/13, 153-163, 166-167. Thus, in Dr. Cole's opinion, if MOVES10 had been used in the AERMOD model and rural or even intermediate coefficients had been used, the model would have shown a potential for exceeding the annual $PM_{2.5}$ standard, and an NO_2 exceedance of the one-hour standard is likely. Dr. Cole also feels that Applicant did not do any analysis of the incremental impact of the gas station on the Mall itself, as distinguished from its margins. Tr. 12/5/13, 210-215.

Since this section of the report is concerned with methodologies, the Hearing Examiner cannot fault Mr. Sullivan for initially using MOBILE6, the only model for which he could obtain inputs at the time he did his November 2012 study and January 2013 supplement; however, in light of Dr. Cole's testimony and the Dallas-Fort Worth study cited by Dr. Cole (Exhibit 603), the Hearing Examiner cannot find that Petitioner met its burden of demonstrating that NO_2 levels are adequately accounted. The Hearing Examiner is not convinced that MOVES would actually show lower NO_2 levels because of the absence of diesels, as Mr. Sullivan suggests. At the very least, this issue has added to the uncertainty factor, which will be discussed in Part III.B.6. of this report.

f. The Choice EPA Monitors for Background Pollution Data and How to Apply the Data

A significant part of the modeled projection of air pollution levels in the neighborhood is composed of the existing background pollution. Background pollution levels are determined by reference to physical background monitors approved by the EPA in various locations in the area. One source of contention in this case was Mr. Sullivan's choice of particular monitors to select for the needed background data. In determining background values for his reports, Mr. Sullivan stated that he did not look at all the monitors in the area and pick the highest one he could find; rather, he

used the three most representative monitoring sites by triangulation – Arlington, Rockville and Beltsville – per EPA guidance, and then picked the highest of those three. Tr. 9/20/13, 148-154.

Two Opposition witnesses challenged Mr. Sullivan's choice of monitors and the way he applied monitored background data in his model, Dr. Henry Cole and Larry Silverman.[59]

Mr. Silverman questioned the manner in which Mr. Sullivan selected monitoring stations to use to establish background levels. There are eight air monitoring locations in this region which government agencies and scientists rely on, and he named seven – Beltsville; Rockville; Arlington; 34th Street, D.C.; First Street, D.C.; Van Buren Street, D.C.; and Alexandria. Mr. Silverman feels that Mr. Sullivan did not give an adequate answer as to why he used Arlington, for example, for CO monitoring. Mr. Silverman also suggested that according to the EPA, the actual background numbers are probably higher than the regional monitoring system is showing. Tr. 10/21/13, 11-31. Mr. Silverman feels that Mr. Sullivan's choice of monitor locations was not internally consistent, and he criticized Mr. Sullivan for not even suggesting a level of uncertainty in his modeling results. Tr. 10/21/13, 91-103.

Dr. Cole agreed that the chosen background monitor location should be the most representative of the subject site, but he was unable, in the first day of his surrebuttal testimony, to name the monitoring site that he felt should have been used. Tr. 5/22/14, 47-55. When he returned to the stand on the next hearing date, Dr. Cole testified that the monitoring site he would have chosen to get the background data would have been the First Street, Northwest, D.C., site. He explained that the following criteria should be used in choosing a site:

1. It should have a continuous record for a number of years;
2. It would have both ozone and NO_2 monitored at the same site;

[59] Dr. Cole testified as the Opposition's air quality expert and his credentials have been outlined in a previous footnote. Larry Silverman is an attorney, but he did not represent any parties in this case. He testified as a lay witness on behalf of SCGC concerning environmental policy and the Clean Air Act (CAA), as it applies to the air quality and facilities such as this proposed gas station. Tr. 10/17/13, 251-288; Tr. 10/21/13, 11-123. He has been practicing environmental law and policy for about 40 years and teaches related courses at the university level. Tr. 10/17/13, 251-254. His testimony is summarized in Appendix I, pp. 109-112.

3. It should have at least suburban density so that it's representative of the level of traffic; and
4. It should be as close to the subject site (*i.e.* Wheaton Plaza Mall) as possible.

When he looked at those criteria, only two stations stood out, and those were the two District of Columbia sites. One was 34th Street Northeast, and the second was First Street Northwest. Those sites meet all the criteria, and their readings are consistently about 10 parts per billion higher than the Arlington monitor, which is located a great distance from the site. Of those two, he picked the closest to the Mall, which would be the First Street Northwest monitoring site. It is located to the north of the metropolitan area. Tr. 5/29/14, 34-37.

Dr. Cole admitted that, prior to his testimony in surrebuttal, he had not selected the First Street Northwest, D.C. site as the most appropriate for the background monitoring of NO_2, and he had no recollection of discussing NO_2 monitoring sites in his protocol discussions with Mr. Sullivan. He saw the draft protocol report that identified Arlington as the monitoring location that was going to be used for NO_2 background levels, but at that point, it was his impression that NO_2 was not going to be a hot-button issue. Dr. Cole admitted that, prior to his surrebuttal testimony, he had never voiced any criticism of the Arlington monitoring location for NO_2 background data nor suggested an alternative location. Tr. 5/29/14, 37-44.

Dr. Cole testified that the two D.C. locations he preferred have a continuous multiyear record (although the Arlington site meets that criteria as well). The second criterion is that ozone and NO_2 monitors should be co-located, and the two Washington sites meet that criteria, but the Arlington site does not have an ozone monitor. The third criterion is that they have a combination of suburban and urban development to be representative of the Wheaton site, and he agreed that Arlington meets that minimum suburban development threshold, but he feels that it doesn't meet the fourth criterion of proximity to Wheaton. Dr. Cole admitted that Appendix W is more focused on representativeness than proximity, but in his opinion, a site location entirely on the opposite end of the metropolitan area and subject to much different source-receptor relationships, depending

upon wind direction, is not representative. Dr. Cole also opined that Beltsville has a lot of rural area, so it's not necessarily representative of Wheaton. He does not agree that the two monitoring locations in D.C. are more developed than the Wheaton location. Tr. 5/29/14, 44-50.

Mr. Sullivan disagreed with the criticism of his selection of monitoring stations for background data. He didn't look for the highest, but in the monitoring protocol, he identified locations that would be conservatively representative of a suburban location such as Wheaton, Maryland. If the objective had been to be representative of the core central business district, he would have used a site that represented that type of location, but this gas station was located in suburban Maryland, so he identified a more suburban location. He distinguished the subject site from the District of Columbia and Alexandria. The goal is to be representative; not to identify the highest model concentration possible. That applies to all pollutants. He selected Beltsville and Rockville because they were the closest suburban locations with $PM_{2.5}$ data available. Tr. 5/1/14, 38-41. Mr. Sullivan obtained his ozone level data for his Stage 2 analysis from a monitor in Rockville for part of the year and from Beltsville for part of the year because the Rockville monitor doesn't measure ozone for the full year. He input NO_2 levels from a monitor in Arlington. He believes his approach is consistent with EPA advisories. Tr. 5/12/14, 77-84.

The Hearing Examiner finds that Mr. Sullivan's selection of background monitor locations was sufficiently representative of the subject site (the primary criterion in Appendix W), and that the Opposition's criticism in this regard is, to say the least, untimely. As admitted by Dr. Cole, he did not challenge the use of the Arlington monitoring site until his surrebuttal testimony, though he had the opportunity to do so when Mr. Sullivan was first composing his air modeling protocol. Even when Dr. Cole first took the stand in surrebuttal, he still could not name a monitoring site he preferred. It would be patently unfair to rule out Mr. Sullivan's choice of a monitoring site based on expert testimony first raised on the last day of testimony in a hearing stretching over a year, at

that point. Moreover, even Dr. Cole admits that the Arlington monitoring station is fairly representative of the subject site in terms of development, although he criticizes it for being distant.

The Opposition also raised an objection to the manner in which Mr. Sullivan applied the monitoring data to his model. Mr. Sullivan testified that he used the NO_2 and $PM_{2.5}$ background levels in his rebuttal report of February 21, 2014 (Exhibit 466) through a process called "hour-by-hour pairing." Tr. 5/1/14, 97-117. Dr. Cole criticized this methodology as being unjustified by EPA advisories, specifically, a March 1, 2011, memo of Tyler Fox, leader of EPA's air quality modeling group (Exhibit 407). Dr. Cole testified that the March 2011 Fox Memo specifies that the EPA would not approve the hour-by-hour pairing method unless it can be shown that the site is "isolated," which the subject site is not (Exhibit 407, p. 21). Tr. 5/22/14, 88-94. However, on cross-examination, Dr. Cole admitted that the March 2011 Fox Memo (Exhibit 407, p. 21) does permit use of the hour-by-hour pairing of modeled and monitored values in another situation, ". . . where the modeled emission inventory clearly represents the majority of emissions that could potentially contribute to the cumulative impact assessment." Tr. 5/22/14, 142-148.

Dr. Cole has offered no evidence to demonstrate that using a method other than "hour-by-hour pairing" would actually have had a material effect on the modeling results, and therefore the Hearing Examiner does not find a sufficient reason to reject Mr. Sullivan's approach in this regard; however, the Hearing Examiner is concerned that Mr. Sullivan's use of the "hour-by-hour pairing" method has added to the uncertainty of his results, for the reasons suggested in the Tyler Fox memo (Exhibit 407, p. 21):

> . . . On the surface this approach could be perceived as being a more "refined" method than what is recommended above, and therefore more appropriate. However, the implicit assumption underlying this approach is that the background monitored levels for each hour are spatially uniform and that the monitored values are fully representative of background levels at each receptor for each hour. Such an assumption clearly ignores the many factors that contribute to the temporal and spatial variability of ambient concentrations across a typical modeling domain on an hourly basis. Therefore we do not recommend such an approach except in rare cases . . .

The impact of these mounting uncertainty factors will be discussed in Part III.B.6. of this report. One other issue regarding the treatment of background data was addressed in a prior section of this report – the Opposition's concern about Mr. Sullivan's decision to use $PM_{2.5}$ background data only from the Beltsville "reference monitors" in his analysis, after the EPA lowered its NAAQS annual standard for $PM_{2.5}$. As previously mentioned, the Hearing Examiner concluded that Mr. Sullivan had retreated from previous conservatism, but that he had no basis for rejecting Mr. Sullivan's revised approach of using data only from the standard monitors, a practice which appears to be consistent with EPA's guidance.

g. The Ozone Limiting Method (OLM) and Other Variants for Calculating the Conversion of NO into NO_2 and the Alleged One-Third Reduction of One-Hour NO_2 Levels in the Queue

We now turn to a source of great contention during the hearing – Mr. Sullivan's rebuttal report of February 21, 2014 (Exhibit 466) and its use of different methodologies for estimating the levels of nitrogen dioxide (NO_2) in the area of the subject site. In his pre-rebuttal reports, Mr. Sullivan employed the conservative assumption built into the AERMOD model that 100 percent of the nitrogen oxides (NOx) consisted of NO_2. This approach is conservative because the harmful chemical is NO_2, which is only one constituent of NOx. However, when Mr. Sullivan testified on September 20, 2013, he suggested that the percentage of NO_2 in NOx is only between five and 25 percent at the tailpipe, and thus he had overstated the level of NO_2 emissions by a factor of four at the loading dock and at the queue. Tr. 9/20/13, 36-44. He added that the amount of conversion of NO to NO_2 within 10 to 20 meters is essentially zero. Tr. 9/20/13, 71-77.

Dr. Cole responded that he did not find anything in the record that would substantiate going below the 100 percent NO to NO_2 conversion rate, and that to do so, under EPA Guidelines, requires a specific justification which Mr. Sullivan had not done at that point. Tr. 12/6/13, 129-132. Dr. Cole referenced the "three-tier analysis" set forth in the EPA's Appendix W (Exhibit 285).

The "three-tier analysis" in Appendix W addresses only the annual NO_2 standard because Appendix W predated the 2010 issuance of the EPA's one-hour NO_2 NAAQS standard; however, its rationale was applied to one-hour NO_2 issues in two EPA memos from Tyler Fox, leader of EPA's air quality modeling group. They are dated March 1, 2011 (Exhibit 407) and June 28, 2010 (the June 28 memo is included in Exhibit 391(a), which has a June 29, 2010 cover memo). These EPA advisories adopt, with some adjustments, the three-tier approach set out in the EPA's Appendix W, Section 5.2.4 (Exhibit 285, pp. 68235-36). The relevant portion of that section is quoted below:

> 5.2.4 Models for Nitrogen Dioxide (Annual Average)
> a. A tiered screening approach is recommended to obtain annual average estimates of NO_2 from point sources for New Source Review analysis,. . . .
> b. For Tier 1 (the initial screen), use an appropriate model in subsection 4.2.2 to estimate the maximum annual average concentration and assume a total conversion of NO to NO_2. If the concentration exceeds the NAAQS and/or PSD increments for NO_2, proceed to the 2nd level screen.
> c. For Tier 2 (2nd level) screening analysis, multiply the Tier 1 estimate(s) by an empirically derived NO_2/NOx value of [0.80 (which was substituted in the Tyler fox memo for the original 0.75)] . . .
> d. For Tier 3 (3rd level) analysis, a detailed screening method may be selected on a case-by-case basis. For point source modeling, detailed screening techniques such as the Ozone Limiting Method [OLM] may also be considered. Also, a site specific NO_2/NOx ratio may be used as a detailed screening method if it meets the same restrictions as described for alternative default NO_2/NOx ratios. . . . [Emphasis added.]

As stated in the March 2011 Tyler Fox memo (Exhibit 407, p. 5):

> Given the stringency of the 1-hour NO_2 standard relative to the annual standard, many more permit applicants may find it necessary to use the less conservative Tier 2 or Tier 3 approaches in order to demonstrate compliance with the new NAAQS rather than relying on the Tier 1 assumption of full conversion. The June 29, 2010 memo highlighted some of the potential issues that may need to be addressed in the application of these less conservative assumptions for estimating ambient NO_2 impacts, relative to the Tier 1 option of full conversion, and clarified the status of the Tier 3 PVMRM and OLM approaches available as non-regulatory-default options within the AERMOD model.

On February 21, 2014, Mr. Sullivan issued his rebuttal report (Exhibit 466), which according to Mr. Sullivan, contains exactly the type of analysis called for by Dr. Cole to enable the

use of the Tier 3 approach, and thus a projection of one-hour NO_2 levels below 100% of NOx. Based on those results, Mr. Sullivan concluded that NO_2 levels would not exceed NAAQS standards, and he suggested that even those results are very conservative. Tr. 5/1/14, 12-23.

Before discussing the merits of Mr. Sullivan's new approach, we should mention the legal objections raised by the Opposition to much of the Sullivan rebuttal report. The Opposition moved to strike the Sullivan rebuttal report on a number of grounds (Exhibits 470(b), 497(a) and 505(a)), including that it was improper rebuttal and that it did not have an established scientific basis. The Hearing Examiner ruled, in an Order dated March 3, 2014 (Exhibit 474), that the new evidence was arguably proper rebuttal, and that by giving the Opposition additional time to prepare for cross-examination and by allowing surrebuttal to respond to this evidence, any prejudice to the Opposition was clearly outweighed by the potential probative value of Mr. Sullivan's rebuttal report and testimony.

In order to rule on the Opposition's additional contention that Mr. Sullivan's new methodologies did not have an established scientific basis, the Hearing Examiner waited to hear from the two air quality experts on the issue at the hearing. After examining the EPA advisories discussed above and listening to the testimony of Mr. Sullivan (Tr. 5/8/14, 203-216) and Dr. Cole (Tr. 5/22/14, 10-33) during rebuttal and surrebuttal, respectively, the Hearing Examiner concluded that the OLM methodology and even the use of a site specific NO_2/NOx ratio are accepted by the EPA as Tier 3 analysis in appropriate circumstances; moreover, the EPA's touchstone, as that agency has said in its literature, is that the most accurate model possible should be developed. The question of whether or not Mr. Sullivan's model is the most accurate model is a question of reasonable controversy between the experts here. There is a legitimate argument as to what procedures should be applied to most accurately model the situation. The Hearing Examiner did not find that the procedures employed in Mr. Sullivan's rebuttal report were a new scientific

technique; rather, they are applications of known procedures to the particulars of this site. One can argue about the merits of that application, but that's what it is – an argument between the experts as to the merits of the application. The Hearing Examiner therefore found that the applicable Maryland case law would not bar the rebuttal evidence, and he overruled the Opposition's objection and motion to strike. Tr. 5/29/14, 180-181.

Mr. Sullivan's rebuttal report contains three "stages" of NO_2 analysis, which do not directly align with the EPA's three "tiers." Stage 1 is the method employed in his August 2013 report, which assumes that 100 percent of NOx is NO_2, just like the EPA's Tier 1. Stage 2 assumes that less than 100 percent of the NOx is NO_2, and applies the Ozone Limiting Method (OLM), referenced by the EPA as a Tier 3 procedure, to calculate how much nitric oxide (NO)[60] will be converted to NO_2 in the relevant geographical area. The speed of that conversion depends on numerous factors, including the amount of ozone available for the chemical reaction and the amount of air turbulence. Mr. Sullivan's Stage 3 approach is a more site specific method he devised for calculating the amount of NO likely to be converted to NO_2. These approaches are listed in Mr. Sullivan's rebuttal report (Exhibit 466, pp. 7-8):

- Stage 1: Results from August 2013 Report (as a point of comparison)
- Stage 2: Assessment of Expected 98th Percentile Peak 1-Hour NO_2 Concentrations with OLM Method and Concurrent Background (2006-2010) Applied (Fox, 2011) – Based on using the ozone limited method and concurrent background treatment for the standard meteorological data period used for this site, i.e. 2006 through 2010.
- Stage 3: Stage 3: Assessment of Expected 98th Percentile Peak 1-Hour NO_2 Concentrations with a Ratio of NO_2/NOx Within the Queue Area of 0.25 and 0.50 for Other Sources and Locations, and Concurrent Background (2010-2012) (Fox, 2011) - Based on using a more refined treatment of NO to NO_2 conversion for the near-field receptor set, and concurrent background treatment based on the most recent available NO_2 background data (2010 through 2012). This run provides the most accurate (yet still conservative) set of results to compare to the NAAQS. [Emphasis in original, and footnote omitted.]

[60] Nitric oxide (NO) is also known as "nitrogen monoxide." It is another constituent of NOx, along with NO_2.

According to Mr. Sullivan (Exhibit 466, p. 2), this analysis more realistically estimates actual levels of NO_2 and thus is less conservative than prior modeling.

Mr. Sullivan testified that the ozone limiting method (OLM) computes the conversion of NO to NO_2 by first inputting the initial ratio of NO_2 to NO_X from the point of release in a stack (*i.e.*, in this case the "stack" is the exhaust pipes of cars), and then assuming conversion of the remaining NO to NO_2 on a one-to-one basis depending on how much ozone is in the air. It is a conservative procedure, according to Mr. Sullivan, because it assumes that there is a complete mixing, right away, of the NOx plume and the ozone, which doesn't happen in this case. If there is less ozone than NO, it cannot convert it all, and so it will convert what's available in the atmosphere at that point in time. Tr. 5/1/14, 49-53. Also, according to Mr. Sullivan, NO can quickly convert to NO_2 only when there is contact with ozone at the molecular level. That takes a lot of time. Atmospheric turbulence does not mix things at the molecular level until it gets into fine-scale atmospheric diffusion, which is an extremely slow process. Tr. 5/1/14, 47-49.

In his Stage 3 analysis, Mr. Sullivan assigns different NO to NO_2 conversion ratios depending on how close the receptors (*i.e.*, people) are to the source (*i.e.*, the subject site). He uses a 25 percent conversion ratio within the 40 meter zone around the queue and loading dock (also referred to in the testimony as "the box") and a 50 percent conversion ratio for the remaining modeling domain. Mr. Sullivan testified that he made that distinction because it would not be feasible to have complete mixing of NO and ozone, down to the molecular level, for a considerable distance. In his judgment (based on studies cited in Appendix B to his rebuttal report), it would actually be a kilometer or more before there would be molecular contact, and therefore his Stage 3 assumptions are conservative, but more realistic, than his Stage 2 analysis. Mr. Sullivan asserted that his most accurate assessment is the Stage 3, NO_2, one-hour evaluation in his rebuttal report, which showed a maximum of 121 micrograms per cubic meter of NO_2. Tr. 5/1/14, 53-60 and Tr.

5/8/14, 280-290.

Dr. Cole strongly disagreed with Mr. Sullivan's testimony about travel distance from the source being a significant factor in mixing NO and ozone in this case. In Dr. Cole's opinion, the dissipation of NOx in car exhaust takes place in a matter of five or ten meters, not a kilometer. The rate at which mixing occurs down to the molecular level is a matter of scale. According to Dr. Cole, if there is a very small source with a small plume, that is going to disperse and mix a lot faster than the giant plume of a power plant, which is what was studied in the materials relied on by Mr. Sullivan. It takes less dissipation to get these smaller plumes to mix down to the molecular level. Slide 7 of Dr. Cole's surrebuttal PowerPoint presentation (Exhibit 581) makes the point by comparing power plant plumes with the turbulent emissions close to car exhausts:

As stated by Dr, Cole, in a parking lot, on a cold morning when there's a lot of traffic going on, there will be turbulence at the scale of these particular exhausts with a lot more mixing because of the roughness of the surface. The greater the surface roughness, the lower the wind velocity in the lower layers. One of the most basic premises of air pollution meteorology is that pollution

concentrations are inversely proportional to wind speed. So with these elements slowing down the wind speed, pollution concentrations will be increasing. Tr. 5/22/14, 58-67.

Dr. Cole also attacked Mr. Sullivan's Stage 3 assumption of NO_2/NOx conversion ratios lower than the 80 percent recommended for Tier 2 by the EPA. He characterized the assumption of a 25 percent conversion ratio in "the box" and 50 percent outside the box as "arbitrary" and not something mentioned in the EPA guidance. Dr. Cole opined that Mr. Sullivan's Stage 2 analysis barely "squeaks in" as the ozone limiting method because he does not think there is a basis for assigning an arbitrary 25 percent NO_2/NOx conversion ratio in the 40-meter box, and it's not something that's mentioned in the EPA guidance. Tr. 5/22/14, 18-19.

In addition to these points, Dr. Cole opined that Mr. Sullivan's rebuttal report had not satisfied the requirement that deviations from EPA guidance be carefully documented and fully supported. He noted that the Tyler Fox memo from March 1, 2011 (pp. 5-6), specifically characterizes the status of the Tier 3 OLM approach as a "non-regulatory-default option[] within the AERMOD model," and its use requires justification and approval by the regional office on a case-by-case basis pursuant to Section 3.1.2.c. and other sections of Appendix W. Dr. Cole asserted that, with every successive report, Mr. Sullivan has found it necessary to use less and less conservative analyses, such as retreating from total NO to NO_2 conversion in his November 2012 report. According to Dr. Cole, Mr. Sullivan says his Stage 3 analysis is more refined but, in fact, it is less conservative and predicts lower NO_2 concentrations. Dr. Cole took issue with "this progressive retreat from conservatism," particularly in a complex situation like this one where there are so many variables that there is a strong need for conservatism. Dr. Cole admitted that there is a kind of a tension in the regulations between the touchstone goal of accuracy and the need for conservatism to reduce uncertainty in the results; however, in his opinion ((Tr. 5/22/14, 21-32),

> . . . what this guidance says is that when the issue is compliance with the standard and protection of human health, that you look at . . . the upper error band, that's

> where the conservatism comes from, because with so many uncertainties you've got to be more cautious. That's what they're saying. That's the gist of this regulation.

In contrast, Mr. Sullivan testified that EPA guidelines permit three tiers of analysis for determining NOx conversion to NO_2. If one were doing a modeling analysis for a permit under the Clean Air Act, because of its non-regulatory default status, the use of OLM would require justification and approval by the regional office on a case-by-case basis; however, he is not required to submit the data, the reports, and the protocols to the EPA for review and approval because they're not involved in the special exception process. He admitted that the OLM method is characterized in the Tyler Fox memos as a "non-regulatory default option," within the EPA-preferred AERMOD dispersion model, but Tyler Fox also stated that OLM is an allowable method that can be used. He once again pointed out that the EPA's guidance also says that the most accurate modeling methodology for the case at hand should be applied. That's the overarching guidance on air quality modeling from the EPA, and for this site-specific matter, he has used judgment to apply the EPA guidance in an accurate and appropriate way. Tr. 5/8/14, 203-216.

We will return to an evaluation of Mr. Sullivan's results in the next section of this report, based on the differing opinions of the experts. However, at this juncture, the Hearing Examiner can say that he finds Mr. Sullivan's new approach to be problematic, especially his Stage 3 analysis. Both Stage 2 and Stage 3 represent a further retreat from conservatism, as Mr. Sullivan candidly admits, and thus they result in a further narrowing of the safety buffer against adverse health effects provided by the NAAQS standards. As stated in the March 2011 EPA memo of Tyler Fox (p. 12):

> The goal of the cumulative impact assessment should be to demonstrate with an adequate degree of confidence in the result that the proposed new or modified emissions will not cause or significantly contribute to violations of the NAAQS. In general, the more conservative the assumptions on which the cumulative analysis is based, the more confidence there will be that the goal has been achieved and the less controversial the review process will be from the perspective of the reviewing authority. As less conservative assumptions are implemented in the analysis, the more scrutiny those assumptions may require and the review process may tend to be lengthier and more controversial as a result . . .

The Hearing Examiner also finds Dr. Cole's testimony about the likely speed of conversion of NO to NO_2 to be more convincing than Mr. Sullivan's argument because the small sources of tailpipe exhaust are more likely to achieve rapid contact between NO and ozone at the molecular level than the higher altitude plumes of a smoke stack. On the other hand, he cannot agree with Dr. Cole's accusation that the NO_2/NOx conversion ratios chosen by Mr. Sullivan were "arbitrary," in light of the following quote from Mr. Sullivan's rebuttal report (Exhibit 466, p. 29):

> The other critical input is the initial NO_2/NO_x ratio, which is needed for the OLM method and also is needed for analysis within, and adjacent to, the gas queue. An upper bound ratio of 0.25 was used based on CAPCOA, 2011 for all vehicle emissions. This value is highly conservative. For vehicles traveling along the Ring Road (and other roadways), travel into and out of the gas station, and travel within the parking lots, the actual ratio of NO_2/NO_x is less than 0.10. Most studies show a range of 0 to 0.05 (Yao, 2005; Lenner & Rosen, 1983; Pierson et. al., 1996; and Siegl et. al., 1994.) When idling, the ratio is higher, as shown in Lenner & Lindquist, 1983. Based on the scenario in Lenner & Lindquist, 1983 where vehicles were running at speed for 30 minutes and then were put into idle mode, most directly represents gas queue sources. Initially when converting to idle the ratio was 0.15. After 10 and 20 minutes, the ratios were shown to be 0.20 and 0.25, respectively (Lenner & Lindquist, 1983). With a 40 car queue and 20 minute processing time, the average ratio that would apply to the queue would be 10 minutes of idling (at the mid-point of the queue), i.e. an average ratio of 0.20. To maintain a manageable modeling analysis, 0.25 (the upper-bound) was used for all sources. Based on the above, this is clearly a conservative treatment.

Thus, the selection of NO_2/NOx conversion ratios as low as 25 percent may have been unwise when the question is the possibility of adverse health consequences, but it is unfair to call it arbitrary. In this connection, it is undisputed that, in addition to NO converted to NO_2 <u>after</u> it leaves the tail pipe, a certain percentage of auto exhaust is already NO_2 when it leaves the tailpipe. That amount varies from about 3 percent for a car moving at 40 km/hr to about 24 percent for a car idling for 21 minutes (Exhibit 604). Tr. 5/22/14, 166-185.

We should mention one other technique employed by Mr. Sullivan that the Opposition found unacceptable – the suggestion of a one-third reduction of <u>one-hour</u> NO_2 levels for people in the gas queue based on the concept that people waiting in the gas queue to fill up at the Costco station will spend a maximum of about 20 minutes there. In his December 16, 2013 report (Exhibit

255(a), p. 4), Mr Sullivan reasoned that those people would be exposed to only one third of the one-hour NO_2 levels:

- We have assumed conservatively that individuals were in the queue for an hour, even though the transaction and queue data shows that the maximum time is 16 minutes on weekdays and 20 minutes on weekends based on passage through a 40 car queue, based on the observed 4 minutes fueling time per vehicle throughput for passage through the queue. In the refined modeling, we assume 20 minutes in queue and 40 minutes at the background concentration for the 1-hour NO_2 concentrations. [Emphasis added.]

Dr. Cole challenged the propriety of including the 20-minute assumption in the model. He noted that some people, such as employees, may be there for many hours and that people who may be exposed for 20 minutes at the queue, may also be moving to other places around the site. Dr. Cole also observed that in the area of the Mall, the concentrations are much higher for NO_2 than they are for background, and it is well-known in air pollution meteorology that the maximum exposures for a smaller time period are going to be higher. He concluded that the one-hour standard should not have been reduced by a 20-minute assumption, and he is not aware of any EPA regulations or guidance that would support the reduction of these one-hour concentrations based on exposure time. Tr. 12/5/13, 87-92; Tr. 12/6/13, 101-129.

In response to Dr. Cole's criticism that the EPA one-hour standard should not be applied by dividing the exposure into one third for a 20 minute exposure, Mr. Sullivan replied that he didn't apply it that way; he just made the observation, but his actual figures were based on the full one-hour standard. Tr. 5/1/14, 53-60.

The Hearing Examiner's take on this issue is that Mr. Sullivan's testimony on this point seems to contradict the above-quoted language in his August 2013 report. Exhibit 255(a), p. 4. At the very least, he has added uncertainty to the predictive value of his analysis. In the final section of this part of the report, we will assess the merits of the health effects issue, including questions about uncertainty.

6. The Pollutant Levels of NO_2, $PM_{2.5}$, CO and VOCs

As mentioned in the very beginning of the health effects portion of this report, although numerous pollutants were discussed in this case and reams of evidence presented, the testimony at the hearing (especially the testimony of the health experts, Drs. Chase, Jison and Breysse, focused on only two toxics – One-hour levels of Nitrogen Dioxide (NO_2) and annual levels of Fine (including Ultrafine) Particulate Matter ($PM_{2.5}$). This report will therefore focus mostly on them as well; however, because Technical Staff also expressed concerns about carbon monoxide (CO) and volatile organic compounds (VOCs) (*see, e.g.*, Exhibit 70, pp. 11-12, 2-3 and Attachment 8), the Hearing Examiner will briefly discuss those pollutants, as well. The first step is to determine the levels of these pollutants at the subject site and at key locations in the general neighborhood.

1. NO_2 levels

Perhaps the most hotly contested issue at the hearing was the projected one-hour level of nitrogen dioxide (NO_2) in and around the subject site. Mr. Sullivan's original one-hour, NO_2 projections, as reported by Technical Staff (Exhibit 70, Attachment 8, pp. 11-13) were:

	Modeled Values ($\mu g/m^3$)	**Maximum 1-hour NO_2 Level (Modeled Value + Background) ($\mu g/m^3$)**
NAAQS maximum		190
Location		
Nearest residential backyard	66	94
Kenmont Swim and Tennis Club	54	82
Stephen Knolls School	63	91

Figure 12: Maximum 1-Hour NO_2 Values

As noted by Technical Staff, the maximum one hour NO_2 levels (the right-hand side of the chart) were derived from combining Mr. Sullivan's modeled values at various locations with the background one-hour NO_2 level of 28 $\mu g/m^3$ derived (erroneously, as later revealed) from data at the regional air quality monitor in Arlington, Virginia. The NAAQS standard for one-hour NO_2 is 190 $\mu g/m^3$ (which is also expressed as 100 ppb). Even at the levels listed at that point (the highest listed at that point being 94 $\mu g/m^3$ in the nearest residential backyard), Technical Staff expressed concerns that "the nearest residences will be directly impacted by the location of the proposed Costco gasoline station . . . The Applicant's report understates the impact to the nearest residence as 94 µg/m3. However, Figure [1-16 from page 58 of Mr. Sullivan's November 2012 report (Exhibit 15(a)] shows that the 1-hour NO_2 emissions in the backyards of the nearest residences are at least 100 $\mu g/m^3$ and may be closer to 120 $\mu g/m^3$ on the residential units approved as part of Preliminary Plan #120110170 on the 'Mt. McComas' site (Kensington Heights)." Exhibit 70, Attachment 8, p. 22.

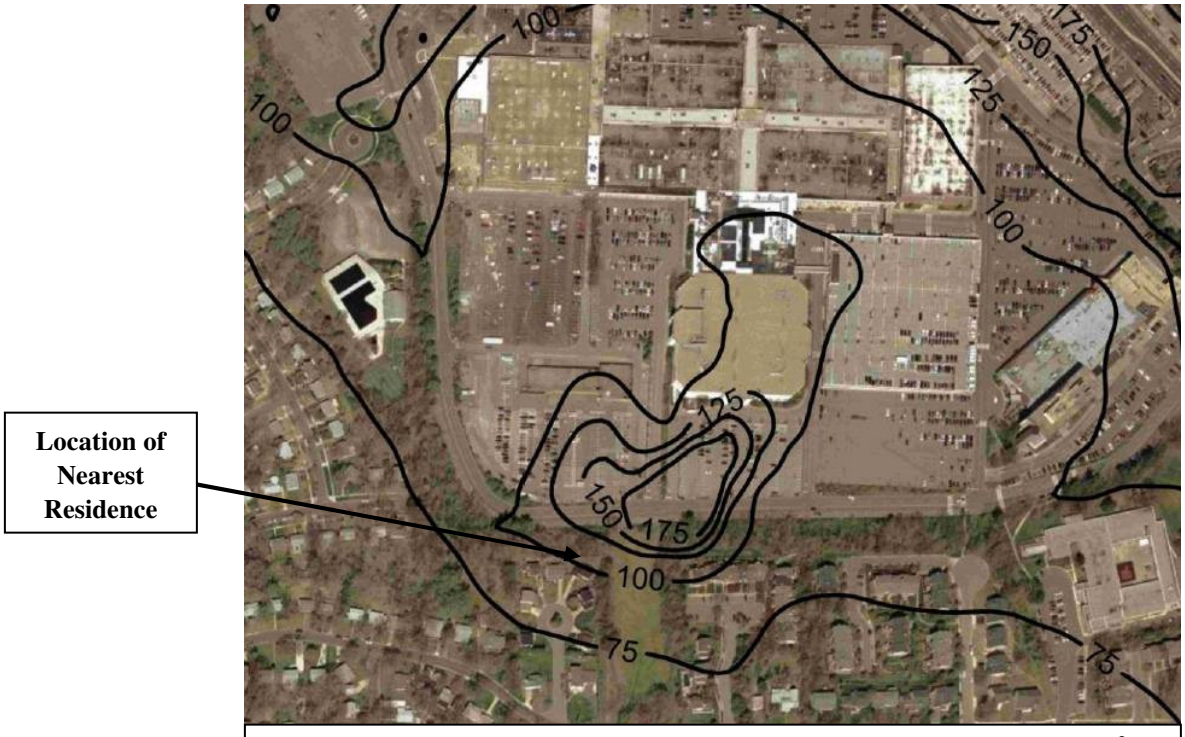
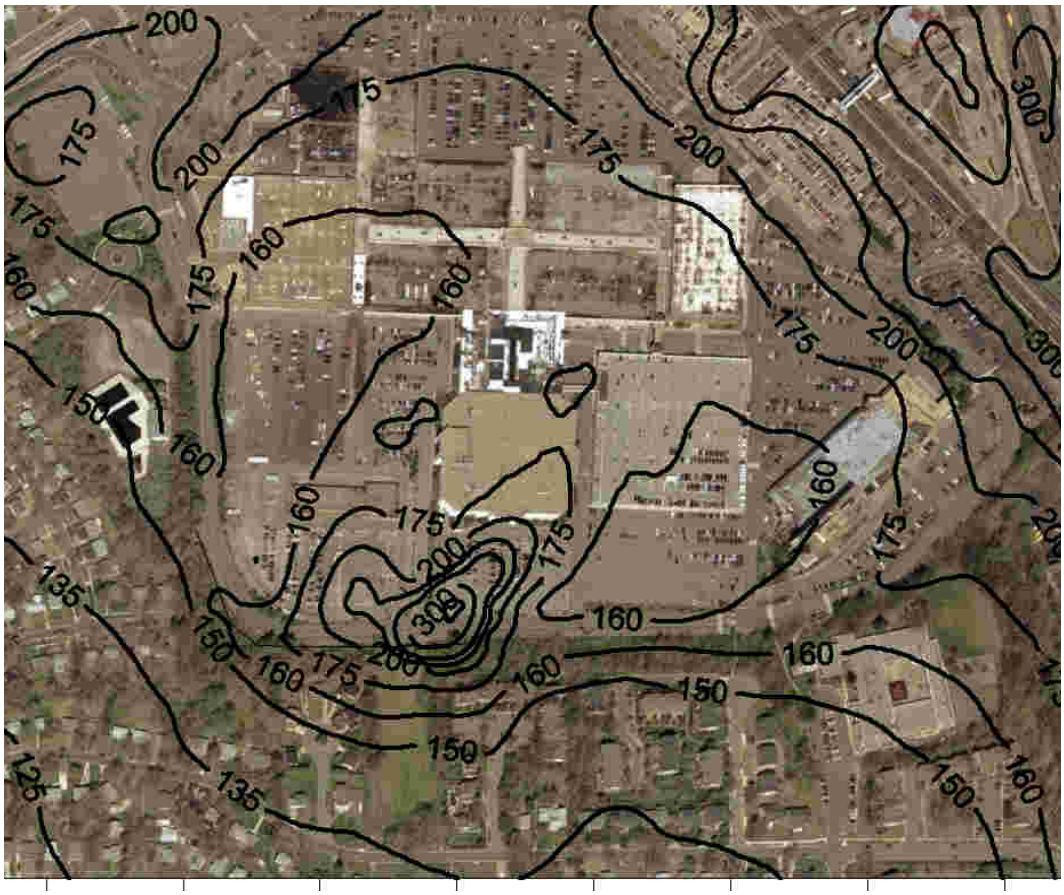


Figure 1-16: Predicted 98th Percentile 1-Hour NO_2 Isopleth Results ($\mu g/m^3$) plu 28 $\mu g/m^3$ Background NAAQS = 190 $\mu g/m^3$

Staff did not mention it in the text, but the same isopleth map shows predicted levels of one-hour NO_2 at the gas queue and Costco loading dock locations of 150 and 175 µg/m^3. This fact became more significant when the previously discussed conversion error of parts per billion to micrograms per cubic meter was revealed during the OZAH hearing. That revelation brought the realization that the actual background levels from the Arlington monitor, when properly converted, were not 28 µg/m^3, but 98 µg/m^3. This resulted in a new report from Mr. Sullivan in August of 2013 (Exhibit 255(a)), in which he produced corrected background figures, but also did additional "refinements" to some of his calculations, such as using an updated background figure of one-hour NO_2 of 90 µg/m^3, based on more recent monitor readings. Nevertheless, he did also produce a corrected isopleth map (Figure 1 on page 11) showing one-hour NO_2 Isopleth Results (µg/m^3) for all sources using rural dispersion coefficients, plus 98 µg/m^3 background:

Figure 1: Refined Predicted 98th Percentile 1-Hour NO_2 Isopleth Results (µg/m^3)
For All Sources Using Rural Dispersion plus 98 µg/m^3 Background
NAAQS = 190 µg/m^3 [MAX = 388 µg/m^3 at322099X, 4322603Y]



One cannot help but notice that at some locations in and around the Mall, this corrected chart is showing one-hour NO_2 projections well above the NAAQS standard of 190 $\mu g/m^3$. Dr. Cole calculated in an affidavit (Exhibit 262(b), ¶ 13) that applying Mr. Sullivan's original assumptions, using urban coefficients and correcting the mathematical error, the NO_2 concentration will be 277 $\mu g/m^3$ within the mall parcel, which would exceed the EPA's maximum 1-hour, NO_2 standard of 190 $\mu g/m^3$. In fact, Mr. Sullivan recognizes in the caption of his Figure 1, reproduced above, that at one location, a level of 388 $\mu g/m^3$ is shown. On the other hand, he notes:

> This figure is based on rural dispersion coefficients and very conservative treatments for the warehouse and queue treatments. This figure is not intended to be representative of areas within . . . or in close proximity to the Ring Road, because these areas are clearly associated with urban dispersion conditions. This especially is true for trajectories from sources within the mall area to other locations within the mall area because the rural dispersion coefficients substantially overstate the 1-hour exposures.

Mr. Sullivan realized that these results showed exceedances of that NAAQS standards, so he further "refined" his analysis, relaxing previous conservative assumptions. As explained by Mr. Sullivan (Exhibit 255(a), p. 17):

> . . . Clearly, the conservatism and amount of simplification will need to be reduced if we are going to evaluate concentrations **within** a source that individuals pass through in well under 1-hour.
>
> It is not standard practice in modeling studies that transient exposure areas, such as a gas queue, be included in a modeling analysis. Individuals would only be at the gas queue source area for a small fraction of an hourly exposure. . . .
>
> With the Stop Costco Gas Coalition focusing on transient locations within the mall, it is now necessary to further refine the analysis and reduce some of the conservatism in the analysis in order to ensure that it is not inappropriately concluded that elevated 1-hour NO_2 exposures, will occur when in reality actual exposures will be far below the standards. The following shows the basis for the emissions from the loading dock in the November 2012 report, followed by refined, but still conservative, emissions for this supplemental report.

Mr. Sullivan then proceeded to adjust his figures based on lower NO_2 background readings of 90 $\mu g/m^3$, reductions for people in the gas queue spending less than an hour there and reductions for truck time idling at the loading dock. His new figures are reflected in additional isopleth maps for

one-hour NO_2 levels (Figure 9 and 10 on p. 24 of Exhibit 255(a)):

Figure 9: Refined Predicted 98th Percentile 1-Hour NO_2 Isopleth Results (µg/m^3)
For All Sources Using **Urban** Dispersion **plus 90 µg/m^3 Background**[61]
NAAQS = 190 µg/m^3 [MAX = 168 µg/m^3 at 322024X, 4322603Y]

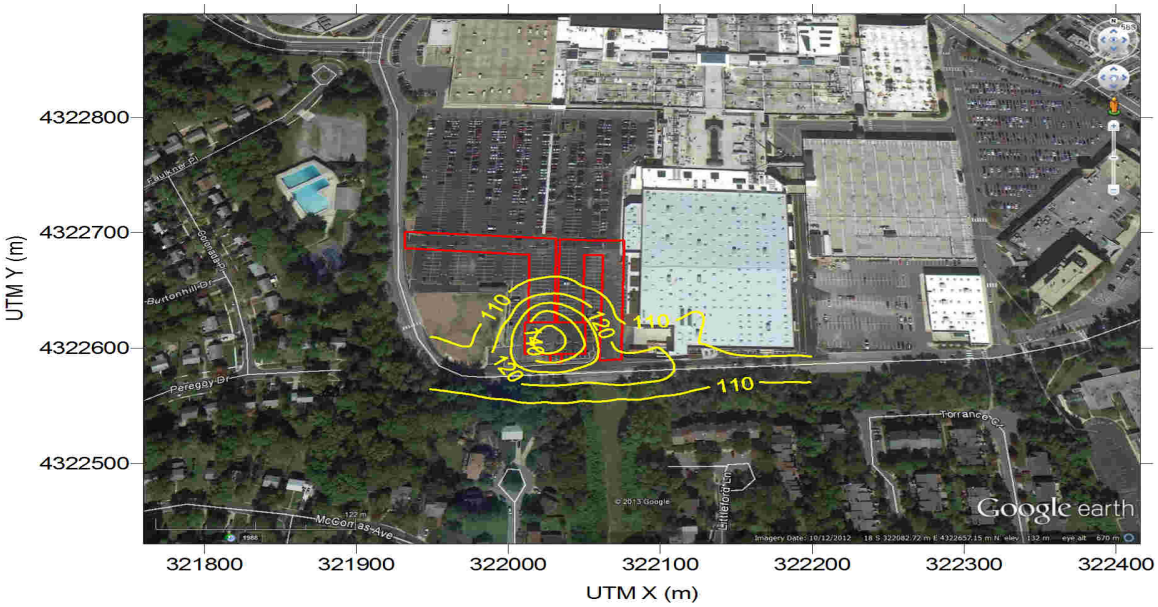
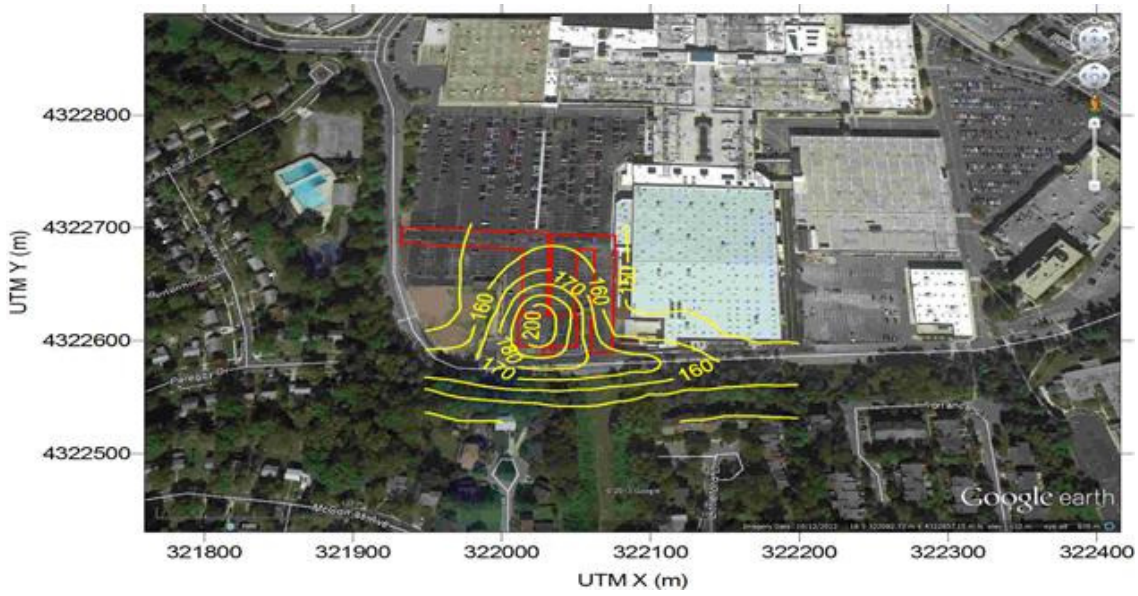


Figure 10: Refined Predicted 98th Percentile 1-Hour NO_2 Isopleth Results (µg/m^3)
For All Sources Using **Rural** Dispersion **plus 90 µg/m^3 Background**
NAAQS = 190 µg/m^3 [MAX = 217 µg/m^3 at 322024X, 4322603Y]



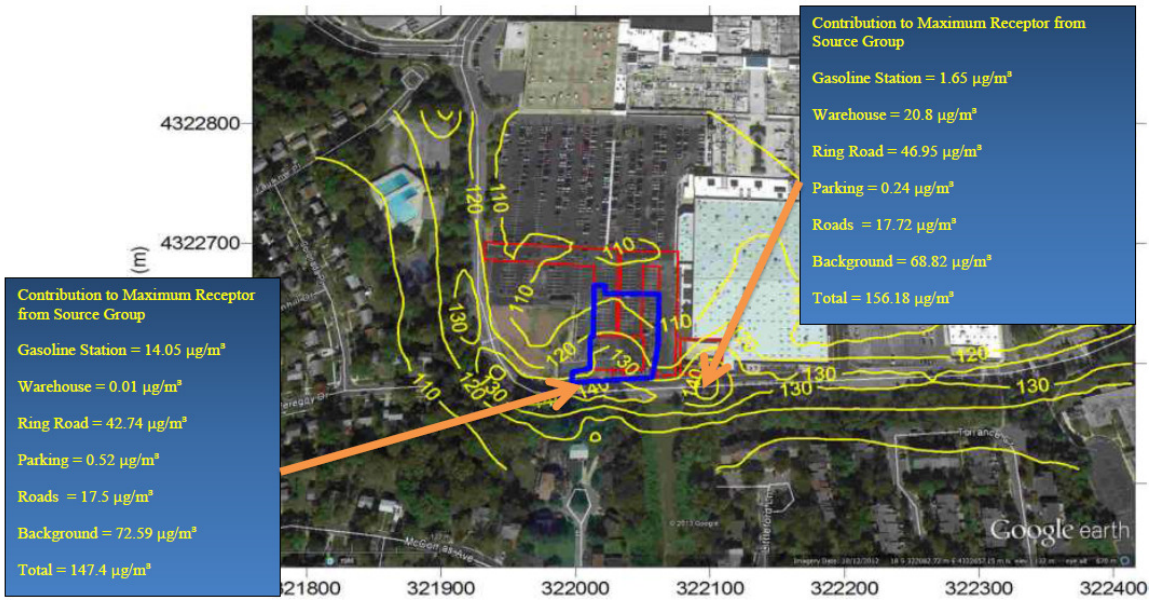
[61] Background of 90 µg/m^3 derived from the average of 2010-2012 measured 98th percentile concentration data: 2010 - 98 µg/m^3, 2011 – 86 µg/m^3, 2012 - 83 µg/m^3.

Mr. Sullivan's "refined analysis" clearly reduced the projected one hour NO_2 levels, although even with theses adjustments, the rural dispersion coefficients still yield one-hour NO_2 levels near the gas queue of 217 µg/m^3, a level exceeding the NAAQS standard of 190 µg/m^3. Of course, Mr. Sullivan argues that the urban coefficients are more appropriate on the hard surface Mall itself, and the Hearing Examiner agrees with him on that point, as previously discussed.

But, Mr. Sullivan was not done with his "refinements." On February 21, 2014, Mr. Sullivan filed his rebuttal report (Exhibit 466) in which he relaxed his previous assumptions that 100 percent of NOx emissions were NO_2 , and reduced those assumed levels, especially near the gas queue and the loading dock by two forms of "Tier 3" analysis described in the previous section of this report. As discussed there, both of Mr. Sullivan's new approaches (which he designated "Stage 2" and "Stage 3") were hotly contested by the Opposition.

The results of Mr. Sullivan's Stage 2 analysis (applying a form of the OLM) are set forth in the following isopleth map from his rebuttal report Exhibit 466, Figure 2, p. 12):

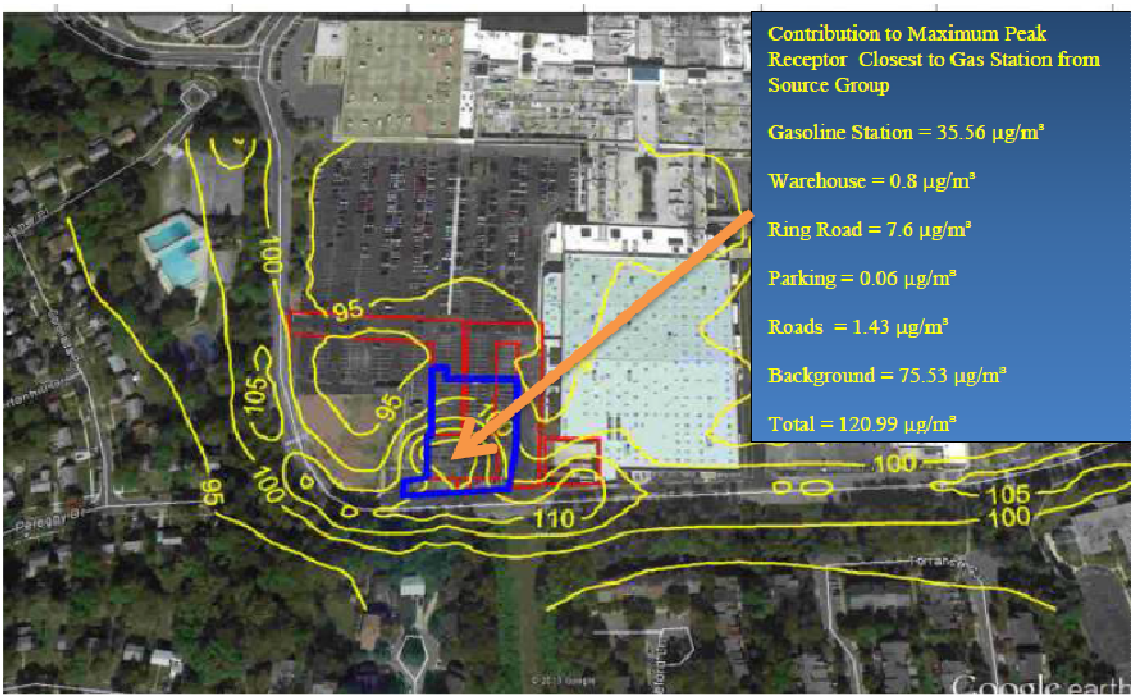
Figure 2: Stage 2 Predicted 98th Percentile Daily 1-Hour Maximum NO_2 Concentrations (µg/m^3)
For All Sources Using Urban Dispersion, the OLM Method, and Hourly Concurrent Background (2006-2010) NAAQS = 190 µg/m^3 [MAX = 156 µg/m^3 at 322098X, 4322573Y][62]



[62] The August 16, 2013 report maximum concentration was 168 µg/m^3 using a 98 µg/m^3 background, while the background levels used in Stage 2 are only 68 to 72 µg/m^3.

Mr. Sullivan's final, lowest projections of one-hour NO_2 levels are shown in the next isopleth map from his rebuttal report (Exhibit 466, Figure 3, p. 13):

Figure 3: Stage 3 Predicted 98th Percentile Daily 1-Hour Maximum NO_2 Concentrations (µg/m^3) For All Sources Using Urban Dispersion, a Ratio of NO_2/NOx Within the Queue Area of 0.25 and 0.50 for Other Sources and Locations, and Concurrent Background (2010-2012) NAAQS = 190 µg/m^3 [MAX = 121 µg/m^3 at 322031X, 4322612Y] [63]



As shown, Mr. Sullivan's calculations yield a maximum one-hour NO_2 projection at the gas queue of 121 µg/m^3, well below the NAAQS one-hour NO_2 standard of 190 µg/m^3. The projections away from the gas queue are, of course, lower than that, so Mr. Sullivan's final analysis is that the proposed gas station will cause no exceedance of the NAAQS one-hour NO_2 standard.

Mr. Sullivan so testified in rebuttal at the hearing, and he suggested that even these results are very conservative considering the measured values near major highways. Tr. 5/1/14, 12-23, 53-60. He introduced Exhibit 593, showing NO_2 one-hour monitor values in 411 EPA monitoring stations across the United States in 2013. The highest measurement shows 156 µg/m^3 of NO_2 (83

[63] The August 16, 2013 report maximum concentration was 168 µg/m^3 using a 98 µg/m^3 background, while the background levels used in Stage 3 are only 75.53 µg/m^3.

ppb) on an hourly basis. Mr. Sullivan therefore questions whether the loading dock at Costco could produce higher values than that, especially since the measurements around the country, in his opinion, are for much busier places than the subject site and are affected by power plants, highways and the like. Despite that, levels above 156 $\mu g/m^3$ of NO_2 on an hourly basis are not being seen. Tr. 5/12/14, 164-174. Mr. Sullivan also noted that measurements near busy highways were showing lower numbers. The state of Virginia's air quality regulatory agency, the Department of Environmental Quality, has a monitor near I-95 in Richmond. The 2013 98th percentile value was 86 $\mu g/m^3$. Las Vegas has a monitor for NO_2 that is approximately 100 feet from a major highway. They have measured 92 $\mu g/m^3$. Even on Los Angeles's Interstate 710, which has 190,000 cars and trucks a day, 32,000 of which are heavy-duty diesel trucks, and with a monitor located right next to the roadway (*i.e.*, 15 meters from the highway, downwind of the flow), it measured 153 $\mu g/m^3$. Mr. Sullivan suggested that ring road emissions would logically be much lower than highway emissions, even 10 times lower than emissions near I-710 in Los Angeles. Tr. 5/1/14, 20-23.

Dr. Cole responded that the subject site, with all of its peculiarities, could result in an NO_2 one-hour reading above what has been monitored adjacent to a congested super highway. The subject site would have a mega gas station with queues, in an area with ring roads, with congestion, with back-ups, and with the non-linear or synergistic effect of increased traffic and lowering of vehicle speeds. Also, there's another unique factor about this site, which is that this particular site has a building to the north, a building to the east, and a proposed wall to the south, all of which may impact on wind speed and circulation. It is hard to model, and hasn't been addressed in his opinion, but it speaks to a need for conservatism. Tr. 5/22/14, 104-114.

Dr. Cole initially opined that the evidence Petitioner generated supports the contention that the NO_2 one-hour standard would be exceeded because the Sullivan reports don't rule it out with sufficient evidence, accounting for uncertainties, and because Mr. Sullivan, in a number of

important instances, under-predicts emissions and over-predicts dispersion, which reduces predicted concentrations. Tr. 12/5/13, 97. In his rebuttal testimony, Dr. Cole stated that, in his opinion, if Mr. Sullivan had used a more conservative approach in his Stage 2 analysis, in line with EPA guidance, there is a significant likelihood, though not a certainty, that the outcome would show a maximum level above the NAAQS standard for one-hour NO_2. He also feels that Mr. Sullivan's Stage 3 analysis is the least reliable and departs the furthest from any of EPA's recommendations or default options and is, in fact, at odds with the guidance. Stage 1 analysis was essentially included in the 2013 report which assumes a 100% conversion of NOx, and even though a more nuanced approach such as Tier 2 80% might be okay, the other problems with the 2013 report remain. Tr. 5/22/14, 138-142.

Dr. Cole summarized the factors that support his opinion that there is a distinct possibility that there would be an exceedance of the 100-parts-per-billion NO_2 one-hour NAAQS standard. First of all, he disagrees with the choice of background site because Mr. Sullivan could have used the closer First Street site, and the values would have been about 10 micrograms per cubic meter higher. Secondly, Mr. Sullivan used paired hour-by-hour matching, which EPA cautions against absent a demonstration that it's appropriate. In Dr. Cole's professional judgment, Wheaton is not an isolated site and did not meet the criteria for hour-by-hour matching. Had Mr. Sullivan used the background values from the First Street Washington D.C. monitoring station, the background number would be around 90 to 100 $\mu g/m^3$ instead of the 60 to 70 $\mu g/m^3$ background he used in his Stage 2 analysis. Thirdly, Dr. Cole finds it unbelievable that Mr. Sullivan actually used a down-scale factor in his Stage 2 and Stage 3 analyses to get from MOBILE6 to MOVES based on one non-published paper. Tr. 5/29/14, 120-140.

In addition, Dr. Cole testified that there were a lot of pollution sources which, in his judgment, contribute to NOx emissions and concentrations that were not included in the source

inventory, such as other commercial establishments in the mall which have loading docks and which also have parking lots. Dr. Cole feels those sources are not subsumed in general background data, and should have been added to the model as local sources. He also believes that to the extent that traffic was underestimated by Petitioner's evidence and thus by Mr. Sullivan, the emissions would be underestimated. Moreover, added congestion would result in slower speeds, and that would increase the emission rate for things like oxides of nitrogen and other pollutants as well, including particulate matter. These factors would be additive, and some of these effects interact in a synergistic fashion, compounding the impact. Tr. 5/29/14, 149-152.

Petitioner criticizes the Opposition's argument regarding pollution levels because the Opposition did not do any modeling of its own, but rather just attacked Mr. Sullivan's work. Petitioner's Closing Reply Brief (Exhibit 629, pp. 49-50). While the Opposition's case would have been stronger if it had produced such evidence, Zoning Ordinance §59-G-1.21(c) places the "burden of going forward with the evidence, and the burden of persuasion on all questions of fact" upon the Petitioner, not on the Opposition. Air quality monitor readings throughout the country (Exhibit 593), even in high pollution areas, seem to indicate that NO_2 levels at and around the subject site will never get as high as the Opposition fears; however, the Hearing Examiner must consider all the evidence, not just Mr. Sullivan's rebuttal analysis, and the earlier modeling results in evidence in this case, as well as Dr. Cole's testimony, indicate that such exceedances may occur, especially given the uncertainties of the AERMOD model used to predict the pollution levels.

The EPA's Appendix W (Exhibit 285), Section 9.1.1.a. (Federal Register/Vol. 70, No. 216 / Wednesday, November 9, 2005, p. 68246) contains the following language:

> . . . Even with a perfect model that predicts the correct ensemble average, there are likely to be deviations from the observed concentrations in individual repetitions of the event, due to variations in the unknown conditions. The statistics of these concentration residuals are termed ''inherent'' uncertainty. Available evidence suggests that this source of uncertainty alone may be responsible for a typical range of variation in concentrations of as much as ±50 percent. [Emphasis added and Footnotes omitted.]

In the next section of Appendix W (Section 9.1.2.a.), the EPA emphasizes the point, stating that "errors in highest estimated concentrations of ± 10 to 40 percent are found to be typical." This uncertainty factor was admitted by Petitioner's own air quality expert, Mr. Sullivan. Tr. 5/12/14, 188-206.

It is this concern about uncertainty of the modeling that calls for a conservative approach in predicting likely pollution levels. The Hearing Examiner finds that Mr. Sullivan's repeated retreats from earlier conservative assumptions, in conjunction with the admitted uncertainty factor, has undermined Petitioner's efforts to prove that the expected levels of one-hour NO_2 will not reach levels that will have adverse health effects within the general neighborhood. This finding takes into account the evidence of the health experts that will be discussed in the next section, to the effect that one-hour NO_2 levels below the 100 ppb (198 $\mu g/m^3$) NAAQS standard can adversely affect health, and that fact is recognized by the EPA, itself, as previously discussed.

2. $PM_{2.5}$ levels

As reported by Technical Staff, Petitioner modeled annual average $PM_{2.5}$ using existing conditions around the subject site, along with the additional traffic and queuing associated with the proposed gas station. For the annual average $PM_{2.5}$ analysis, a background level of 12.1 $\mu g/m^3$ was taken from a monitoring station in Beltsville, Maryland. Figure 10 in Attachment 8 (p. 10) to the Technical Staff report (Exhibit 70) shows the results of the Applicant's November 2012 analysis (Exhibit 15(a)).

	Modeled Values ($\mu g/m^3$)	**Annual average $PM_{2.5}$ Level (Modeled Value + Background) ($\mu g/m^3$)**
NAAQS		12
Location		
Nearest residential backyard	0.14	12.2
Kenmont Swim and Tennis Club	0.13	12.2
Stephen Knolls School	0.18	12.3

Figure 10: Annual Average $PM_{2.5}$ Values

Technical Staff noted that "while the projected annual average $PM_{2.5}$ concentrations at the three target locations are all greater than the current NAAQS, the Applicant has . . . explained that 'The more typical (less conservative) representation of background $PM_{2.5}$ annual average concentrations is ~ 10.6 µg/m^3, as compared to the 12.1 µg/m^3 conservative value. More importantly, it should be noted that the maximum contribution from the incremental gas station operations is 0.009 µg/m^3, which is 0.08 percent of the standard and an insignificant contribution.' " Exhibit 70, Attachment 8, p. 11. Technical Staff concluded that (Exhibit 70, Attachment 8, pp. 21-22):

> The proposed gas station contributes minimally to the levels of $PM_{2.5}$ in the surrounding area. The background levels of $PM_{2.5}$ are already substantially higher than the levels that will be emitted from the gas station. . . . While the annual $PM_{2.5}$ analysis understates the results due to the queuing assumptions, the incremental contribution of the proposed gas station is still less than 0.03% of the annual $PM_{2.5}$ at the nearest residences. As one of the main sources of $PM_{2.5}$ emissions is diesel combustion from cars and trucks, the gasoline station's overall contribution is minimal because there will be no diesel fuel dispensed.

As previously mentioned, the NAAQS standard for annual $PM_{2.5}$ changed in January of 2013, dropping from 15 µg/m^3 to 12 µg/m^3. Tr. 5/8/14, 160-180. Fortunately, background levels were also dropping, so by the time Mr. Sullivan did his August 2013 report (Exhibit 255(a)), the background levels of annual $PM_{2.5}$ had dropped to 10.8 µg/m^3, as indicated in Figure 20 on page 29 of his August 2013 report. In that table, even using rural dispersion coefficients, Mr. Sullivan predicted annual $PM_{2.5}$ at a maximum of 11.22 µg/m^3, which is below the NAAQS standard.

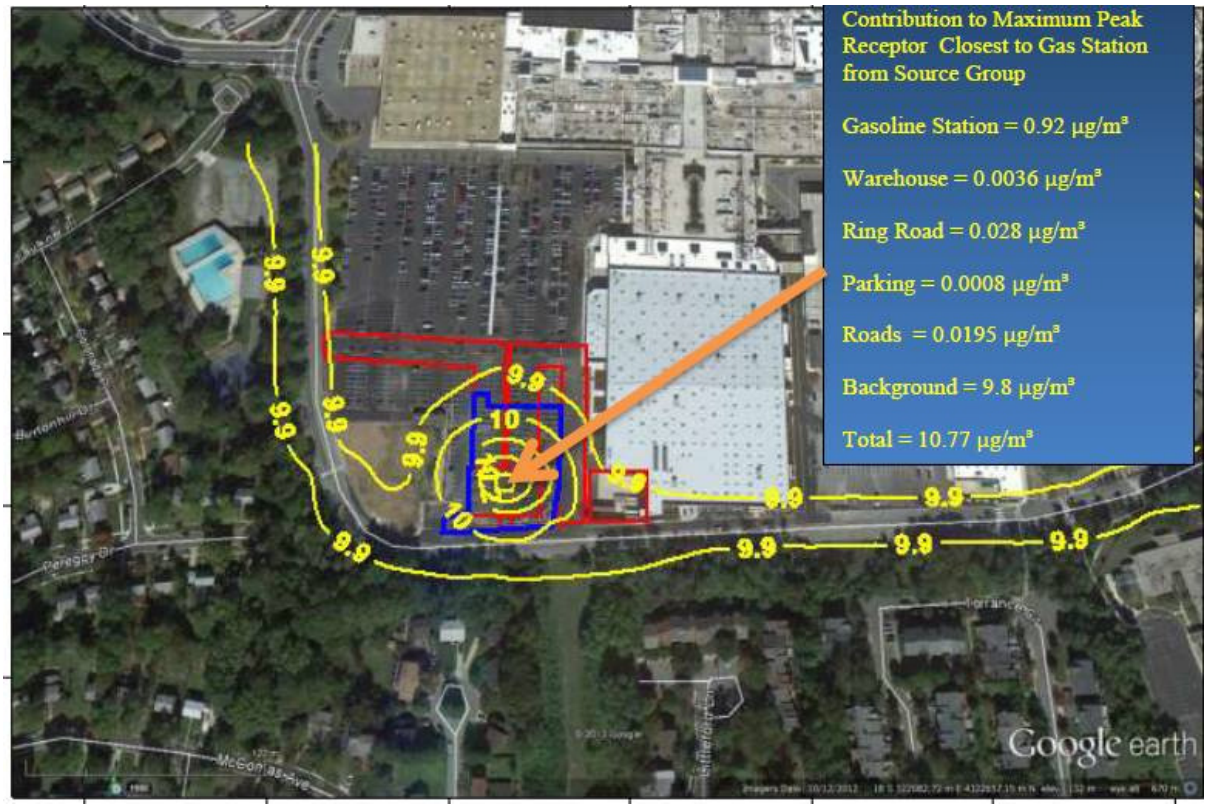
According to Mr. Sullivan, background levels of $PM_{2.5}$ dropped even further, and when he did his rebuttal report (Exhibit 466, p. 19), he listed revised backgrounds as follows:

Table 1: Summary of Currently Applicable Background Values versus Background Used in August 16, 2013 Report

Background Concentrations (ug/m³)				
Pollutant	August 2013 Report	Present	Percent Change	Basis
NO2 1-Hour	90	Concurrent	NA	98th Percentile 2011-2013
NO2 Annual	24	23	-4%	2012 Annual Average 2011-2013
PM2.5 24-Hour	28	23	-22%	98th Percentile 2011-2013
PM2.5 Annual	10.8	9.8	-10%	2013 Annual Average 2011-2013
CO 1-Hour	1,488	1,488	0%	2nd High Maximum 2010-2012
CO 8-Hour	1,145	1,144	0%	2nd High Maximum 2010-2012

The above Table shows $PM_{2.5}$ annual background dropping from 10.8 µg/m^3 to 9.8 µg/m^3. This change was incorporated into Mr. Sullivan's final projection of annual $PM_{2.5}$ levels at a maximum of 10.77 µg/m^3 at the gas queue, as shown in Figure 6 on page 16 of the rebuttal report:

Figure 6: Predicted Annual Average $PM_{2.5}$ Concentrations (µg/m^3) for All Sources Using Urban Dispersion plus 9.8 µg/m^3 Background NAAQS = 12 µg/m^3 [MAX = 10.77 µg/m^3]



That isopleth map also shows $PM_{2.5}$ levels in the nearby neighborhood of 9.9 µg/m^3, also well below the NAAQS standard of 12 µg/m^3. Dr. Cole admitted that Mr. Sullivan's figures (in the November 2012 report, p. 69) for the annual incremental increase from the gas station under the urban modeling for $PM_{2.5}$ at the nearest home would be .005 micrograms per cubic meter. For the Stephen Knolls School and for the Kenmont Pool, the increase would be about .003 micrograms per cubic meter for both, all of which are below the figure of .3 micrograms per cubic meter proffered by Petitioner's counsel as the EPA's definition of a significant impact level of increase. Mr. Sullivan's figures for the annual incremental increase from the gas station under the rural modeling

for $PM_{2.5}$ at the nearest home would be .012 micrograms per cubic meter. Tr. 12/6/13, 59-72. Dr. Cole conceded that for the points outside the mall itself (*i.e.*, the nearby homes, the Kenmont pool and the Stephen Knolls School) the increment to $PM_{2.5}$ created by the gas station would be extremely small, even taking uncertainty factors into account; however, that is not true on the mall itself, and he noted that under EPA guidelines you don't add something that would either bring you over a standard or that would make it more difficult to obtain a standard. Thus, if a site is over the standard, you don't want to add more pollutants. He also feels that the background sites chosen for the Sullivan study (Rockville and Beltsville) were not representative of this particular area. Dr. Cole's judgment is that with background levels of 10.8 $\mu g/m^3$ for $PM_{2.5}$, there is a very strong probability that levels at the home, the school and the pool, would in fact exceed the standard of 12 $\mu g/m^3$, even if Mr. Sullivan's total predicted figures are around 11 micrograms per cubic meter, given all of the uncertainties. Tr. 12/6/13, 72-86.

Given Dr. Cole's concession of the *de minimis* increment to $PM_{2.5}$ off the Mall, and the further reduction in background $PM_{2.5}$ evidenced in Mr. Sullivan's rebuttal report (*i.e.* down from 10.8 $\mu g/m^3$ to 9.8 $\mu g/m^3$), the Hearing Examiner finds that even considering the uncertainties of modeling, Petitioner has met its burden of showing that $PM_{2.5}$ will not exceed NAAQS standards at locations outside of the Mall itself. The question is closer on the Mall property, but given the fact that the proposed station will not fuel diesel vehicles, the Hearing Examiner also finds that $PM_{2.5}$ levels are unlikely to exceed the NAAQS $PM_{2.5}$ annual standards there either. As will be discussed further in Section III.B. 7. of this report, this finding of NAAQS compliance for $PM_{2.5}$ does not necessarily mean that Petitioner has met its burden regarding the potential for adverse health effects; nor does it preclude the Opposition's health experts from considering the synergistic adverse effects on health that may occur when levels of one-hour NO_2 are combined with levels of $PM_{2.5}$.

3. CO levels

Technical Staff noted that carbon monoxide (CO) emissions result from both idling and mobile vehicles, and Staff summarized the results of Mr. Sullivan's modeling of CO levels (both one-hour and 8-hour) in Attachment 8 (pp. 7-8) to the Technical Staff report (Exhibit 70).

Figure 4 shows the 1-hour CO levels of the Applicant's analysis.

	Modeled Values ($\mu g/m^3$)	Maximum 1-hour CO Level (Modeled Value + Background) ($\mu g/m^3$)
NAAQS maximum		40,000
Location		
Nearest residential backyard	13,809	15,297
Kenmont Swim and Tennis Club	12,646	14,968
Stephen Knolls School	13,480	14,134

Figure 4: Maximum 1-hour CO Values

	Modeled Values ($\mu g/m^3$)	Maximum 8-hour CO Level (Modeled Value + Background) ($\mu g/m^3$)
NAAQS maximum		10,000
Location		
Nearest residential backyard	2,798	3,943
Kenmont Swim and Tennis Club	3,361	3,933
Stephen Knolls School	3,555	4,013

Figure 6: Maximum 8-Hour CO Values

Although the levels indicated for both one-hour and 8-hour CO are well below the NAAQS standards for the pollutant, Technical Staff asserted that "[t]he maximum 1-hour CO emissions from the proposed gas stations create a CO hotspot, similar to those created at street intersections." Exhibit 70, Attachment 8, pp. 20-21. However, unlike the "hotspots" created at area Intersections, Staff felt that the levels of CO concentration would not dissipate in the neighborhoods in the same way as they do in an intersection. While Staff recognized that CO concentrations at

Stephen Knolls School and Kenmont Swim and Tennis are primarily the result of emissions from adjacent roads, the nearest residences will be more directly impacted by the location of the proposed gas station. Staff opined that Mr. Sullivan's report understates the impact on the nearest residences and that the 1-hour maximum CO emissions in the backyards of the nearest residences are at least 17,500 µg/m^3, not 15,297 µg/m^3 as Mr. Sullivan suggested. Similarly, Technical Staff found that the 8-hour CO emissions impact in the backyards of the nearest residences are at least 4,500 µg/m^3 , not the 3,943 µg/m^3 projected by Mr. Sullivan. Exhibit 70, Attachment 8, pp. 20-21.

When Mr. Sullivan testified about this point, he disagreed with Technical Staff's characterization of a CO "hot spot" because the CO levels, even if at the higher levels suggested by Staff, are far below the applicable NAAQS standards of 40,000 µg/m^3 for one-hour levels and 10,000 µg/m^3 for 8-hour levels. Tr. 6/17/13, 271-275.

4. VOCs levels

Technical Staff notes that gas station operation itself will be a greater source of VOC levels in the neighboring residential area than the emissions from automobiles. As stated by Technical Staff (Exhibit 70, Attachment 8, p. 14):

> . . . The greatest contribution of VOCs comes from the underground storage tanks breathing and loading. Annual average VOC concentrations for all sources and annual average VOC emissions for the gas station alone were modeled [by Mr. Sullivan] using existing conditions around Wheaton with the additional emissions associated with the proposed gas station. Two scenarios were run for the VOC emissions. Scenario 1 does not assume any Onboard Refueling Vapor Recovery (ORVR) systems in place on vehicles. Scenario 2 assumes 100% of vehicles refueling at the station will have ORVR systems in place. Both scenarios are presented in Table 16. The ORVR systems have been mandated in all new passenger vehicles since 2006. Scenario 2 also includes a major reduction in VOC emissions from spillage.

Location	Scenario 1 Annual Average VOC for all sources (µg/m^3)	Scenario 2 Annual Average VOC for all sources (µg/m^3)
Nearest residential backyard	34.3	26.8
Kenmont Swim and Tennis Club	17.1	14.6
Stephen Knolls School	13.3	12.8

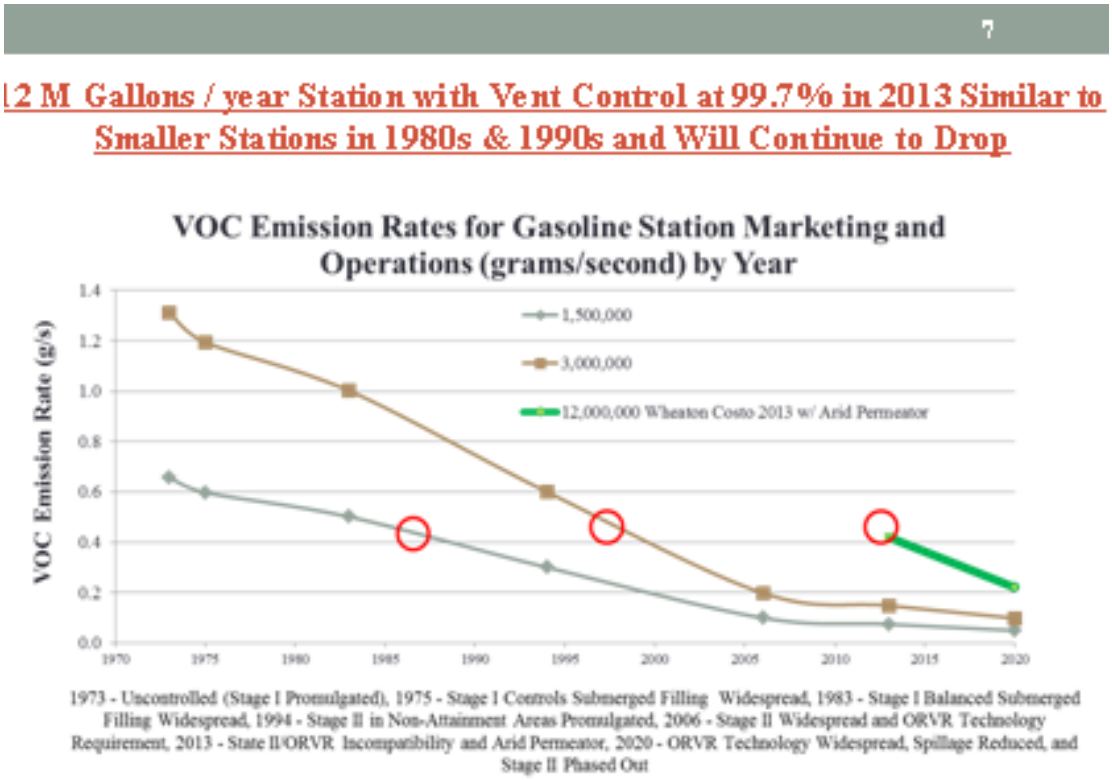
Figure 16: Annual Average VOC (µg/m^3) for all sources

The possible health impacts of the VOC levels will be discussed in Section III.B.7 of this report. However, it should be noted here that Technical Staff disagrees with Mr. Sullivan's projection of VOC levels at the nearest residences (Exhibit 70, Attachment 8, pp. 23-24):

> The VOC emissions from the proposed gas station create a major VOC hotspot, comparable to the one generated by the bus transfer area on Veirs Mill Road (Figure 30). Residential levels of VOCs can be primarily attributed to the proposed gas station while the levels shown at Kenmont Swim and Tennis Club are a combination of emissions from traffic and emissions from the proposed gas station. The level of VOCs shown on Stephen Knolls School can be primarily attributed to emissions from Georgia Avenue. However, the nearest residences will be directly impacted by the location of the proposed gas station . . . . The Applicant's report understates the impact to the nearest residence under Scenario 1 as 34.3 $\mu g/m^3$. However, Figure 31 [a blow-up of a portion of Mr. Sullivan's Figure 1-21 in his November 2012 report] shows that the VOC emissions in the backyards of the nearest residences are at least 45 $\mu g/m^3$ and may be closer to 50 $\mu g/m^3$ on the residential units approved as part of Preliminary Plan #120110170 on the "Mt. McComas" site. The annual VOC emissions are also underreported due to the queuing assumptions. However, emissions from queuing vehicles contributes less than 3% of the annual VOC emissions at the nearest residence. The level of VOC emissions is directly tied to the cancer risks associated with the gas station.

Figure 31 Localized annual average VOC concentrations

Mr. Sullivan testified that there are no National Ambient Air Quality Standards for VOCs. Tr. 6/17/13, 261-271. However, he did address them in his November 2012 report (Exhibit 15(a)) and briefly in his January 2013 supplement (Exhibit 56(a)). He also reviewed their levels and potential impacts in his revised PowerPoint presentation (Exhibit 174, Slides 6-10 and 45-48) and in his testimony. As illustrated in Slide 7, reproduced below, the levels of VOC emissions from gas stations have been gradually declining for many years. Moreover, the VOC emissions from the proposed Costco station are shown to be comparable to an ordinary gas station pumping only 1.5 million gallons a year in 1987, or an ordinary gas station pumping 3 million gallons of gas a year in 1998.



The potential health impacts of that level of VOCs will be discussed in the next section of this report.

7. Assessing All the Evidence, Has Petitioner Met its Burden on the Health Issue?

This section will address the final question on the health issue – Has the Petitioner met its burden of demonstrating, by a preponderance of the evidence, that the proposed use will not adversely affect the health of residents, visitors, or workers in the area at the subject site? Each of the pollutants listed in the last section will be discussed below.

The bulk of the evidence regarding health effects was produced by the parties through their health experts, Drs. Chase, Jison and Breysse, all of whom cited scientific studies to buttress their opinions. We will concentrate mostly on their live testimony because that was subject to cross-examination. Mr. Sullivan's presentation regarding VOCs will also be discussed, as well as Technical Staff's analysis in that regard. Finally, we will consider evidence from Abigail Adelman, the President of SCGC, and from parents of children attending the Stephen Knolls School, all leading to the Hearing Examiner's findings on the health effects issue.

a. Petitioner's Evidence on the Health Effects Issue

We turn first to Dr. Kenneth Chase, who testified on behalf of the Petitioner, as an expert in occupational, environmental and internal medicine. His background is described in the footnote below.[64] His testimony (Tr. 9/16/13, 22-203; Tr. 9/20/13, 206-241) is summarized in Appendix I, pp. 78-83.

Dr. Chase testified that, in his professional opinion, the proposed gas station will not adversely affect the health or general welfare of the residents, neighbors, visitors, workers in the

[64] Dr. Kenneth Chase testified as an expert in occupational, environmental and internal medicine. His qualifications include being a practicing physician, Board-certified in internal medicine and in occupational and environmental medicine. He is the founder and the president of the Washington Occupational Health Associates, and the lion's share of what he does deals with work-related issues and environmental issues. He has done work for the Army Corps of Engineers, the FBI, Fannie Mae, the architect of the Capitol and the GSA. He has a Bachelor's of mathematics and a medical degree from UCLA. He did his internship and first year residency at University of Michigan and his third year medical residency at Georgetown University, following which he joined the full-time faculty at George Washington University. He has testified as an expert witness all over the country, mostly as an expert in occupational and environmental medicine. Tr. 9/16/13, 22-43. His CV is Exhibit 17(h).

area, students attending schools in the area or people attending the local swimming pool. He bases his opinion on the evidence that none of the criteria for pollutants that are regulated by the EPA and have been discussed in this case will be exceeded by the proposed Costco gas station. His opinion is also based on based on CASAC's (Clean Air Scientific Advisory Committee) standards and comparing CASAC standards to the modeling done by the Sullivan Group and the measurements taken at a relatively similar station in Sterling, Virginia. Tr. 9/16/13,44-51.

According to Dr. Chase, the National Ambient Air Quality Standards (NAAQS) are the only standards that apply to air quality in Montgomery County or Maryland. They are intended to protect the public health and welfare, and they are based on a CASAC recommendation. CASAC is a group of 22 experts from all over the country in a variety of relevant disciplines, not just medicine, but industrial hygiene, toxicology, epidemiology, and the like. They update the standards every five years, and they were updated late last year. They are designed with a wide margin of safety for the general population, wide enough to protect vulnerable populations, including the elderly, children, persons with emphysema, COPD (chronic constructive pulmonary disease) or asthma. In Dr. Chase's opinion, any emissions that may be generated as a result of the Costco gas station, including cars that are queued in line, cars that are at the pumps, action at the pumps, trucks that are delivering gasoline, or cars that are on the ring roads attending it, will not cause more children or local residents to develop asthma. Tr. 9/16/13, 51-54.

Dr. Chase noted that the calculated Costco-related emissions are much lower than background. For example, for $PM_{2.5}$, it's known that the background levels are around 10.8 micrograms per cubic meter, and the Costco gas station would contribute about 1/10,000 of that amount to background. The other pollutants are typically 100th of background. The amount of emissions is important because it is the "dose [that] makes the poison." Virtually any substance at a high enough dose can be harmful and, conversely, if the dose is low enough, it's not going to make

any difference. He added that there's no way that anybody would be able to measure the health impacts of the Costco gas station because the emissions are going to be so low. Tr. 9/16/13, 55-58.

Based on Mr. Sullivan's conclusions about VOC levels, Dr. Chase concluded that the potential health effect to the residents, visitors, workers, schools attendees and recreation users in the area of the proposed Costco gas station site and the surrounding neighborhood would be negligible because levels would be so low. He also noted the use of "clean diesel" engines for the fuel delivery trucks as significantly reducing pollution. Tr. 9/16/13, 60-68.

Dr. Chase further testified that even applying Mr. Sullivan's original assumptions, but with the corrected math resulting in higher NO_2 levels and possible exceedances of the National Air Ambient Air Quality Standards for NO_2, there would be no clinical health impacts for the residents, workers, visitors and so on in the area because a wide margin of safety was employed by the CASAC Committee in coming up with their numbers and because an exceedance does not amount to a clinical health effect. Tr. 9/16/13, 68-72.

Dr. Chase admitted that relatively short-term exposure to nitrogen dioxide can precipitate an asthma attack in children, and it could affect others with respiratory disorders as well. The one-hour standard will protect public health by limiting people's exposure to short-term, peak concentrations of NO_2 which primarily occur near major roads. He quoted the EPA guide, "Those individuals who spend time on or near major roads can experience NO_2 exposures considerably higher than occur away from roads. These exposures are of particular concern for sensitive groups such as people with lung disease, including asthma, children and older adults." The short-term limit was established because EPA recognized that people can suffer health effects over a much shorter period of time. Tr. 9/16/13, 151-165.

Dr. Chase also admitted that if the one-hour level of NOx was 277 micrograms per cubic meter (as suggested in Dr. Cole's affidavit (Exhibit 262(b)), he would expect respiratory symptoms if the margin of safety were not wide enough. Tr. 9/16/13, 176-188.

When asked how much over the NAAQS standards would represent a health hazard, Dr. Chase said that would depend on the agent involved. For $PM_{2.5}$, the margin is about three micrograms per cubic meter, which would mean that the hazardous level of $PM_{2.5}$,in his opinion is 15 $\mu g/m^3$. Dr. Chase agreed that the NOx standard is a health-based standard, as are the standards for CO, $PM_{2.5}$, and the VOCs. He also agreed that the EPA would have reduced the NOx, and the $PM_{2.5}$ standards based on health-effects analysis. Tr. 9/16/13, 196-202.

Dr. Chase further testified as to the OSHA standards for the six EPA criteria pollutants – carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur oxides. The OSHA standards are considerably higher (*i.e.*, allow a lot more exposure) than the EPA standards. The OSHA regulations regarding ambient air quality for workers are contained in Exhibit 287. Dr. Chase agreed that the impact of gasoline stations on the health of workers is an area that has not been well-studied. Tr. 9/20/13, 206-220.

Dr. Chase agreed that some of the chemicals, when in the air, interact with each other. Although it's theoretically possible for a combination of NO, NO_2 , ozone and $PM_{2.5}$ to exacerbate health effects, in his opinion, it would not happen at the levels discussed here. Tr. 9/20/13, 221-228. When asked what health effects he would expect if a person was exposed to one-hour levels of NO_2 measuring 388 micrograms per cubic meter, Dr. Chase replied none, in that he has been practicing occupational medicine for 35 years both in a full-time academic setting and in an active private practice and he has never seen a single patient with such an exposure scenario who was symptomatic. He considers it very unlikely that an individual would suffer adverse health effects at something lower than the EPA one-hour standard Tr. 9/20/13, 231-241.

Dr. Chase also filed two "health reports," Exhibit 15(b), dated November 19, 2012, and Exhibit 269(a), dated September 10, 2013. These two-page health reports are virtually identical, except that the later report added a cursory reference to Mr. Sullivan's supplemental reports of December 2012, January 2013 and August 2013, and to the Opposition's concerns over NO_2. They contained no information beyond that which Dr. Chase covered in his testimony. Both attached a reference list referring to the same 15 scientific studies (the September 2013 Reference List had its own exhibit number, Exhibit 269(b)). It is noteworthy that 14 of the 15 cited studies are addressed to the effects of diesel exhausts, which is not a significant issue in this case because the proposed gas station will only pump gasoline. The question of diesel exhaust would pertain only trucks serving the existing Costco Warehouse and to fuel trucks delivering gasoline to the station, and they will all be equipped with clean diesel technology. Tr. 4/26/13, 98-100. Dr. Chase was asked on cross-examination why almost every article he listed in his reference list had to do with diesel fuel and the possibility that exposure to diesel fumes will cause cancer, even though diesel fuel will not be dispensed at this gas station. He responded that he had been focusing on trying to get a better understanding of the relevance of the change to the new technology diesel exhaust (NTDE). Tr. 9/16/13, 98-109.

It is clear that most of the scientific studies cited by Dr. Chase do not apply directly to the facts of this case, and that his testimony that he would not expect adverse health effects if a person were exposed to one-hour levels of NO_2 measuring 388 micrograms per cubic meter (Tr. 9/20/13, 231-241) was based on his own anecdotal experience, not on any scientific studies. Petitioner did buttress its health evidence with three scientific reviews filed towards the end of the hearing – Exhibits 605(a), 606(c) and 606(d). Exhibit 605(a) is a 2009 review of then existing scientific studies, entitled "*Critical Review Of The Human Data On Short-Term NO_2 Exposures: Evidence For NO_2 No-Effect Levels.*" Exhibit 606(c) is a 2012 scientific study by the Health Effect Institute

entitled "*Allergic Inflammation in the Human Lower Respiratory Tract Affected by Exposure to Diesel Exhaust*." Exhibit 606(d) is a 2008 review of then existing scientific studies, entitled "*Non-cancer health effects of diesel exhaust: a critical assessment of recent human and animal toxicological literature.*"

The Opposition argues that these articles are unpersuasive for a number of reasons. First, they challenge the bias of the authors, noting that both the 605(a) article and 606(d) article were principally authored by Thomas Hesterberg and William Bunn "in the course of their employment with Navistar, Inc.," which is "a leading manufacturer of commercial trucks, buses, defense vehicles and engines." KHCA closing Brief (Exhibit 624, p. 138). The Opposition also asserts that the Health Effects Institute, which published the third article (Exhibit 606(c)), is funded half by the EPA and half by the motor vehicle industry. Secondly, the Opposition argues that the two diesel engine studies (Exhibits 606(c) and 606(d)) are largely irrelevant to the proposed station in that it will not sell diesel fuel.

Finally, the Opposition addresses the merits of Exhibit 605(a), asserting (Exhibit 624, pp. 139-140):

> The most obvious problem with the article (and the inference for which it is submitted) is that, if correct, it is highly unlikely the EPA would have then issued a Rule in *2010* that set a limit of *100* ppb. To be sure, the official cut-off date for the 2010 Rule was mid-2008, but most of the studies cited in this report were completed long before that date and available to the EPA when it issued the rule. More importantly, in the 2010 Rule, the EPA discusses at length in its analysis of "new studies," a study by Goodman (which was published in the same journal issue as the Hesterburg [*sic*] and Bunn article and, upon which they based much of their discussion). The Goodman study analyzed the same studies as "Critical Review" article and made the same argument that, assertedly proved there was no effect from NO_2 at levels of 100 ppb and below. *The EPA specifically held, however, that "we do not agree that the approach taken in the study by Goodman et al. (2009), which was used by many industry commenters to support their conclusions, was appropriate."* (Ex. 424(b), FR 2010, pp. 6498-99; . . .) That would seem to adequately dispose of the Hesterburg [*sic*] and Bunn article as well.
>
> The Hearing Examiner concludes that Exhibits 605(a) and 606(c) are evidence suggesting

that there will be no expected adverse health effects for the NO_2 emission levels Mr. Sullivan modeled in this case; however, they do not "establish" that point as Petitioner claims in its Reply Closing Brief (Exhibit 629, p. 56). The Hearing Examiner gives less weight to articles submitted by the parties than to the testimony of live experts because the authors were not subject to cross-examination at the hearing; however, they are legitimate scientific evidence supporting Petitioner's position, and must be considered.

As is suggested by their titles, both Exhibit 606(c) and Exhibit 606(d) are directed towards the effects of diesel exhaust, not gasoline engine exhaust. The Hearing Examiner's review of Exhibit 606(d) reveals only a cursory mention of NO_2. Indeed, the authors indicate (Exhibit 606(d), p. 197) that since the EPA set more stringent standards on diesel exhaust, by 2010, the levels of NO_2 in diesel exhaust will have dropped about 99% below unregulated levels. The Hearing Examiner finds no probative evidence in Exhibit 606(d).

Exhibit 606(c) does address NO_2 effects in the context of diesel exhaust, finding (at p. 2) "Exposure to DE or NO_2 affected only a few inflammatory, immunologic, or physiologic endpoints, and few of the changes occurred in both phases." The researchers concluded (at p. 3) that ". . .variations in study design — such as the timing of allergen challenge and the use of exercise versus rest — may also explain why this study did not find changes, which had been found in some earlier studies, in immunologic or inflammatory endpoints after exposure to 0.35 ppm NO_2."[65] Given that conclusion by the authors and the clear emphasis in the study at examining the effects of diesel exhaust, the Hearing Examiner does not find that the article in Exhibit 606(c) to be persuasive in this case.

The review of previous scientific studies contained in Exhibit 605(a) more directly addresses the question at hand in this case – what is the health effect of short term exposure to

[65] The level of 0.35 ppm NO_2 can be expressed in the "parts per billion" unit as 350 ppb NO_2.

NO_2? The authors of that review conclude:

> The available human clinical results do not establish a mechanistic pathway leading to adverse health impacts for short-term NO_2 exposures at levels typical . . . in the present-day ambient environment (*i.e.,* below [200 ppb]). Our review of these data indicates that a health-protective, short-term NO_2 guideline level for susceptible (and healthy) populations would reflect a policy choice between [200] and [600 ppb].[66]

That finding is clearly inconsistent with the testimony of the Opposition's health experts in this case, but perhaps more importantly, it is directly contradicted by the subsequent findings of the EPA Administrator quoted earlier in this report, recognizing a health risk from one-hour NO_2 levels below even the standard the EPA set of 100 ppb. In the *Final Rule [Establishing] Primary National Ambient Air Quality Standards for Nitrogen Dioxide* (NO_2), 40 CFR Parts 50 and 58, as reported in the Federal Register of February 9, 2010, Part III, p. 6494 (Exhibit 424(b)), the EPA Administrator's conclusion, after reviewing all the relevant studies, was clearly stated:

> The Administrator concluded that these studies provide support for a 1-hour standard that limits the . . . 1-hour daily maximum area-wide NO_2 concentrations to below 90 ppb (corresponds to a 98th percentile concentration of 85 ppb), and that limiting area-wide concentrations to considerably below 90 ppb would be appropriate in order to provide an adequate margin of safety. . . .

Moreover, as testified by Dr. Breysse, additional research has been done in the area following the review contained in Exhibit 605(a). Given this evidence, the Hearing Examiner finds that neither Dr. Chase's testimony, nor the additional material produced by Petitioner, is sufficient to outweigh the EPA Administrator's conclusion regarding one-hour NO_2 and the evidence produced by the Opposition, which will be discussed below.

Before we turn to the Opposition's evidence, we will discuss the Petitioner's evidence regarding potential health effects of CO and VOCs likely to be emitted from the proposed gas station. The issue regarding alleged health effects from any CO produced by the proposed gas station is easily disposed of. As previously mentioned, Technical Staff had raised a concern about

[66] The Hearing Examiner has converted the authors' use of the ppm unit to the ppb unit used throughout this report.

potential CO "hotspots" at the nearest residences and had observed that the CO levels there would be higher than those mentioned by Mr. Sullivan. Staff indicated that the one-hour maximum CO emissions in the backyards of the nearest residences are at least 17,500 $\mu g/m^3$, not 15,297 $\mu g/m^3$ as Mr. Sullivan suggested, and the 8-hour CO emissions impact in the backyards of the nearest residences are at least 4,500 $\mu g/m^3$, not the 3,943 $\mu g/m^3$ projected by Mr. Sullivan. Exhibit 70, Attachment 8, pp. 20-21. When Mr. Sullivan testified about this point, he disagreed with Technical Staff's characterization of a CO "hot spot" because the CO levels, even if at the higher levels suggested by Staff, are far below the applicable NAAQS standards of 40,000 $\mu g/m^3$ for one-hour levels and 10,000 $\mu g/m^3$ for 8-hour levels. Tr. 6/17/13, 271-275. The Hearing Examiner finds Mr. Sullivan's testimony to be convincing on this point, and given the absence of any significant Opposition evidence regarding health effects from CO likely to be emitted from the proposed gas station, he finds that Petitioner has prevailed regarding health effects from CO.

The question regarding volatile organic compounds (VOCs) is more complicated because there are no National Ambient Air Quality Standards for VOCs. Mr. Sullivan did a risk assessment for all organic pollutants emitted by gasoline marketing operations and tailpipe exhaust that had a cancer potency score in EPA's database. Tr. 6/19/13, 159-170. The EPA regulates gasoline stations through engineering controls such as Stage I and Stage II requirements, not permits for individual stations. Tr. 6/19/13, 177-178. Mr. Sullivan addressed VOCs in his November 2012 report (Exhibit 15(a)) and briefly in his January 2013 supplement (Exhibit 56(a)). He also reviewed their levels and potential impacts in his revised PowerPoint presentation (Exhibit 174, Slides 6-10 and 45-48) and in his testimony. As previously discussed, the levels of VOC emissions from gas stations have been gradually declining for many years, and the anticipated VOC emissions from the proposed Costco station would be comparable to an ordinary gas station pumping 3 million gallons of gas a year in 1998.

Technical Staff disagreed with Mr. Sullivan's projection of VOC levels at the nearest residences (Exhibit 70, Attachment 8, pp. 23-24), stating that "VOC emissions in the backyards of the nearest residences are at least 45 $\mu g/m^3$ and may be closer to 50 $\mu g/m^3$ . . ." Staff noted that the level of VOC emissions is directly tied to the cancer risks associated with the gas station. Technical Staff concluded (Exhibit 70, Attachment 8, p. 26),

> The Applicant has provided an estimation cancer risk analysis based on incremental additional exposure to carcinogenic VOCs. However, staff does not agree with the Applicant's assertion about residential exposure rates to VOCs due to understatement of exposure, as explained above. Additionally, staff has no supporting information on the methodology for calculation of cancer risk, so there is no way to adequately analyze the information. The risk assessment is not broken out by compound or by length of exposure. It is also unclear what assumptions have been made in this analysis.

Mr. Sullivan testified at the hearing that the California Air Resources Board (CARB) requires notification if the cancer risk assessment calculations indicate an incremental risk for the source in question exceeding 10 cancer cases in a million population. Exhibit 174, Slide 45. The highest relative risk from the proposed Costco gas station operations is less than one in a million, which the EPA terms "de minimis." He added that, over a 70-year lifetime in the future, there will be further reductions in the emission of volatile organics.[67] Tr. 6/19/13, 60-65, 76.

For example, the cancer risks from VOCs will be further reduced by the gradual conversion of the auto fleet into cars with on-board charcoal canisters replacing the Stage II controls, and all cars built since 2006 have them. Exhibit 174, Slides 47 and 48. Tr. 6/19/13, 71-73, 76-77. In his opinion, the risks at the Stephen Knolls school and the Kenmont pool go down to extremely low levels, on the order of .003 in a million at both the school and the pool. Tr. 6/19/13, 55-60, 76. Mr. Sullivan illustrated the low cancer risk levels at the nearest home, the School and the Pool, even without the canister controls, using Exhibit 174, Slide 47:

[67] Because the diesel trucks supplying this gas station will be using clean technology diesel vehicles, the particulate risks are so small that it would not be necessary or appropriate, in his view, to do a cancer risk assessment. There isn't even a cancer potency score for the new diesel technology particulate emissions. Tr. 6/19/13, 71-73, 76-77.

Urban VOC Annual Incremental (Emissions per protocol without considering reduction for canister controls on motor vehicles)

URBAN MET RUNS	VOC ANNUAL INCREMENTAL		
100 % OCCUPANCY	**HOME**	**SCHOOL**	**POOL**
Total Modeled	12.56	0.70	2.52
Risks (per million)	0.84	0.09	0.19
70 Year Concentrations	12.41	0.66	2.47
70 Year Risks (per million) for Projected Fleet	0.77	0.07	0.17
REALISTIC OCCUPANCY FACTORS		**SCHOOL**	**POOL**
70 Year Risks (per million)	0.77	0.003	0.003

The Hearing Examiner's evaluation of this issue will be discussed in Part III.B.7.c. of this report.

b. The Opposition's Evidence on the Health Effects Issue

The Opposition produced testimony from two health experts, Dr. Maria Jison and Dr. Patrick Breysse. Dr. Jison, who lives near the subject site, testified on behalf of KHCA as an expert physician and an expert in pulmonary and respiratory medical conditions. Her background is described the footnote below.[68] Her testimony (Tr. 1/10/14, 193-260; Tr. 2/25/14, 16-105) is summarized in Appendix I, pp. 141-147, and her reports are contained in Exhibits 88(d) & (e) and 96(d). Scientific studies upon which she relied are in the record as Exhibits 96(e) – 96(u).

Dr. Jison referred to the EPA's final rulemaking regarding NO_2 (Exhibit 424(a), p. 6480), Federal Register for NO_2, February 9th, 2010. The Integrated Science Assessment for Oxides of Nitrogen-Health Criteria (ISA) concluded that the strongest evidence for an association between

[68] Dr. Maria Jison is board-certified in internal medicine and in pulmonary disease and critical care medicine. Dr. Jison has over 10 years of clinical attending experience as a pulmonary/critical care physician in the inpatient and outpatient settings, over 10 years of experience as an ICU physician, and three years experience as a pulmonologist. She does not claim expertise in occupational or environmental medicine. Dr. Jison lives within the defined neighborhood, just south of the ring road near the Sears Outlet building, at 10818 Torrance Drive, in Kensington, Maryland. Tr. 1/10/14, 193-201. Her CV is Exhibit 88(g).

NO_2 exposure and adverse human health effects comes from epidemiologic studies of respiratory symptoms, emergency department visits, and hospital admissions. According to Dr. Jison, the ISA assessment was unable to determine the lowest level (*i.e.*, the threshold) at which NO_2 would not have adverse health effects. Tr. 1/10/14, 215-218.

Dr. Jison testified that one in 12 people in the United States has asthma, and one in 11 children. Asthma accounts for about a quarter of all emergency room visits in the United States each year, and it accounts for about 10 million outpatient visits and 479,000 hospitalizations. The average length of stay for an asthma attack admission is about 4.3 days. Nearly half of all asthma hospitalizations are children, roughly 44 percent. It's the third-ranking cause of hospitalization in children, and it's the number one chronic cause of school absenteeism in children. Asthma symptoms can be caused by many things, including allergens or irritants, such as pollution, that are inhaled into the lungs and resulting in inflammation, clogged and constricted airways, which could lead to wheezing, which is a common symptom of asthma, difficulty breathing, coughing, tightness in the chest. The progression from a mild attack to a severe attack that could be life-threatening can be very rapid and unpredictable. Dr. Jison is very concerned about potential adverse health effects on her family as a result of the gas station, since increased pollution from a large gas station so close to the neighborhood can have adverse effects on asthma. Tr. 1/10/14, 202-207.

Dr. Jison further testified that she considered sensitive populations to be people with chronic diseases that would be at increased risk to an exposure, such as asthma or chronic respiratory disease or chronic cardiovascular disease, certainly children and the elderly and even pregnant women and asthmatics in particular. With respect to the adverse effects on those sensitive populations, fine particle pollution or $PM_{2.5}$ is of particular concern with regard to lung injury because fine particles are the perfect size to be inhaled deep into the lungs. Because of their size and their increased surface area, they are also perfect for being deposited onto the interstitial tissues

of the lungs, the tissues surrounding the lungs in the air sacs and that are between other various anatomical parts throughout the body. $PM_{2.5}$ can be translocated through the lungs into the general blood circulation and circulated into the rest of the body. Fine particles also are retained longer within the lungs and can induce an inflammatory response in the lungs which can persist for a long period of time after the exposure. Since repeated insults can be additive to that, frequent exposure can result in a cumulative dose. She noted that $PM_{2.5}$ can be adsorbed onto lung surfactant molecules, which is a lung-lining fluid that plays an important role in protective immunologic and physiologic functions in lungs. The interactions of $PM_{2.5}$ with surfactant is thought to be fundamentally important in the health effects, and this is thought to be one potential mechanism by which $PM_{2.5}$ could cause injury to the lungs in addition to inciting inflammation, thereby leading to impairment of the lungs. Sensitive populations, people with asthma or chronic respiratory disease or chronic preexisting cardiovascular disease, would be more sensitive to the effects of pollution or $PM_{2.5}$. Children are especially vulnerable because their lungs haven't completely developed. People with chronic conditions are at increased risk because their disease is already characterized by a state of chronic underlying inflammation, particularly asthma or certain cardiovascular diseases. Tr. 1/10/14, 221-225.

Clinical studies show that high levels of fine particulate pollution are associated with the greater odds of having asthma symptoms exacerbated, having a more severe asthma attack and increased use of rescue inhalers, medications that would alleviate symptoms of asthma. Studies show that even what would be categorized by industry and the EPA as low levels of $PM_{2.5}$ are associated with increased asthma symptoms and clinically relevant declines in lung function and increased cardiovascular risk. Small incremental increases in $PM_{2.5}$, in 10-microgram-per-cubic-meter increments, are associated with increased cardiovascular mortality. Studies show that central site monitoring stations may reflect fine particulate pollution levels that are below EPA limits but

that the exposure to fine particulates, as a result of daily activities and point-source exposures for individuals may actually be far higher than what the central monitors would reflect and often exceed the EPA standards (a kind of personal cloud). Tr. 1/10/14, 226-227. Even prenatal exposures to $PM_{2.5}$ have been associated with increased risk of respiratory infections early in childhood, in a dose-dependent manner, at levels that are below EPA standards. There are studies that also show effects in healthy individuals. People who exercise in an environment that has increased levels of pollution have decreased performance. This would apply to people who walk, swim or otherwise exercise in or near the Mall. Tr. 1/10/14, 227-230.

In her continuing testimony, Dr. Jison noted that the EPA administrator cited four studies supporting short-term NO_2 one hour standards below 100 parts per billion in the final Rule making for the one-hour NO_2 standard (Exhibit 424(a), Federal Register p. 6495). The EPA administrator considered an even lower short-term NO_2 standard of 80 parts per billion because evidence existed that could support this lower standard. Several professional medical societies, such as the American College of Chest Physicians, the American Lung Association, the American Medical Association and the American Thoracic Society supported setting the short-term NO_2 standard to below 80 parts per billion, and even supporting it below 50 parts per billion, based on a study that demonstrated respiratory health effects at around 50 parts per billion (Exhibit 424(a), p. 6487). The lower one-hour standard was not adopted by the EPA, but additional studies have come out more recently showing health effects at lower levels. Tr. 2/25/14, 16-21. As the Hearing Examiner has already noted, one of the reasons the EPA did not set a one-hour NO_2 standard below 100 parts per billion was the EPA Administrator's conclusion that the 100 ppb standard at the source would actually result in much lower area-wide concentrations of NO_2. Exhibit 424(b), p. 6501.

Dr. Jison also disagreed with Dr. Chase's dismissal of "transient" effects, testifying that just because effects may be transient does not necessarily mean they are insignificant. The EPA

provided a statement regarding transient health effects in the NO_2 final rule. On Federal Register page 6488 (Exhibit 424(a)), the EPA cited ISA's conclusion that transient increases in airway responsiveness, such as in asthma, following NO_2 exposure, have the potential to increase symptoms and worsen asthma control. The EPA's determination to reduce the NAAQS standards for $PM_{2.5}$ and NO_2 were based on evidence that there were health effects occurring at exposure levels well within the previous standards which had been intended to provide an adequate margin of safety. Notice for $PM_{2.5}$ (Exhibit 424(e), Federal Register, p. 3120), and Notice for the NO_2 (Exhibit 424(a), pp. 6480-84).

Dr. Jison opined that the standards are expected to protect sensitive populations such as children, but they are not designed to avoid harm to the most sensitive individuals. She noted that the EPA publications (page 3090 of the Exhibit 424(e) regarding $PM_{2.5}$ and page 6502 in Exhibit 424(a) regarding NO_2) recognized that the standards are not intended for zero risk, and there may still be some risk to sensitive individuals. Dr. Jison stated that children at the Stephen Knolls School are a hypersensitive population at the very far end of the sensitivity scale, as are children with asthma such as her own children. She emphasized that the EPA did not conclude that there were no health effects below the standards. Rather, at most, it did not yet have sufficient evidence, at the time, to decide those issues. When asked by the Hearing Examiner, if the EPA has not yet been able to establish a standard which encompasses the level of risk that might be found here, how should he set that standard, Dr. Jison replied that one has to look at individual aspects of this particular application and the location, the uniquely sensitive population that's going to be affected, the volume of gas station, and the added pollution in close proximity to this neighborhood and to all these sensitive populations. Tr. 2/25/14, 21-30.

Dr. Jison further testified that based on the studies, even a 20 minute exposure to NO_2 at levels of 160 micrograms per cubic meter could have adverse health effects. There is also a clear

association with exposure of pregnant women to increasing levels of $PM_{2.5}$ and reduced birth weight, reduced lung function in early childhood and increased respiratory infections. There is a potential for adverse health effects on people who work on the Mall parcel because those people are going to be chronically exposed. In her opinion, the proposed gas station will have adverse health effects on residents, workers and visitors in the subject area. Tr. 2/25/14, 50-61.

Dr. Jison also noted that there are studies showing a synergistic effect of health conditions combined with pollutants, but the EPA did not rely on them because it could not tease out which effects were the result of which pollutants. She is not saying that all gas stations are necessarily going to have an adverse effect on people. A smaller station or one located in an area with lower background pollution levels, or one more distant from adjoining uses or sensitive populations may not have any adverse health effect at all. In Dr. Jison's opinion, this particular station will cause adverse health effects on people based on the unique aspects of the whole scenario – it brings a very high concentration of a large volume of cars to one area that are going to be idling for an extended period of time; it is very close to homes, the school for sensitive kids, and a pool where various teens come to train; and it's in the middle of a shopping mall where people will spend considerable amounts of time, both being in line getting gas and shopping and eating. She noted that both Mr. Sullivan and Dr. Cole testified that there is a correlation between the volume of gasoline pumped and the effects on air quality – the more gas that's pumped, the greater the potential adverse health impacts. Combined with its location, in her opinion, the adverse health effects of this station would go above and beyond effects of other local gas stations. Tr. 2/25/14, 43-49.

On cross-examination, Dr. Jison testified that even though Mr. Sullivan's reports may suggest that the additive amount of $PM_{2.5}$ on top of ambient levels would be insignificant compared to the total background, the point is that personal exposures have been shown in studies to be much higher than what ambient levels have measured. Depending on the activities and the chronicity of

exposure, an increased dose could occur and could have additive and cumulative effects, especially with recurrent exposures. Even though Mr. Sullivan's predictions demonstrate that the incremental amount of $PM_{2.5}$ being added to the ambient levels are extremely small, Dr. Jison believes that adverse effects will still occur based on the data, the sensitivity of the population and the chronic nature of the exposures. Although there are very few studies of the effects of living near a gas station, as distinguished from living near heavy traffic, Dr. Jison believes the Stephen Knolls children are exposed to levels that are near the EPA NAAQS right now, and it does not make sense to add another pollution source near them. Tr. 2/25/14, 66-92.

Dr. Patrick Breysse testified on behalf of KHCA as an expert in industrial hygiene, epidemiology and health issues from vehicular emissions, and in the establishment and measurement of air quality standards and evaluation of scientific studies and methodologies, including exposure science. His background is described the footnote below.[69] His testimony (Tr. 2/10/14, 49-349) is summarized in Appendix I, pp. 147-153, and his reports are contained in Exhibits 88(a), 88(b) and 96(c). Scientific studies and reviews upon which he relied are listed at the end of Exhibit 96(c).

Dr. Breysse discussed various methodologies for studying the health effects of pollutants and noted that the combination of the effects is likely to be worse than if you would take each of the individual effects alone and sum them up. He testified that the National Academy of Sciences created a committee to review risk assessment for the EPA and other regulatory agencies a few years ago, and they strongly concluded that this uncertainty estimation has to be a key component of any risk assessment. He testified that a modeler should avoid the trap of changing assumptions

[69] Dr. Breysse works at Johns Hopkins University Bloomberg School of Public Health in Maryland, and he is a full professor in the Department of Environmental Health Sciences, Division of Environmental Health Engineering. Dr. Breysse received his Masters and his Ph.D. from the Johns Hopkins Bloomberg School of Public Health, and his Ph.D is in the environmental health engineering program, with a focus on occupational safety, health and air pollution. He has specialized in the last 10 years on indoor and outdoor air quality and health both to children and adults, and he has written about 180 scientific articles, including about 20 related to health effects resulting from exposure to pollutions from vehicular emissions. Tr. 2/10/14, 49-78. His CV is Exhibit 88(c).

in his model to create single number estimates. Tr. 2/10/14, 79-100.

When asked about EPA discussions leading up to the rules that they issued with respect to both the NO_2 and the $PM_{2.5}$, to the effect that the studies indicate no evidence of a threshold with respect to either NO_2 or $PM_{2.5}$, at which there were no health effects (Exhibit 424(b), p. 6500), Dr. Breysse testified that it doesn't mean there is no threshold; rather, it may be that the threshold has not yet been found; however, there are still risks being observed as far down as scientists have gone on the exposure curves. Tr. 2/10/14, 101-113.

Dr. Breysse testified that he is not suggesting that you can never build a gas station. It depends on the size of the gas station and how close the receptors are. The risks have to be weighed against the benefits. The number of cars queuing up is part of that picture and how long they're idling is part of that picture. Even if the projected levels here are comparable to those of a 1.5-million-gallon station in 1987 or a three-million-gallon station in 1998, that does not mean it would be safe. There's growing evidence that particulate matter can have some wider-ranging health effects. PAHs, polyaromatic hydrocarbons, complex molecules produced from traffic pollution appear to cause developmental disabilities in children. Increased traffic-related pollutions can affect childhood lung development, and kids who live next to freeways with high traffic-related pollution start off with a lung function deficit. Among people who have COPD, chronic obstructive pulmonary disease, who've quit smoking, the consensus is that their exacerbations are related to traffic-related air pollutant exposures. Tr. 2/10/14, 114-127.

According to Dr. Breysse, the permissible levels set by the EPA sometimes stay the same over the years, but never go up, and the standard is not set at a level that creates zero risk. The EPA is required to deal with susceptible populations, and where there are obvious markers of susceptibility, the EPA is required to set a standard that's going to be protective for them, but it isn't going to be protective for 100 percent of the people. There are some people who have unique

susceptibilities that are unknown or not well understood, and they are not going to be protected. The children at the Stephen Knolls School have unique susceptibilities that perhaps were not on the radar of EPA, and he knows of no studies that would allow EPA to have an evidence base to design a standard that would be protective for kids with that level of disability. Tr. 2/10/14, 128-133.

Dr. Breysse further testified that NO_2 is an irritant gas. It causes irritation to the mucous membrane and the respiratory tract, and certain diseases are exacerbated by irritation. Short-term high exposures to NO_2 create inflammation in the lungs that's acutely dangerous, not just chronically dangerous. The acute exposure requires the EPA to think of an averaging time that's shorter than a year, and in fact, in this case, a person can have a quick response to a high level exposure to NO_2. So the EPA says the one-hour average should be kept below some level that it believes is safe. There are two challenges. One is to figure out what a safe number is, and then to figure out how to enforce it. $PM_{2.5}$ is easy in one regard because it's relatively homogenous in space in an urban area. NO_2, however, is very heterogeneous. The EPA says that the evidence suggests that the safe level of a one-hour NO_2 exposure, in general, should be somewhere around 75 to 85 parts per billion, but readings close to sources can be high, while farther away, they can be lower. The EPA can't put monitors everywhere, but by putting monitoring equipment next to roadways (a high source) and specifying that the level cannot exceed 100 parts per billion, the peak value far from that roadway will be less than 75 to 80 parts per billion. So it's a little bit nuanced because the standard says 100 parts per billion, but if you read the evidence, it's very clear that the EPA Administrator thinks that the health threshold for one-hour NO_2 is clearly 75 to 85 parts per billion, and they even say in their record that there's pretty good evidence that it's down to 50 parts per billion. That's really the EPA's target; however, the evidence becomes less certain down to 50. Thus, one should not treat the one-hour NO_2 standard as 100 parts per billion everywhere because that really just represents the peak value. Tr. 2/10/14, 140-152.

Looking at Mr. Sullivan's reports from December of 2012 and January of 2013, and correcting for Mr. Sullivan's conversion error in NO_2 background, Dr. Breysse concluded that the one-hour NO_2 levels shown at the Mall, at the pool and at the Stephen Knolls School were well within the range that health effects are seen in terms of the literature that the EPA relied on for the previous NO_2 standard. Dr. Breysse testified that the data indicate the gas station would be a significant contributor to the NO_2 one-hour problem. The same is true in Figure 1 of Mr. Sullivan's August 2013 report (Exhibit 255) which had corrected the background computation problem, listing the background for one-hour NO_2 as 98 micrograms per meter cubed. At the pool and the school, the levels are shown as between 150 and 160 micrograms per cubic meter, and at the gas station itself, the levels would be out of compliance. Dr. Breysse stated that there's the potential for a variety of susceptible populations to be impacted by these exposures. Tr. 2/10/14, 153-176.

In response to questions about Mr. Sullivan changing his assumptions to be less conservative and more "realistic," Dr. Breysse further testified that giving single-point estimates with changing assumptions one at a time doesn't get closer to the truth. Tr. 2/10/14, 177-183. Examining Mr. Sullivan's refined assumptions in Figures 9 and 10 of Exhibit 255, with the one-hour NO_2 background level reduced from 98 to 90 micrograms per cubic meter, and using urban dispersion in Figure 9 and rural dispersion in Figure 10, Dr. Breysse testified that the these results suggest that concentrations near the homes of the people within the area may result in excess respiratory disease, based on the studies that the EPA cited. Using the rural dispersion rates, the isopleths in the neighborhood show 150-160 micrograms per cubic meter, which translates to 80 parts per billion. These values are in the range that the EPA administrator thinks are problematic in terms of disease risk. Tr. 2/10/14, 187-191.

Dr. Breysse further testified that a mixture of pollutants (*e.g.*, NO_2 and $PM_{2.5}$) can result in health effects even though the individual components are below the applicable standards. A

number of studies were referenced during Dr. Breysse's testimony (Exhibit 440-449). The Southern California studies suggest there are many pollutants that are impacting the lung development in children. There is an exposure-response relationship for both PM and NO_2, for example. As air pollution exposure goes up, the fraction of kids that are abnormal (*i.e.*, abnormal lung development/lung function) goes up. The authors concluded the effects of NO_2 could not be distinguished from the effects of particulate matter, as NO_2 was strongly correlated with particulate matter contaminants. It's hard to say just how much is due to one versus the other, and the EPA doesn't know how to grapple with that problem. Tr. 2/10/14, 198-217.

The study in Exhibit 442 came up with a combined traffic-related exposure index, the TRP. The study in Exhibit 443 showed a 10 to 11% decline in NO_2 near roadway tollbooths using EZPass, which reduced congestion and idling. Tr. 2/10/14, 218-229. Dr. Breysse also did a study measuring in-home pollutant concentrations over a weeklong period of time (Exhibit 445), and he found that as NO_2 levels went up in his study, he observed increased asthma symptoms, and specifically, limited speech due to wheeze, cough, or chest tightness while running; coughing without a cold; and nocturnal awakening to a cough, wheeze, or shortness of breath. The in-home NO_2 concentration was an average of 30 parts per billion, and it ranged from 2.9 to 394 parts per billion. Tr. 2/10/14, 230-239.

Dr. Breysse stated that the levels of annual average NO_2 listed in Figures 11 and 12 of Exhibit 255 are consistent with the exposures he saw in his studies, and they are in the range that he was seeing health effects from long-term exposures. He disagreed with Dr. Chase's testimony (Tr. 9/16/13, 197) that you wouldn't likely have health effects from $PM_{2.5}$ until you got up to about 15 micrograms per cubic meter. The EPA administrator thinks there are health effects down to that level currently, and the regulatory science, which is usually a few years behind the published science, already suggests that the threshold is probably below the 15 level. The 2013 ISA Draft

(Exhibit 447) summarizes studies of the effects of air pollution as of November 2013. In the 2010 Mann study, they looked at NO_2 exposures that ranged from 20 to 50 parts per billion, and for each 20-micrograms-per-cubic-meter increase, they found an increase in symptoms of wheezing. Tr. 2/10/14, 246-262. Exhibit 448 is a large study of asthma emergency department visits in Atlanta from 1993 to 2004. They looked at 91,000 emergency department (ED) visits, and they tried to associate the ED visit pattern with the air pollution pattern. That exposure-response curve shows that when the concentrations were low, the risk ratio was low; when the concentrations were higher, the risk ratio was higher, and ED visits go up in an increasing fashion with increasing exposure. The study concluded (at p. 315), "These associations were present at relatively low ambient concentrations, reinforcing the need for continued evaluation of the Environmental Protection Agency's National Ambient Air Quality Standards to ensure that the standards are sufficient to protect susceptible individuals." Tr. 2/10/14, 263-267.

The Harvard study (Exhibit 249) regarding particulates concluded that health effects from $PM_{2.5}$ extend down to concentration ranges that include eight micrograms per cubic meter. Including recent observations with $PM_{2.5}$ exposures well below the U.S. annual standard (which was 15 micrograms per cubic meter at the time but is now 12 micrograms per cubic meter) and going down to eight micrograms per cubic meter, the relationship between chronic exposure to $PM_{2.5}$ and all-cause, cardiovascular, and lung-cancer mortality was found to be linear without a threshold. Dr. Breysse emphasized that the study had not documented a threshold. Furthermore, estimated effects of $PM_{2.5}$ did not change over time, suggesting that there is a stable toxicity. Looking at Figures 19 and 20 in Mr. Sullivan's August 2013 report (Exhibit 255), Dr. Breysse testified that the micrograms per cubic meter of $PM_{2.5}$ are all above the levels at which the Harvard studies suggest there would be a health concern. Tr. 2/10/14, 268-275.

When asked about health effects of pollutants on workers, Dr. Breysse stated that there's a

bias called healthy worker effect -- if people are bothered by something, they leave the job, while the more vigorous stick around. Also, OSHA's exposure limits are out of date and they aren't routinely used other than just for deciding whether a company is legally compliant or not. The vast majority of OSHA standards have not been changed since 1968. The standard of practice should be, if exposure approaches half of what is believed acceptable, workers should be asked if they are having any health complaints and what can be done to reduce the exposure. If somebody were working outdoors around this traffic queue for long periods of time or at this loading dock, he could not say that they would not have health concerns, but workers tend to be younger and fitter than the normal population, so you might see less effect than on the general population. OSHA doesn't exactly have a $PM_{2.5}$ standard, so it's hard to compare that directly, but the respirable dust standard is a generic standard, and their NO_2 standards have not been reevaluated since 1968. As a general principle, an industrial hygienist would not say that the OSHA standards are acceptable now in terms of providing adequately for workers' safety. Tr. 2/10/14, 282-291.

Dr. Breysse summarized his opinion in this case, stating that he does not believe that this station is going to be benign in terms of the health impacts of the people who live around it. It is inevitable that this type of source is going to produce pollutants that will raise people's exposures to levels that are within the range that the health literature suggests are dangerous. Certainly they're going to increase morbidity for a variety of respiratory concerns, in particular. His assessment is not based solely on the EPA standards, which are five to ten years behind the scientific literature. He opined that the air pollution produced by this source will put the people around there at a greater risk for health effects than they are now. Tr. 2/10/14, 292-293.

On cross-examination, Dr. Breysse admitted that he had not done a specific risk assessment for the Stephen Knolls School, the pool or the nearby homes. Dr. Breysse agreed that the EPA guidelines are supposed to include a margin of safety to protect sensitive populations, but they

aren't guaranteed to protect from all adverse health effects. In his opinion, the EPA NAAQS for the one-hour NO_2 standard does not protect people with COPD because when they published their previous standard, the data didn't exist to allow the EPA to establish a standard that would protect them. Dr. Breysse admitted that if Mr. Sullivan treated all the NOx as NO_2, that would actually be a higher level than the actual NO_2 that would exist at the site. He also indicated that although no regulatory agency in the United States has issued standards for evaluating the synergistic effect of NO_2, $PM_{2.5}$ and other contaminants, he recommended a weight-of-evidence approach. Tr. 2/10/14, 307-349.

Other scientific studies and reviews relied on by the Opposition can be found in Exhibits 316(c) – (e), 394(a) – (c), 440, 442 - 449, and 596 - 600. The concepts contained in these sources were discussed in the testimony of the Opposition's health experts, and therefore will not be elaborated upon in this report; however, two of these documents, one from the American Lung Association (Exhibit 596) and one from a CASAC review meeting (Exhibit 599), are quoted in the next section – the Hearing Examiner's final evaluation of the health effects issue.

In his March 25, 2013, expert opinion report to the Hearing Examiner (Exhibit 96(c), p. 2), Dr. Breysse briefly addressed the question of increased cancer risks from the proposed gas station. Dr. Breysse noted that the California Air Resources Board (CARB) did a health-risk assessment of benzene (one of the VOCs evaluated by Mr. Sullivan), and recommended that new land development considered to be "sensitive" should be sited at least 300 feet from a large gasoline dispensing facility, defined as a facility with a throughput of at least 3.6 million gallons of fuel per year. Sensitive lands include residences, schools, playgrounds, and hospitals. Dr. Breysse concluded:

> Employing the core elements of the CARB assessment, I have estimated that the excess cancer risk attributed to benzene exposures for residents living at a distance of 300 feet from a 12 mgpy facility is nearly 3-times higher than those recommended in the CARB Land Use Handbook (0). . . . As a result, a 300 foot set-back distance

> is unlikely to provide adequate protection from the cancer risks imposed by benzene exposure alone, when the throughput volume and associated traffic activity is equivalent to that of the proposed COSTCO facility.
>
> I note that these estimated cancer risks are limited solely to benzene exposures from gas station activities. Thus, the potential excess health risk associated with the overall COSTCO development is likely to be underestimated since the addition of the service station will result in a net increase in vehicular traffic and queuing, both in the parking area of the COSTCO and on the minor arterial and collector streets that provide local access to the site. . . .

Surprisingly, Dr. Breysse barely touched on the issue of cancer risks from VOCs during his testimony at the hearing, saying only that he felt that Mr. Sullivan provided "an overly simplistic estimate" of the cancer risk, and that extrapolation from the CARB guidelines "places you in a ballpark," but closer study is needed. Tr. 2/10/14, 310-312.

In addition to the expert testimony, there was also testimony bearing on the health issue from lay persons. Four such witnesses stand out – Abigail Adelman, president of the SCGC; Mary Ann Carter, the Stephen Knolls School librarian; and two parents of children at the Stephen Knolls School, Susan Campbell and Maia Alvarez.[70]

Mrs. Abigail Adelman testified on behalf of SCGC (Tr. 1/10/14, 11-122), and her testimony is summarized in Appendix I at pp. 136-141. She pointed out that the World Health Organization (WHO) Air Quality Guideline (Exhibit 421(b)), for annual $PM_{2.5}$ is 10 micrograms per cubic meter, which is 2 micrograms lower than the EPA's standard. She noted that Mr. Sullivan's revised urban annual projections of $PM_{2.5}$, ranging at the home, school, and pool receptors, were 10.8 to 10.9 micrograms per cubic meter of air, just within EPA's new annual standard of 12 micrograms per cubic meter of air, but not in conformance with the WHO annual guideline. She testified that public health studies suggest, at every stage of life, motor vehicle emission fumes enact a measurable toll on health and mental capacity, and scientists don't know what the threshold is below

[70] The testimony of Ms. Barbara Gottlieb (Tr. 7/31/13, 31-74), summarized in Appendix I (pp. 156-158) was also informative on the health effects issue, but since the same ground was covered in more detail by the testimony of the Opposition experts, the Hearing Examiner will rely on their expert opinion rather than Ms. Gottlieb's lay testimony.

which $PM_{2.5}$ will have no adverse effects. Tr. 1/10/14, 53-69.

Mrs. Adelman introduced a series of charts from the Metropolitan Council of Governments (COG) showing regional air quality (Exhibit 425). She noted that in July of 2013, COG rated three orange days, days when air quality is unhealthy for sensitive groups, and 14 days, nearly 50 percent of the month, as yellow, moderate cautionary days. In August, COG rated 19 days as yellow cautionary days. That's over 60 percent of the month. In 2012, the addition of America's Health Rankings, which was begun in 1990, placed the State of Maryland 40th out of 50 states for high levels of particulate air pollution, at 10.9 micrograms per cubic meter. Considering these ratings, Mrs. Adelman question whether a mega gas station should be added to an already compromised air quality area. Tr. 1/10/14, 73-77.

Mrs. Adelman also referenced Exhibit 90(b), a letter of July 10, 2012, from Mr. Angelo Bianca, Deputy Director of Air and Radiation Management Administration in the Maryland Department of the Environment. He stated that there are a number of petroleum-based toxic air pollutants emitted from gas stations that pose some level of risk to public health from the delivery and dispensing of fuel and the idling of vehicles. The difficulties are quantifying that risk, especially the incremental risk beyond existing levels, and determining what risk level is acceptable. Mr. Bianca also notes that models have limitations; their accuracy is only as good as the inputs used, and the models often do not have available for input meteorological data that closely represents long-term conditions at or near the site. Given these issues, he concludes that the more distance that can be placed between a source (in this case, a mega gas station) and residences and community gathering places is certainly beneficial to minimizing risk. California Air Resources Board and the EPA support the concept that distance from gas stations pumping over 3.6 million gallons of gas a year can play a role in reducing exposure to gasoline fueling evaporation and toxins from vehicle tailpipe emissions. Distance from the pollutant source will reduce the risk to public health. A 300-

foot minimum buffer from schools is recommended by both agencies. It is reasonable to consider that large stations – and this proposed mega gas station is 3.3 times larger than what EPA defines as a large gas station – would likely warrant a wider buffer. Tr. 1/10/14, 77-79.

Mrs. Adelman referenced a number of research studies on the adverse health effects of toxic air pollutants, showing a positive correlation between environmental pollutants released from fueling evaporation and tailpipe emissions, particularly from slow-moving and idling vehicles, and significant adverse health effects. These studies consistently recommend a minimum buffer from large gas stations of 300 feet. She argued that logic would urge an even wider buffer from gas stations of this size, but she noted that even the suggested 300-foot buffer cannot be met at this location, in terms of the nearest residences. Also, one must not dismiss the health risk placed on visitors and workers within the Mall boundaries. Of particular concern to her is the southwest parking lot, the location of the proposed mega gas station. This gas station, if built, will place a significant potential adverse health-risk burden on persons using the same parking lot. In her opinion, Dr. Chase has provided a conclusory report with no meaningful analysis of the specific impact of the gas station on air quality or health impacts. She concluded that Petitioner cannot meet and did not meet the required burden of proof that visitors to the mall and workers at the loading dock will be safe from the risk of adverse health effects. Tr. 1/10/14, 91-94.

Mrs. Adelman noted that the Stephen Knolls School is only 840 feet away from the site, and she said that the EPA school siting guidelines require a 1,000 foot buffer between a school and a large gas station. [The Hearing Examiner interjected that his recollection of the EPA School Siting Guidelines was that they called for a study of the situation before siting a school within 1,000 feet. He later confirmed that his recollection was accurate by reviewing those EPA School Siting Guidelines, which are in this record as Exhibit 211.] Tr. 1/10/14, 79-86.

According to Mrs. Adelman (based on an email from the school, Exhibit 432(a)), the

Stephen Knolls School total student population is 98. Forty-seven students are school-age, and 51 students attend preschool. Student ages range from 3 to 21 years. Attendance at the school can be as long as 18 years. The school year runs from the end of August through June, and most students enroll in the summer camp program held in July. Thus, most students will be at the school for about 10-and-a-half months out of the year. The medical needs of the school-age students include oxygen (five students are on oxygen tanks or ventilators); nursing (eight students have private-duty nurses with them throughout the day); and various nursing services (28 medical treatments are provided daily; ten students have medicines regularly dispensed, and one student requires regular suctioning). The list of student medical disabilities includes chronic lung disease, asthma, respiratory distress syndrome, environmental allergies, cerebral palsy, Down syndrome, and Rett's disease. Thirty-five to 40 Stephen Knolls School students go up to the Wheaton Mall several times a week to practice life skills. This is an important part of their educational experience and highly valued by students, teachers, and families alike. Since students often take the path to the crosswalk on the ring road to access the Mall, there is a concern that the increase in slow traffic and vehicle idling will render this approach to the Mall unsafe for those medically fragile students. The same concern holds for the students who use and enjoy the school's playground located between the school building and the ring road. Tr. 1/10/14, 87-90.

The concern about the health impacts on students at the Stephen Knolls School was further elucidated by the testimony of three members of the Stephen Knolls community, Mary Ann Carter (the school librarian) and two parents of students, Susan Campbell and Maria Alvarez.

Mary Ann Carter stated that she is the Stephen Knolls school librarian and that she is testifying on her own behalf, not as a school spokesperson (Tr. 10/24/13, 113-148). Her testimony is summarized in Appendix I at pp. 161-163. Stephen Knolls is not a typical school. It is composed of two special programs. There is an early intervention program, with preschool children who are

only 3 and 4 years old and who have already been identified as special-needs. The other program is for school-age students up to 21 years old who have multiple-severe disabilities, most of whom are also medically fragile, and cannot be accommodated in any other local school. There are about 100 children, and the school has about 10 nurses present at a time. The staff also includes occupational therapists, physical therapists and speech therapists. In any one 30-minute lesson with a class of students, Ms. Carter might have one student experiencing a seizure, with a nurse monitoring, while she continues with the lesson, while another student is being prepped by a nurse for a tube-feeding; another class that day might have a child begin to have difficulty breathing because they're trying to cough up the phlegm, so a staff person will be helping that child readjust his/her position and wipe up whatever comes out while Ms. Carter goes on with her lesson, and another child's medical monitor starts to beep, and somebody has to call in a nurse to come and see what's going on and fix that problem. That's a typical day. On a bad day 9-1-1 gets called, and on the worst days a child dies. Stephen Knolls cares for and educates Montgomery County's most fragile citizens, and they attend there longer than most typical children are in a typical school. Children are eligible for the summer program, so they're present even on the Code Red days of summer. And once they're enrolled in kindergarten, unless the family moves far away or the child dies, they'll stay with the school for the next 17 years, until they age out at 21 years old. Tr. 10/24/13, 115-117.

Every one of the students is sent to Stephen Knolls specifically because of their special needs. They are bussed from all over “down-county” to this specific location because this is the place that Montgomery County has created to care for these most special-needs children. Their parents may live in Takoma Park or Silver Spring, but the children are bussed to the school. If the proposed gas station gets built, these families do not have the option to move away from the immediate area to avoid air quality issues for a child who may be severely impacted by this gas station because their child will just get bussed right back to this location. They don't have the

choices that most of County residents have. Residents can choose to go to a different gas station in their neighborhood, but Stephen Knolls students cannot choose to attend their neighborhood school. 10/24/13, 117-118.

Ms. Carter understands that more pollution is an inherent adverse characteristic of a gas station, but she argues that what is not inherent is the particular population that would be exposed to this additional pollution. Tr. 10/24/13, 118.

Ms. Carter testified that although the EPA may indicate it is alright for the general population to be exposed to some more pollution, no one has defined the impact on this particular population. No one can say how this could affect a three-year-old boy on an oxygen tank, attending school on a Code Red day in the summer. No one can say what the long-term effects will be on a child with respiratory problems who will be coming to the school every day for 15 years. The effects of the added pollution that the gas station will bring to this particular population have not been tested because it would be unethical to do so; yet she feels that's what's being proposed – put the gas station in and see what happens to them; see if it causes the student hospitalization rate to go up; see if it causes the death rate to go up. There is already a lot of pollution at the school from the traffic, but that does not make it right to add even more pollution from the gas station on top of that, even if it's just a little more. The cumulative effect may just be the strain that breaks the compromised health of these children. Tr. 10/24/13, 118-119. Ms. Carter does not believe that the National Ambient Air Quality Standards sufficiently address the health situation in the Stephen Knolls School.[71] Tr. 10/24/13, 134-144.

Susan (Sam) Campbell appeared with her son, Jack, who has severe developmental delays. Her testimony (Tr. 11/19/13, 11-27) is summarized in Appendix I, at p. 163. Ms. Campbell

[71] Ms. Carter further testified that the second impact to the students will be the increased traffic, which may impede the ability of the school to safely walk these physically compromised students from the school to the Mall, which is an important part of their regular activity. Tr. 10/24/13, 119-120.

testified that opposes the Costco gas station because it would be about 300 yards away from the Stephen Knolls School that Jack attends, and though he is probably one of the least medically fragile students in the school, most winters, he gets pneumonia and ends up in the hospital. He does not clear colds and sicknesses like typical children do. Stephen Knolls is a Montgomery County Public School that serves children with severe and profound delays. Children start as young as two-and-a-half there and they will go to the age of 21. Jack is going to be there until he's 21, and he has already been there for 10 years. The school has 110 students, with a staff of 75, and of those 110 students, 50 are medically fragile. There are seven students that attend with full-time private duty nurses. It's not uncommon for one to two students to pass away each year. The school serves children with multiple and significant disabilities such as chronic lung disease, cerebral palsy, MS, severe brain damage, and a variety of other syndromes. With these physical and cognitive disabilities, some students cannot move themselves, they're wheelchair-bound and they require 100 percent help at all times for feeding, diapering, and moving them in any capacity. Most cannot speak. Some are blind and some suffer seizures. Some require nebulizer treatments, and some of the students are on oxygen and/or ventilators. Because of their complicated and compromised health, air quality is a constant priority, and it's actually monitored in the school, but she does not know the details of how that is done. Stephen Knolls is the safest place for her son. It's the most appropriate environment for him, and for the other delayed and medically fragile students. There is also a playground on the north side of the school close to the ring road where the children play outdoors. If this gas station is built, her son and many other students would be exposed to it for six hours each day, including summer school, for up to 18 years of their lives, and air quality can be a major issue for these students. Ms. Campbell observed that life is hard enough for these children, so why voluntarily put a gas station there with many idling cars that would jeopardize their health, which is already an uphill battle for parents and the nursing staff. Tr. 11/19/13, 11-27.

Maria Alvarez appeared with her daughter, Angela, who has cerebral palsy, dystonia, epilepsy, quadriplegia, asthma, profound deafness and developmental delays. Ms. Alvarez is the president of the Stephen Knolls Parent/Staff Association (PSA), but she testified for herself and her child. Her testimony (Tr. 11/19/13, 27-39) is summarized in Appendix I at pp. 164-165. Angela is 16 years old and she's a typical student at Stephen Knolls. She has been in Stephen Knolls for eight years now. Angela needs a safe environment and care 24 hours a day, 7 days a week for the rest of her life. The Stephen Knolls School is located in proximity to the proposed Costco mega-station and she brought her daughter to make sure that the Hearing Examiner had a clear picture of the population at Stephen Knolls. Ms. Alvarez feels that the Stephen Knolls school is a blessing because not only is it a place for them to go and learn but also to develop who they are, have a sense of community and have a safe environment for the children and for parents as well. Stephen Knolls is not just a typical school; it is Angela's special home and a community for her parents. Angela loves going to school, being with her friends and her teachers. Most of the students at Stephen Knolls share at least two diagnoses with her daughter, and their cases are very complicated. Tr. 11/19/13, 27-29.

Ms. Alvarez testified about the Stephen Knolls School, and stated her belief that building a "mega-gas station" will endanger her child and the health of the other children at Stephen Knolls; it would also endanger the mission of the school, to provide that safe environment. Ms. Alvarez noted that Angela has other respiratory-related conditions, such as bronchial dysplasia, and because her diagnosis is so complicated, one thing triggers the other. When Angela gets sick with a cold, it means that she can develop pneumonia or bronchitis and may end up in the hospital, away from her home, her safe environment, and her family, which would make her very upset. Tr. 11/19/13, 32-35.

Ms. Alvarez testified there are only two schools like Stephen Knolls in the County. One is for the residents that live up-county, and Stephen Knolls is for everybody else down-county. If the

gas station were built at this location, she would not have the option to move her daughter to a different school. Angela is very vulnerable to medical conditions associated with elevated levels of certain types of air pollution. On days that are code red or code orange, when the air quality is lower, she is limited to inside. Tr. 11/19/13, 36-39.

c. The Hearing Examiner's Findings on the Health Effects Issue

Evaluating the health impacts of the proposed special exception is a very difficult task in light of conflicting expert evidence on the risks of harm to the general neighborhood. For the reasons discussed earlier in this report, the standard that the Hearing Examiner has applied here is the one specified in the Zoning Ordinance – whether the Petitioner has demonstrated, by a preponderance of the evidence, that the proposed use will not adversely affect the health of residents, visitors,[72] or workers in the area at the subject site.

As previously mentioned, the EPA's NAAQS standards are the best tool, but not the only tool, we have for estimating the potential health impacts of the proposed gas station. In addition to those NAAQS standards, the competing testimony of the health experts is of great importance, but so is the nature of the specific community where Petitioner proposes to locate this station. While its proposed location in the parking lot of a Mall would seem to be innocuous in the general case, the proximity of the subject site to single-family residences (118 feet), a community swimming pool (375 feet), one of only two County schools for severely handicapped children (874 feet) makes the proposed location much more problematic, especially given the amount of gas the station is designed to pump every year (12 million gallons).

It is undisputed that size and distance do matter when the issue is health effects from pollutants generated by a gas station, and a 12 million gallon gas station is more than three times

[72] The Hearing Examiner interprets the term "visitors" to include, *inter alia,* people visiting or passing through the Mall area, people shopping at the Mall, people using the nearby Kenmont swimming pool, people getting gas at the proposed gas station and people attending the Stephen Knolls School.

the size of the type of gas station (3.6 million gallons a year) that the Council defined as sufficiently large (in ZTA 12-07) to warrant additional, statutory setbacks. As stated by Mr. Bianca of the Maryland Department of the Environment, "Larger stations [*i.e.*, those pumping more than 3.6 million gallons a year] would conceivable warrant a larger setback [*i.e.*, larger than 300 feet]." Exhibit 90(b), p. 2. The Council left it to the special exception process to determine whether any particular station pumping more than 3.6 million gallons of gasoline a year would need to be located at a greater distance from residents, visitors, or workers in the area of the subject site to avoid posing unacceptable health risks. That is what much of this case sets out to determine.

To do so, four types of air pollutants were analyzed – carbon monoxide (CO), VOCs (volatile organic compounds), fine particulate matter ($PM_{2.5}$), and nitrogen dioxide (NO_2). As discussed above, the Hearing Examiner has already found in favor of the Petitioner on the issue of any harmful effects from CO that would be generated by the proposed gas station. A few words should be said about VOCs before turning to the two pollutants that were mainly addressed at the hearing, one-hour NO_2 and annual $PM_{2.5}$.

It is not disputed that toxics such as VOCs can be carcinogens at certain levels, and Technical Staff certainly raised the question in its report, especially in the vicinity of the nearest residences. Exhibit 70, Attachment 8, p. 26. Mr. Sullivan's evidence responded to this point, and based on Mr. Sullivan's conclusions about VOC levels, Petitioner's health expert, Dr. Chase, testified that the potential health effect to the residents, visitors, workers, schools attendees and recreation users in the area of the proposed Costco gas station site and the surrounding neighborhood would be negligible because levels would be so low. Tr. 9/16/13, 60-68.

There was no evidence presented by the Opposition at the OZAH hearing that VOC emissions from the proposed gas station, when equipped with an ARID permeator, would exceed levels normally expected from auto filling stations; nor did the Opposition's health experts

substantially address the issue at the hearing. As mentioned above, Dr. Breysse briefly addressed the point in two paragraphs of his report (Exhibit 96(c)), but all he said about the issue at the hearing was that more study was called for. The Hearing Examiner finds that evidence insufficient to rebut Mr. Sullivan's analysis and Dr. Chase's testimony on the point. In light of these facts, the Hearing Examiner finds that Petitioner made a sufficient case that VOCs are not likely to cause any significant health damage in the general neighborhood. The Hearing Examiner is not without worry on the point, especially regarding the nearest residents, who live as close as 118 feet from the gas queue. Nevertheless, in balancing the evidence actually presented on this issue, he finds that a preponderance of the evidence favors Petitioner regarding this particular health concern. The Hearing Examiner recognizes that gas stations produce VOCs and that VOCs at some levels are harmful to human health, but the fact is that the Council has elected to permit gas stations, even very large ones, as long as they meet the setbacks established in Zoning Ordinance §59-G-2.06, and the applicant for a special exception proves, by a preponderance of the evidence, that adverse health affects from that source are not likely. With regard to VOCs, Petitioner has met that burden in this case.

Turning to one-hour NO_2 and annual $PM_{2.5}$, the Hearing Examiner finds that Petitioner's evidence fell well short of the mark of establishing, by a preponderance of the evidence, that the proposed gas station will not cause any adverse health effects to residents, visitors, or workers in the area at the subject site. Petitioner's air quality expert, David Sullivan, constantly retreated from his initial conservative assumptions in modeling projected air quality from the proposed station, and these repeated changes, as well as inherent uncertainties in the modeling process, left a prediction of the likely levels of NO_2 and $PM_{2.5}$ close enough to the impactful level to make the likely health effects debatable. Unfortunately for the Petitioner, the Opposition health experts won that debate, producing a well documented case for undue risks to the neighborhood, while Petitioner's sole

health expert, Dr. Kenneth Chase, initially misfocused on the impacts of diesel emissions, in a case involving a gas station which does not sell diesel fuel, and at one point, resorted to anecdotal evidence. Adding to the weight of the Opposition's health evidence are the statements of the EPA administrator that adverse effects from short term NO_2 exposure are seen well below the NAAQS standard of 100 ppb, and the conclusion of the Technical Staff that Petitioner had failed to prove its case regarding adverse health effects.

More recent commentaries by the scientific community provide further evidence that one-hour NO_2 levels, even below the NAAQS standard of 100 ppb, are a continuing health concern. For example, the February 21, 2014, *Comments of the American Lung Association on EPA's Integrated Science Assessment for Oxides of Nitrogen -- Health Criteria (First External Review Draft, November 2013)*, states (Exhibit 596, p. 5):

> We concur that the evidence supports a causal relationship between short-term exposures and respiratory effects. We are concerned with studies showing that NO_2 exposure exacerbates asthma, and increases respiratory symptoms, triggering increased hospital and emergency department visits for asthma. While confounding by co-pollutants is always a consideration, we concur that recent studies point to the independent role of NO_2 as distinct from other air pollutants.
>
> Of particular concern, are studies indicating positive associations with health endpoints such as hospital admissions, when the mean 1-hour maximum NO_2 concentration was between 22 to 66 ppb, and maximum concentrations ranged from 59 to 298 ppb. [Emphasis added.]
>
> Earlier evidence from chamber studies found increased airway responsiveness of adults with asthma after 1-hour exposures to 100 ppb, calling into question the adequacy of the current hourly standard of 100 ppb.
>
> We are particularly concerned about the role of NO_2 in the development of asthma in children. We concur with the conclusion that long-term exposures are likely to cause adverse respiratory effects.

The American Lung Association also noted, on the same page, that "studies report positive associations between traffic pollution and serious health effects . . ."

Similarly, a March 12, 2014, review by the EPA's Clean Air Scientific Advisory Committee

(CASAC) of the NAAQS standards for NO_2 (Exhibit 599) suggested that a new one-hour standard is expected to "Maintain area-wide NO_2 concentrations (*i.e.*, those that can occur broadly across communities) below those measured in locations where U.S. epidemiological studies have reported associations with respiratory-related admissions and emergency department visits (*i.e.*, below 85-94 ppb, 98^{th} percentile concentrations)." In other words, the most recent evaluations by CASAC reaffirm the previously quoted statements by the EPA Administrator that the 100 ppb standard for one-hour NO_2 was intended to create area-wide levels of NO_2 lower than the NAAQS standard to avoid harmful health effects.

The Hearing Examiner also notes that the World Health Organization (WHO) Air Quality Guideline (Exhibit 421(b), p. 9), for annual $PM_{2.5}$ is 10 micrograms per cubic meter, which is 2 micrograms lower than the EPA's standard. As observed by Mrs. Adelman, Mr. Sullivan's revised urban annual projections of $PM_{2.5}$, ranging at the home, school, and pool receptors, were 10.8 to 10.9 micrograms per cubic meter, which is within the EPA's new annual standard of 12 micrograms per cubic meter of air, but not in conformance with the WHO annual guideline. The Hearing Examiner is <u>not</u> setting the WHO Guideline up as a controlling standard, but it does lend some additional weight to the concerns raised by the Opposition's health experts regarding $PM_{2.5}$ levels evidenced in this case, especially regarding levels directly on the Mall, at the subject site, which will be higher than at the school or pool. The NAAQS standards are given great weight by the Hearing Examiner, but he cannot ignore the evidence from the EPA Administrator regarding how the one-hour NO_2 standard should be viewed (*i.e.*, as setting the appropriate level <u>at the source</u>, but not area-wide, where lower levels are needed to avoid adverse health effects). Exhibit 424(b), Federal Register p. 6494. Nor can the Hearing Examiner ignore the uncertainty factors (up to 50%) built into the air-modeling analysis. Exhibit 285, Federal Register p. 68246.

The Hearing Examiner recognizes that monitor readings throughout the country (Exhibit 593), even in high-pollution areas, seem to indicate that it is unlikely that one-hour NO_2 levels will ever get as high as the Opposition fears; however, the direct evidence pertaining to this subject site makes it too risky to allow the proposed use this close to single-family homes and the extremely vulnerable children at the Stephen Knolls School. This proposed use is just not compatible with this specific neighborhood.

The Hearing Examiner wants to emphasize that this is a very unusual (*i.e.*, non-inherent) situation – a mega-gas station (easily the largest in the County in terms of gas sales), proposed to be located in an already crowded parking lot, within 118 feet of a single-family home, 375 feet from a community swimming pool, 874 feet from one of only two County schools for severely disabled children (including those with severe respiratory problems), close to outdoor restaurant seating, frequented by pedestrians and surrounded by significant existing sources of air pollution (including active loading docks, crowded major roads and the large numbers of motor vehicles already present and polluting in a regional shopping mall). It is, to borrow a phrase, a "perfect storm" of air pollution. The recommendation in this case should therefore not be considered as precedent for the evaluation of other gas station special exception applications that are not freighted with these unusual circumstances.

The Petitioner argues in its Reply Closing Brief (Exhibit 629, p. 7) that the Opposition's analysis is faulty because it "conflates an increased *risk* for adverse health effects with *actual* adverse health effects." The problem with Petitioner's critique is that the health "risk" in this case is established by the Petitioner 's failure to prove, by a preponderance of the evidence, that the requested special exception will not cause adverse health effects. In that light, the undue risk of adverse health effects is the issue. Certainly, the Zoning Ordinance should not be interpreted as precluding <u>any</u> activity that poses some risk of adverse health effects, but nor should it be

interpreted as ignoring significant risks of non-inherent adverse health effects when the inhabitants of the general neighborhood are particularly susceptible to the adverse health effects, either because of their physical condition (*i.e.*, students at the Stephen Knolls school) or because of their proximity to the site (*i.e.*, residents about 118 feet from the expected queue of cars at the gas station). Each special exception case is site-specific,[73] and this particular site is surrounded by citizens who will be at sufficiently increased risk to render the operation of the proposed gas station an adverse health effect. Moreover, even if the chances of the proposed station causing an adverse health consequence to the compromised population at the Stephen Knolls School would be small, the impacts of such an effect could be dramatic and potentially irreversible, given the state of health of the student population.

Thus, the Hearing Examiner's evaluation of all the evidence discussed in great detail above, is that this particular proposal, at this particular location, at the level of usage planned (12,000,000 gallons of gas sales a year), with the proposed design, and the proximity of residences, a community swimming pool and the Stephen Knolls School which serves many medically fragile children, is, on balance, too much of a health risk to warrant approval at this location. This determination is based on the very specific facts of this case, and should not be taken as a finding that all auto filling stations of this size are generally problematic. The Hearing Examiner's findings regarding health effects address the very specific burden imposed on the Petitioner by the Zoning Ordinance – proving its case by a preponderance of the evidence. Despite all the studies, expert testimony and documentary evidence, the Hearing Examiner cannot find that Petitioner met its burden regarding adverse health effects.

[73] As stated in *People's Counsel for Baltimore County, et al. v. Loyola College in Maryland*, 956 A.2d 166, 195, 406 Md. 54, 102 (2008), the analysis in "applications for individual special exceptions is focused entirely on the neighborhood involved in each case."

C. Other Compatibility Issues (Traffic, Parking, Noise, Activity, Odors, Lighting, View, Property Values & Future Development)

As mentioned in the preceding part of this report, the potential for adverse health impacts affects the compatibility of the proposed use with the general neighborhood. There are a number of other compatibility issues that were the subject of substantial evidence in this case, and they are addressed in this part of the report. These include concerns about traffic, parking, noise, odors, physical activity, the view and possible impacts on property values and future development.

Compatibility is a special exception requirement raised directly by the Zoning Ordinance, both in general terms (*see, e.g.*, Zoning Ordinance §59-A-2.1, and §§59-G-1.21(a)(2), (4), (5), (7) and (8)), and in specific areas (*see, e.g.,* Zoning Ordinance §§59-G-1.21(6) and 59-G-2.06(a) and (b)). The relevant Code sections are set forth below:

Zoning Ordinance §59-A-2.1 defines the term "special exception" as:

> *The grant of a specific use that would not be appropriate generally or without restriction, which must be based on a finding that certain conditions governing special exceptions as detailed in Article 59-G exist, and that the use is consistent with the applicable master plan and is compatible with the existing neighborhood.*

Zoning Ordinance §59-G-1.21(a) provides:

> *(a) A special exception may be granted when the Board or the Hearing Examiner finds from a preponderance of the evidence of record that the proposed use:*
>
> * * *
>
> *(2) Complies with the standards and requirements set forth for the use in Division 59-G-2. The fact that a proposed use complies with all specific standards and requirements to grant a special exception does not create a presumption that the use is compatible with nearby properties and, in itself, is not sufficient to require a special exception to be granted.*
>
> * * *
>
> *(4) Will be in harmony with the general character of the neighborhood, considering population density, design, scale, and bulk of any proposed new structures, intensity and character of activity, traffic and parking conditions, and number of similar uses.*
>
> *(5) Will not be detrimental to the use, peaceful enjoyment, economic value or development of surrounding properties or the general neighborhood at the subject site, irrespective of any adverse effects the use might have if established elsewhere in the zone.*

(6) Will cause no objectionable noise, vibrations, fumes, odors, dust, illumination, glare, or physical activity at the subject site, irrespective of any adverse effects the use might have if established elsewhere in the zone.

(7) Will not, when evaluated in conjunction with existing and approved special exceptions in any neighboring one-family residential area, increase the number, intensity, or scope of special exception uses sufficiently to affect the area adversely or alter the predominantly residential nature of the area. Special exception uses that are consistent with the recommendations of a master plan do not alter the nature of an area.

(8) Will not adversely affect the health, safety, security, morals, or general welfare of residents, visitors, or workers in the area at the subject site, irrespective of any adverse effects the use might have if established elsewhere in the zone.

* * *

Zoning Ordinance §59-G-2.06, regarding automobile filling stations, provides:

(a) In addition to findings required in division 59-G-1, an automobile filling station may be permitted if the Board of Appeals finds that:

(1) the use will not constitute a nuisance because of noise, fumes, odors, or physical activity in the location proposed;

(2) the use at the proposed location will not create a traffic hazard or traffic nuisance because of its location in relation to similar uses, necessity of turning movements in relation to its access to public roads or intersections, or its location in relation to other buildings or proposed buildings on or near the site and the traffic pattern from such buildings, or by reason of its location near a vehicular or pedestrian entrance or crossing to a public or private school, park, playground, or hospital, or other public use or place of public assembly; and

(3) the use at the proposed location will not adversely affect nor retard the logical development of the general neighborhood or of the industrial or commercial zone in which the station is proposed, considering service required, population, character, density, and number of similar uses.

(b) In addition, the following requirements must be satisfied:

(1) After August 13, 2012, the area identified by a special exception application for a new automobile filling station designed to dispense more than 3.6 million gallons per year must be located at least 300 feet from the lot line of any public or private school or any park, playground, day care center, or any outdoor use categorized as cultural, entertainment and recreation use.

(2) When such use abuts a residential zone or institutional premises not recommended for reclassification to commercial or industrial zone on an adopted master plan and is not effectively screened by a natural terrain feature, the use must be screened by a solid wall or a substantial, solid fence, not less than 5 feet in height, together with a 3-foot planting strip on the outside of such wall or fence, planted in shrubs and evergreens. Location, maintenance, vehicle sight distance

provisions, and advertising pertaining to screening must satisfy Article 59-E. Screening must not be required on street frontage.

(3) Product displays, parked vehicles, and other obstructions that adversely affect visibility at intersections or to station driveways are prohibited.

(4) Lighting must not reflect or cause glare into any residential zone. Lighting levels along the side and rear lot lines adjacent to a residential zone must not exceed 0.1 footcandle.

(5) When such use occupies a corner lot, the ingress or egress driveways must be located at least 20 feet from the intersection of the front and side street lines of the lot as defined in Section 59-A-2.1, and such driveways must not exceed 30 feet in width.

(6) Each gasoline pump or other service appliance must be located on the lot at least 10 feet behind the building line; and all service, storage, or similar activities in connection with the use must be conducted entirely within the building. There must be at least 20 feet between driveways on each street, and each driveway must be perpendicular to the curb or street line.

(7) Light automobile repair work may be done at an automobile filling station, but major repairs, spray paint operation or body and fender repair are prohibited uses.

(8) Vehicles must be parked completely off of the public right-of-way.

Each of the listed compatibility concerns is addressed below, followed by an overall evaluation of compatibility issues.

1. Traffic Issues

Traffic issues have already been discussed in two other sections of this report – in Section II. C., in connection with the issue of adequate public facilities (APF), and in Section III.B.4., in connection with the impact of additional traffic on air quality. Much of what was said there applies to the Opposition's general concern about additional traffic likely to be produced if the gas station is built.

As noted in Section II.C., although an APF determination was not required, questions relating to the adequacy of public facilities were reviewed both by the Petitioner (Exhibit 11) and by the transportation planners at Technical Staff (Exhibit 70, Attachment 7). Staff determined that the proposed gas station application has satisfied the LATR and TPAR tests and would have no

adverse impacts on area roadways, nearby pedestrian facilities, or the Mall's ring road, if appropriate conditions are met. The record clearly establishes that an additional APF determination is not required at this time.

The determination that neither the Board of Appeals nor the Hearing Examiner is empowered to address the question of adequate public facilities does not mean that those bodies cannot evaluate traffic impacts in this case. The Zoning Ordinance requires the Hearing Examiner and the Board to consider traffic hazard and nuisance issues, as specified in Zoning Ordinance §59-G-2.06(a)(2), as well as the possible impact of station-generated traffic on compatibility with the general neighborhood, as referenced in Zoning Ordinance §§59-G-1.23(a)(4) and (5) and §59-G-2.06(a)(3). The adequate public facility tests do not necessarily determine compatibility, hazard and nuisance issues within the Mall, nor the proposed station's effect on the general neighborhood just outside the Mall.

a. Petitioner's Evidence on Traffic Issues

Petitioner's traffic evidence was presented, both in its case-in-chief and in rebuttal, by Wes Guckert, an expert in traffic engineering and transportation planning.[74] His testimony (Tr. 5/1/13, 18-250; Tr. 5/6/13, 113-155; Tr. 5/23/13, 254-272; Tr. 6/4/13, 40-84; Tr. 3/11/14, 31-286; Tr. 4/1/14, 64-300; and Tr. 4/29/14, 28-290) is summarized in Appendix I, at pp. 18-25 and 171-180. Mr. Guckert was the only traffic expert to testify in this case.

Mr. Guckert testified that Costco's special exception in this case meets the following zoning requirements: 1) 59-G- 1.21(a)(4), the use will be in harmony with the general character of the neighborhood considering traffic and parking conditions; 2) 59-G-1.21(a)(9), the station will be served by adequate public services and facilities, including public roads, and the site already has a valid adequate public facilities determination; 3) 59-G-1.2(a)(9)(C), the station will not reduce the

[74] Mr. Guckert's resume is contained in Exhibit 95(a).

safety of vehicular or pedestrian traffic on public roads; and 4) 59-G-2.06(a)(2), the use of the proposed location will not create a traffic hazard or traffic nuisance. Tr. 5/1/13, 20-22.

Mr. Guckert's Exhibit 128(b) showed level of service (LOS) of A at all the relevant intersections, based on critical lane volume (CLV) analysis, which he had equated with minimal to no delay in his testimony. Subsequently, he performed an analysis of traffic using the state Highway Capacity Manual (HCM), which he set out in Exhibit 465 and later corrected in Exhibit 504. He concluded that, for the access to the Mall at Maryland 193 West and Valley View Avenue, the 29.4 second delay (characterized by the HCM as operating at a C "LOS") would become 30.1 seconds of delay with the gas station added in. Then for the intersection of Valley View Avenue extended down to the Ring Road (dubbed "Intersection No. 16"), which is unsignalized, the Saturday peak hour figure of 44.85 seconds is unchanged, and that is functioning at an E level of service (LOS). Mr. Guckert estimated that with the gas station added, the delay at Intersection 16 would be 50.63 seconds, which is characterized as an F LOS.[75] The impact in terms of the delay if the gas station is added to the existing intersection would be a five to six second added delay per vehicle going through the intersection, which he characterized as barely perceptible during the peak hour. The F LOS kicks in at a 50 second delay, and the projected delay here is barely over that, at 50.63 seconds. Tr. 4/1/14, 81-91 and Tr. 4/29/14, 85-108.

According to Mr. Guckert, the County deems the F LOS as acceptable in all the Metro station policy areas in Montgomery County, including Wheaton. He explained that the County's LATR used to define a 1600 critical lane volume (CLV) as LOS F, but it no longer attaches the

[75] During the rebuttal case, Petitioner proposed modifying the configuration of Intersection 16 to reduce some of the delays, but given the lateness of the proposal and the amount of additional review and community input that would be required to evaluate any new configuration for the intersection, the Hearing Examiner decided that it would be unfair to the Opposition to consider this untimely proposal as part of the traffic analysis at this special exception hearing. In addition to being late, it is a change proposed for an area outside of the special exception site and is therefore outside of the direct control of the litigants and the Board of Appeals. If the Board of Appeals were to grant the special exception, it could note that it is not expressing an opinion about the configuration of Intersection 16, leaving it to Westfield, the community and the Technical Staff to decided whether it is advisable to reconfigure that intersection. Tr. 4/1/14, 14-42 and Tr. 4/29/14, 17-20.

letter designations. Nevertheless, the County says an 1800 CLV is acceptable in the Metro station policy areas, with no improvements required. Wheaton Mall is within a Metro station policy area. The County guidelines do not specify the HCM, which uses the letter designations. He believes that the County allows the higher level of delay in Metro station policy areas in order to encourage development. Tr. 4/1/14, 81-91.

In Mr. Guckert's expert opinion, the intersection operating at an F LOS is not a nuisance because heavy traffic is expected by the Council in a high-density Metro station policy area. It is "a lot of traffic," but in his opinion, it is not a nuisance, especially inside a shopping mall, on a private road where people have a choice of going or not go to the mall. One would expect to have traffic, and Intersection 16 does not currently constitute a nuisance; nor would the extra five second delay from the gas station be a nuisance. It would not be perceivable to the driver. Nuisance is not defined in traffic engineering parlance, but he feels that if gridlock occurred day after day, where cars are literally blocking intersections for an hour or more, on an ongoing basis, that would be a nuisance. Tr. 4/1/14, 92-94.

Mr. Guckert stated that, in his opinion, traffic issues pointed out by Ms. Cordry and Dr. Adelman would not be different from those encountered in any other successful regional retail center. When someone goes to a mall on a Saturday or during Christmastime, the expectation is that there will be traffic and delays, and therefore it is not a nuisance. A crowded parking lot equates to a successful business. According to Mr. Guckert, the APF approval for the Mall, even with the construction of Costco, allows for another 183,000 square feet of retail space, and about 750 additional peak-hour trips.[76] Technical Staff reports that, "The proposed gas station generates 138 peak-hour trips," far less than the additional level of trips allowed under the approved APF.

[76] Technical Staff actually reports even greater leeway under the approved APF finding (Exhibit 70, p. 17 and Attachment 7, p. 4): "Since then, approximately 212,032 square feet of retail space, equating to 793 peak-hour trips remain unbuilt. The proposed gas station generates 138 new peak hour trips, which is within the existing trip credit approved in 1999 (see Attachment 7)."

Exhibit 70, p. 17 and Attachment 7, p. 4. As stated by Mr. Guckert, whatever tests are used, whether it's an APFO test using critical lane volume (CLV), which is the preferred method here in Montgomery County, or the Highway Capacity Manual, or other simulations using Synchro and SimTraffic, the Mall is not at a breaking point. The critical lane volume test is what the County uses, not just for public areas, but also for traffic issues on the site. Tr. 3/11/14, 31-36.

According to Mr. Guckert, increasing the number of cars on the ring road in the morning by the gas station is not an issue since there is plenty of capacity on the ring road all day long, weekdays and Saturdays. There will be two to four gas deliveries to the station per day, but they will not create a problem because the 24-foot-wide drive aisle leaves plenty of room. There's a 30-foot area between the curb line and the parking area where the fuel trucks would park. Assuming 10 feet of fuel truck, you're still left with a 20-foot-wide drive aisle, which actually meets Montgomery County standards for a parking drive aisle. Tr. 3/11/14, 134-138.

Mr. Guckert further testified that the proposed gas station would have almost no impact on the CBD roadways outside the mall. The gas station will generate about 50 new cars in the peak hour on all of the major roads in the CBD, from MD 193 to Veirs Mill to Georgia Avenue, coming from all the different directions. The impact from 50 cars an hour on roadways that are carrying 100,000 cars a day is going to be imperceptible. He does not believe cars will be deflected into local roadways and feels it is unrealistic to project that this facility will generate so much traffic that cars cannot get up and down Georgia Avenue and therefore that they will divert to Mount McComas. Tr. 3/11/14, 139-141.

Mr. Guckert used Exhibit 509, a vehicle queue summary at the Sterling, Virginia Costco gas station on January 11, 2013 (a Friday (Exhibit 509(b)) and January 12, 2013 (a Saturday (Exhibit 509(a)), to demonstrate potential queues at the proposed Wheaton Costco station. The average total queue for Saturday is calculated at 24.8, and the average total queue for Friday is calculated at 8.2.

A previous uncorrected exhibit had listed the queues as 2.1 for Saturday and 1.5 for Friday. He used the Sterling data as the base and multiplied the Sterling data times a factor of .86 to arrive at the Wheaton data. This yielded a projection of about 21 cars average combined queue inside the Wheaton special exception area on Saturdays. The average is 2.7 cars per lane in the eight lanes (*i.e.*, two to three cars per lane of the eight lanes average per hour over the day). The peak one minute out of 12-and-a-half hours was in the range of 46 to 48 cars in the peak one minute. The average queue length per lane on a weekday over 15 hours would be less than one car. The combined queue inside the special exception area over 15 hours would be about seven cars. The peak one minute on a weekday would be 33 or 34 cars. Tr. 4/1/14, 64-76.

Mr. Guckert also introduced Exhibit 510 (Costco Wheaton projections of queue lengths based on Sterling data). He projects that 240 cars could be handled in Wheaton in one hour, assuming a four minute fill for each. He also projected that 210 cars would be serviced on a weekday at the peak hour. On a Saturday, he projects 220 to 225 cars would be serviced in the peak hour. Although the capacity is 240 cars per hour, the random arrivals create queues. Tr. 4/1/14, 78-81. Petitioner provided a diagram showing what the queuing will look like when there are 46 cars waiting for gas on a Saturday at the Wheaton station (Exhibit 511, p. 5), and it is reproduced on page 76 of this report.

Mr. Guckert noted that Costco will have two attendants at the Wheaton gas station during the mid-day hours on a Saturday and Sunday. The second attendant will be there for queue management, and his sole job will be to direct customers during busy times, getting them to move forward and to move around into lanes that have extra space available. Tr. 4/1/14, 111-114.

Finally, with regard to traffic congestion and pedestrian hazards in the parking lot where the gas station is to be located, Mr. Guckert testified that he does not consider parking lots to be danger zones. Accidents happen, but the important thing is whether the parking lot is safely designed. Tr.

4/1/14, 255-274. When questioned as to whether the number of pedestrians crossing the parking lot near the station would interfere with the cars exiting, Mr. Guckert opined that pedestrians would not delay the cars exiting. Pedestrians will give way to cars and vice versa. He noted that Costco will be building a pedestrian path east-west halfway across the parking lot. Tr. 4/1/14, 213-225. Mr. Guckert also testified that there are currently four exits from the parking lot onto the southern ring road, and there will be three if the gas station opens. In his opinion, that reduction of four to three will not cause any type of congestion for people exiting the parking lot. Typically, garages and parking lots allocate one gate for each 400 to 600 cars. In Mr. Guckert's opinion, the majority of the pedestrians will not in any way interfere with cars exiting from the gas station because the gas station is at the southern third of the parking lot, and the pedestrians from the mall entrance to the north of the Costco store come out into the northern three-fourths section of the parking lot. Tr. 4/29/14, 266-272.

b. The Opposition's Evidence on Traffic Issues

In contrast to Mr. Guckert's testimony, the Opposition presented evidence from Karen Cordry,[77] Dr. Mark Adelman and Jim Core suggesting that traffic congestion was already bad in the area since the opening of the Costco Warehouse and would only get worse if the gas station were opened. Using a PowerPoint presentation (Exhibit 375), Ms. Cordry introduced photos of Intersection 16 showing a backup of traffic all the way from the ring road up to University Boulevard, which is approximately 550 to 600 feet. *See* photo from Slide 20 of Exhibit 375, reproduced on page 79 of this report.

It is undisputed that Intersection 16 is a key intersection for accessing the Mall ring road for

[77] As previously noted in this report, Ms. Cordry's testimony covered a broad range of topics (traffic congestion issues, pedestrian safety issues, neighborhood need issues, queuing issues, compatibility issues and interpretation of EPA regulations) and is summarized in Appendix I, pp. 89-106; 197-200. Tr. 9/23/13, 8-177, 207-285; Tr. 10/17/13, 12-112, 149-221; Tr. 10/21/13, 239-267; Tr. 10/23/13, 149-204; Tr. 11/19/13, 49-275; Tr. 11/21/13, 85-176; Tr. 1/10/14, 128-193; and Tr. 5/20/14, 71-318. She also played a large part in the evaluation of Petitioner's exhibits, discovering significant computational errors by Petitioner's experts, Mr. Sullivan and Mr. Guckert.

those cars wishing to enter the special exception site. Based on Mr. Guckert's testimony, Ms. Cordry feels that the intersection is failing even without the gas station, and therefore the usual critical lane volume (CLV) analysis does not work. She noted that Mr. Guckert's revised HCM analysis (Exhibit 504) predicts overall delays of over 50 seconds at Intersection 16 (*i.e.*, an HCM LOS of F). Tr. 4/29/14, 85-108. To emphasize her point, Ms. Cordry played a video of traffic backups at Intersection 16 and at the University Boulevard-Valley View Intersection (Exhibit 376(a), a thumb drive). Tr. 11/19/13, 130-165.

Ms. Cordry also testified that neighborhood people are using the local roads, such as McComas and Drumm Avenues to avoid mall traffic and lights on University, Veirs Mill and Georgia Avenues. Her neighborhood is concerned about people coming from Drumm and backing up on University approaching the Valley View intersection. Ms. Cordry noted that these long backups coming into the Mall end up creating idling, slow traffic and difficulties in getting through the mall property, which has effects both on the traffic within the Mall and on the emissions from idling. Tr. 11/21/13, 116-125. Ms. Cordry further testified that the traffic congestion around the subject Mall (*e.g.*, at Intersection 16, down from the ring road, on the ring road, and back onto University Boulevard) was unusual even for malls. Tr. 5/20/14, 161.

Referring to Exhibit 504(a), Ms. Cordry noted that in the morning, when Intersection 16 is not crowded, a 15% increase in traffic causes only a 5% increase in the delay; however, in the evening, an increase of the 71 trips for the gas station, which is a 2% increase in traffic volume, causes a 7.5% increase in the delay. A 13.6% increase in volume yields a 20% increase in the delay. With only 48 new trips added to Intersection 16, bringing the count from 1899 to 1947 (a 2.5% increase), the result is a 13% increase in the delay, which takes Intersection 16 from an E LOS to an F LOS. Her point is that it doesn't take very many additional cars to make a difference in the intersection. Tr. 5/20/14, 181-205.

Ms. Cordry also challenged Petitioner's claim that cars will fit neatly into the gas queues at the proposed station, introducing Exhibits 346-351, 356-357 and 371. She made observations at the Elkridge, Maryland station (Elkridge is called Gateway because it is at the Gateway Shopping Center) because Costco officials said that station was comparable to the one planned at the subject site, though it has 12 pumps compared to the 16 pumps proposed here. She observed on a Sunday for about 45 minutes from about 2:45 to 3:30 in the afternoon. On several occasions, cars were unable to enter the queuing area because it was full. Ms. Cordry returned to the Costco stations on other dates, as well, and made a record of her observations (Exhibit 347). She noted that people were not necessarily using all the available pumps. Tr. 10/21/13, 238-267.

Ms. Cordry also observed that the number of cars depicted in the queue at Elkridge (Exhibit 345) is about 27, which fills up the queuing area, even though Mr. Guckert's analysis assumed that it would take 34 vehicles to fill up the space. A similar observation about spacing in the queue could be made from Exhibits 350 and 351, which depict the Frederick and Leesburg stations in 2008. This illustrates the point that, generally, the queue area fills up far short of the theoretical maximum of cars that was being assumed by Costco. If cars back up in the center of the proposed queuing area at the proposed station to the point where a car obstructs the entrance aisle, that will cause traffic to backup on the ring road waiting to get in. Ms. Cordry pointed out that this is a very narrow section of the ring road, which will be further narrowed by the pedestrian path, so backed-up traffic will create serious problems. Vehicles coming east on the one lane of the ring road are going to try to turn left across two lanes to enter the gas station, which will be especially difficult if traffic is backed up into the drive aisle. Tr. 10/24/13, 149-164.

Ms. Cordry suggested that when the queue is full, people waiting to enter the gas station may not listen to the attendant telling them to come back later. She worries about how those trying to maneuver around the special exception area will be affected; about backups causing delays;

about the creation of a general nuisance for those trying to use the Mall parcel; about more cars idling closer to homes, creating more noise than is being assumed will happen; about car horns blaring when somebody gets mad about sitting in line too long, waiting, trying to get past; and about the pollution created by queuing and idling. Tr. 10/24/13, 165-174.

With regard to pedestrian safety issues, Ms. Cordry noted that Costco did not initially propose to build this station right across from the loading docks, so that pedestrians would have to walk through the station or go around it to get to the Mall. Because of the setback requirements of ZTA 12-07, Costco could not put the station where it wanted to, but now is trying to wedge it into a location too close to the Costco Warehouse and loading docks. Tr. 10/24/13, 149-164. Ms. Cordry suggested that because of difficult turning radiuses, trucks accessing those loading docks are going to have to move slowly, back and forth, inching their way around cars at the same time, which will cause slower driving and more traffic backups. Tr. 11/19/13, 118-130.

Ms. Cordry also concluded that the location of the proposed gas station in the parking lot would result a net loss of 10 to 20 parking spaces. Therefore, people will have to walk further to get to their cars, and they will be funneled around the gas station. Tr. 11/19/13, 166-221. Ms. Cordry introduced two exhibits regarding pedestrian safety in parking lots, Exhibit 397(a), the Montgomery County Pedestrian Safety Heads Up in Parking Lots campaign and Exhibit 397(b), Montgomery County's description of its pedestrian safety initiative. Tr. 11/21/13, 85-115. Ms. Cordry observed, based on Exhibit 397(b), that 83 percent of the parking lot collisions occurred in private retail parking lots, which included lots at malls, strip malls, fast-food and other restaurants, banks, gas stations, et cetera. She did not have any data about how many accidents occurred at the Wheaton Westfield Mall. In 2012, there were 423 reported pedestrian collisions in the County and, of that number, 125, or about 30 percent, occurred in parking lots and garages, which was a 39 percent increase in one year and the third consecutive year of increases in these parking lot

collisions. The most direct causal factor of pedestrian vehicular collisions is the peak hours of parking lot usage, and 83 percent occur in private retail surface lots. Tr. 11/21/13, 126-135, 156-157. Ms. Cordry feels that with kids, with strollers, and with carts, there will be some issues with cars trying to exit from the gas station, slowing things down and compounding the circulation problems. Tr. 11/21/13, 168-176.

As mentioned in connection with the air quality issues, Dr. Adelman did his own traffic count at "Intersection 16," and his results were 15 percent higher than what Mr. Guckert reported. Tr. 11/14/13, 166-188. Dr. Adelman admitted that only a small amount of additional traffic will be added to any intersection by the proposed gas station if it is approved, but he noted that the additional cars will feed into a parking lot that is already very heavily used and congested. He observed that any number of cars brought to that parking lot will add to the congestion that already exists. Tr. 11/14/13, 203-219. On cross-examination, Dr. Adelman admitted that his counts were made during the 90-day period following the opening of the Costco Warehouse (*i.e.,* during the period that Petitioner's witnesses testified represents a surge in business). Tr. 11/14/13, 244-250.

Mr. James Core testified as a lay witness on behalf of KHCA. His testimony (Tr. 10/21/13, 124-200; Tr. 10/24/13, 17-77; Tr. 11/14/13, 39-122) is summarized in Appendix I, at pp. 112-117. Mr. Core lives at 8 Torrance Court in Kensington, Maryland, in the neighborhood just southeast of the subject site. He testified that Mall traffic affects his neighborhood. He walks through the Mall to go to the Metro station every morning at about 7:00. In the morning, there's little to no traffic, except seeing some trucks that are transiting through to make deliveries. In the evening, there's a bit more traffic now that the warehouse is opened. He noticed in the last several months, there's a little more aggressive pattern with folks that are making the right-hand turn coming out around the Sears outlet and not nearly as universal respect for the crosswalks. He characterized the speed of traffic along the Ring Road as "30-ish, faster than it ought to be." The traffic in the parking lot area

near the Target and west of the Costco warehouse where this special exception is proposed to go is slow, with folks just kind of creeping along, stop and go, looking for a parking spot in a highly utilized parking lot. Tr. 10/21/13, 124-131.

According to Mr. Core, since the opening of the Costco warehouse, it is no longer safe to walk along the ring road over to the Target. Mr. Core feels that the proposed special exception does not comport with the general character of the neighborhood. It's a very busy mall, and the parking lot that serves the Costco and the Target is a highly utilized parking area. This special exception's proposed gas station is going to bring hundreds of cars with dozens queuing at any given time, creating exceptionally long queues that he has not observed at other gas stations or in other parts of the Mall. "[I]t's just too intensive to insert a mega gas station in this type of parcel. It's going to upend the traffic and parking conditions at the Mall. There will be effects that spill over into the neighborhood . . ." Tr. 10/21/13, 132-134.

He observed that the gas station will add hundreds of cars and more tractor trailers coming in to do fuel deliveries, making the Mall relatively less attractive for people to shop there, which is a cost to both other stores and adjacent residents. The proposed mega gas station is inconsistent with how the Mall has been used in the past. In his opinion, this is an intensity of use that's going to bring traffic and idling cars and negatively affect the experience of people that live next to the Mall. The Mall itself is not the problem, but the proposed gas station, pumping 12 million gallons a year, is an entirely different thing, and he would not have located next to the Mall had he known of it. Tr. 10/21/13, 138-142.

Mr. Core testified that the proposed gas station will constitute a nuisance with respect to the use and enjoyment of his property. It would add hundreds of cars into an already constrained environment, as well as tractor trailers, which will slow things down. Tr. 10/21/13, 144-149. Mr. Core differentiated the proposed gas station from other Mall activities. He stated that being a

reasonable consumer, he bought a home near a regional mall, not next to a major gas station, which is a completely different thing. In his mind, it is a game changer because of the number of cars as well as the presence of idling, the presence of lots of fuel deliveries, more tractor trailers. The proposal calls for an intensity of use that is orders of magnitude larger than one could expect from a regular gas station. The nuisance is not just the traffic that's a contributing factor. It's also the type of activity that is planned. As discussed in the health effects section of this report, Mr. Core challenged Petitioner's concept of cars neatly queuing up while waiting to access the gas pumps, and he introduced an aerial photograph of cars queuing at the Beltsville Costco gas station (Exhibit 80(j)) to illustrate his point. It is reproduced at page 77 of this report. Mr. Core stated that even if a condition required a second attendant to deal with cars backed up onto the ring road, that would alleviate some of the non-inherent characteristics, but it's still not going to solve all the underlying problems from the use. Tr. 10/21/13, 135-138, 178-186.

Deborah Houseworth, a resident of Chevy Chase, Maryland, testified about her experiences at the subject site, in more than two dozen visits to the parking lot. It included many people jumping a curb and weaving between the cars and across the aisles in the absence of adequate pathways. Since there is so much congestion and a very small, inadequate loading area, pedestrians have no option but to push the large, wide carts to their cars. Carts are abandoned, and drivers weave in and out around either carts or cars waiting for spaces. In her opinion, adding additional traffic to this area will be a hazard to pedestrians. She described it as "an accident waiting to happen."[78] Tr. 2/24/14, 10-12.

In sum, the Opposition argues that the level of congestion predicted by Mr. Guckert understated both the current situation and the likely effect of the added gas station. Moreover, the

[78] A number of witnesses, in addition to those already mentioned, testified about the problems of the increased traffic on the Mall. *See*, *e.g.*, the testimony of Vivian Pescov (Tr. 11/19/13, 39-48); Laura Kervitsky (Tr. 11/21/13, 245-258); Karen Livornese (Tr. 5/20/14, 16-45); and Brendan McGarry (Tr. 5/20/14, 46-57). The Hearing Examiner feels that their concerns were adequately represented in this section by the discussion of testimony by Ms. Cordry, Dr. Adelman, Mr. Core and Ms. Houseworth. Their testimony is, of course, summarized in Appendix I.

Opposition argues that the added traffic would create a nuisance and a hazard. Mr. Guckert admitted some errors and submitted the corrected estimates discussed above, but his bottom-line opinion is that the new gas station would add only minimally to the traffic congestion and would not endanger pedestrians. He testified that the additional new trips to be generated by the gas station will have at most an imperceptible effect on traffic volumes within the CBD. Tr. 3/11/14, 139. Even at the intersection of MD 193 and Valley View Avenue, there would be only about a two-second delay per car with the additional cars generated by the gas station. Tr. 3/11/14, 74-78. The added delay at Intersection 16 would be only about five seconds. Tr. 4/29/14, 85-108. In his opinion, pedestrians would not be endangered. Tr. 4/1/14, 255-274.

c. The Hearing Examiner's Evaluation of the Traffic Issues

One problem with the Opposition testimony regarding traffic nuisance is that it is based on the existing heavy traffic conditions, not on any independent expert projections of traffic from the gas station. For that, we must rely on the testimony from the only traffic expert who testified, Wes Guckert. Mr. Guckert's errors, disclosed on cross-examination through the thorough analysis of Ms. Cordry of KHCA, undermined the weight to be given his testimony to some degree, but did not change the bottom line.[79]

Mr. Guckert's expert opinion is buttressed by the Technical Staff's own evaluation of the traffic issues. Staff also found that the anticipated traffic from the proposed use would not create a traffic hazard or nuisance (Exhibit 70, p. 23):

> The proposed use will not create a traffic hazard or traffic nuisance because of its location in relation to similar uses, or the necessity of turning movements in relation to its access to public roads or intersections. As described in the Transportation staff memorandum (see Attachment 7), there is a potential for conflicts with internal circulation in relation to other uses near the Site (which may occur for less than 5 minutes within the entire operational hours of the gas station); staff's recommendation that one of the gasoline attendants must be there to direct traffic

[79] Mr. Guckert's credibility was further undermined by the fact, brought out on cross-examination, that he was unaware that Article 66 and a half, which he had repeatedly referenced, had been repealed in 1977 per Maryland Transportation Code Annotated Section 21-101 (Exhibit 552). Tr. 4/29/14, 43-49.

> away from the gas station will address any potential conflict. Staff believes that pedestrian conflicts will be increased for those utilizing the ring road for access to the Mall and points beyond, but they can be adequately mitigated by providing a pedestrian crossing of the ring road at the southeast side of the Site to allow for safer pedestrian crossing of the ring road.

In order to evaluate the traffic issues, we must first determine what the Zoning Ordinance means by the term "traffic hazard or traffic nuisance," as used in Zoning Ordinance §59-G-2.06(a)(2). The word "hazard" is generally understood to mean a dangerous or perilous condition. The term "public nuisance," as defined in Black's Law Dictionary (Seventh Edition, pp. 1093-1095), involves "an unreasonable interference with a right common to the general public . . ." The concept of private nuisance includes the "interference with a person's enjoyment of property. . ." The Maryland courts require a showing of a "substantial" and "unreasonable" interference to establish nuisance.[80]

The Hearing Examiner does not agree with Mr. Guckert that you must have, in effect, total gridlock, to reach the level of nuisance, but he also does not accept the Opposition's apparent standard of increased inconvenience and/or some interference with the enjoyment of property. The Hearing Examiner realizes that whenever someone is caught up in traffic, it seems like a big nuisance; however, that is not the way the term "nuisance" can be interpreted as it is used in Zoning Ordinance §59-G-2.06.

The terms "hazard" and "nuisance," in the sense they are used in Section 59-G-2.06 of the Zoning Ordinance, must take into account the dichotomy in the Zoning Ordinance between inherent and non-inherent adverse effects from special exceptions, which will be discussed in Part IV of this report. If the so-called hazard or nuisance activity is something that is typically expected from a gas station use at this location, then it is not a hazard or nuisance in the sense those terms are used by the Zoning Ordinance, because this type of use is permitted in this zone. A hazard or nuisance

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[80] *See, e.g., Exxon Mobil Corp. v. Albright,* 433 Md. 303, 408-409, 71 A.3d 30, 94-95 (2013) and *Wietzke v. Chesapeake Conference Ass'n,* 421 Md. 355, 26 A.3d 931 (2011).

in the sense used by Section 59-G-2.06, is more akin to an activity or condition which creates a substantial danger or disruption of normal activities or interference with enjoyment of property beyond that which is reasonably expected from this type of use at this location. Since it is expected that traffic will be heavy at a regional mall and therefore will result in delays, noisy activity and potentially dangerous interactions between vehicles and pedestrians, the fact that it will be heavy in this case cannot, *ipso facto,* mean that there is a traffic hazard or nuisance in the legal sense; nor can the addition of a relatively small amount of road traffic, congestion and delay from the operation of the proposed gas station be considered as rising to the level of a hazard or a nuisance, absent proof that the added traffic will create unreasonable levels of danger to, and/or substantial and unreasonable interference with, those in the general neighborhood.

The opposition has demonstrated that the Mall will be more crowded and perhaps incrementally more dangerous to pedestrians, but has not shown that this increase amounts to a legal traffic nuisance inside or outside of the mall. Every additional car on the road can be viewed as adding to the public danger; yet, we do not bar additional cars as long as the addition falls within the established standards. It should also be recognized that most of the adverse effects from the additional traffic and congestion will occur on Westfield's private property (*i.e.*, the Mall), and Westfield has given its express consent to approval of the proposed special exception. Exhibit 3(b).

Based on the evidence in this case, especially Technical Staff's evaluation, and the absence of any expert testimony refuting Mr. Guckert's opinion, the Hearing Examiner finds that the additional cars and congestion in the southwest parking lot and on and near the ring road will not be sufficient to amount to a traffic hazard or nuisance; however, it is undisputed that they will lead to some additional interactions between vehicles and pedestrians, some additional delays and some additional inconvenience in the neighborhood, and thus will add to the incompatibility of the use at this particular location. That addition to incompatibility must be considered in conjunction with the

other effects that the proposed gas station would have on the general neighborhood, including potentially adverse health impacts.

2. Parking Issues

Concerns about congestion in the parking lot where the gas station is proposed and the possible added danger to pedestrians were discussed in the previous section. This section addresses only whether a sufficient number of parking spaces will be available, if the gas station is built. It is apparent from this record that questions relating to the number of parking spaces required for the gas station were conflated with questions about the adequacy of the number of parking spaces available for shoppers in the parking lot where the station would be located. The latter is actually not a question subject to direct review in this proceeding because this case is concerned with parking requirements for the proposed gas station, not for the Mall in general or even the Costco Warehouse. Zoning Ordinance §59-G-1.21(a)(4) does call for a finding that the special exception will be in harmony with parking conditions in the general neighborhood, but there is no evidence that parking on the Mall will affect the neighborhood outside the Mall, and the Mall's owner consented to this application. It is thus a stretch to suggest that the harmony provision applies to his parking situation. Nevertheless, since it was clearly a concern to the community, the Hearing Examiner will briefly address the issue in this section.

The Mall and Costco are located on Westfield's private property, and Westfield was required, in separate proceedings, to establish that it would provide the number of parking spaces for the Mall required by applicable parking regulations, or to obtain a waiver of those requirements from appropriate authorities. The unrefuted evidence in this case is that Westfield has obtained such a waiver. Erich Brann, the Director of Real Estate Development for Costco, testified that Westfield is required to provide a total of at least 5,998 parking spaces for the Mall, based on 4 spaces per thousand square feet, and there are 6,072 parking spaces actually provided. Tr. 9/9/13,

43-59. Petitioner's civil engineer, Dan Duke, testified that because a grassy area in the southwest corner of the mall will be converted to parking spaces, if the special exception is approved, the number of parking spaces on the Mall will actually increase when the station is completed. Tr. 4/26/13, 217-218. The testimony was disputed by Ms. Cordry, who calculated that there would be a net loss of 10 to 20 parking spaces if the special exception is approved (Exhibit 381(a)). Even if, as Ms. Cordry is correct and the gas station would result a net loss of 10 to 20 parking spaces, there is no evidence that such a loss will cause Westfield to drop below its required number of parking spaces.

Mr. Brann further testified that there are 389 surface parking spaces allocated by Westfield to Costco, but any Mall shopper can use these spaces. Those would be standard Costco, 10-foot by 18-foot spaces. To the east of the warehouse building is a three-story parking structure. On the second floor of the parking deck, there are 349 spaces anyone can use, and Costco built a ramp that goes directly from the Costco warehouse to the second floor, so a shopper can push his shopping cart directly across. The parking deck also contains a third floor that is under-utilized, and elevators were installed that will accept up to three Costco shopping carts. Tr. 4/26/13, 72-73.

In addition, Mr. Guckert opined that there are a sufficient number of parking spaces on site to accommodate the gas station and the other retail uses. That determination was made by the Department of Permitting Services when it granted the parking waiver. Mr. Guckert testified that there are about 800 spaces in the southwest quadrant of the Mall, 400 spaces on the second level of the garage that are being used, and also about 400 spaces available in the third level (top deck) of the parking garage, which are hardly being used. Tr. 3/11/14, 129-133. Ms. Cordry also admitted that the third floor of the garage to the east of the Costco warehouse is not fully utilized. Tr. 11/21/13, 85-115.

Virginia Sheard lives in Kensington View and has participated for many years on KVCA's

Land Use and Zoning Committee; however, she testified as an individual, not on behalf of KVCA. Tr. 7/31/13, 105-122. According to Ms. Sheard, parking has been an issue at the Mall for many years and is likely to get considerably worse in the future as the retailer mix in the Mall is upgraded and expanded. A new store is coming next to Dick's Sporting Goods. These new customers will join the existing customer base to seek parking convenient to their shopping target and will be competing for spaces already in tight supply on heavy shopping days. Traffic exiting the pumping area or the proposed pumping area will need to merge with the exit out of the general parking lot. As the number of patrons at the Mall increases, shoppers aiming for the same parking spaces will become more competitive. If the proposed station is not approved, those approximately 100 spaces could be maintained for the shoppers of the Mall in general. Tr. 7/31/13, 109.

As discussed above, even if the proposed gas station would make the Mall parking lot more crowded and result in the loss of some parking spaces and some more inconvenience to Mall customers, that is mostly an issue for Westfield to wrestle with, not a basis for denying this application. On the other hand, it is fair to say that the Opposition is correct in pointing out that the subject parking lot is already very crowded, as evidenced by the photos of the parking lot supplied in Dr. Adelman's traffic PowerPoint presentation (Exhibit 358(b), Slides 51 and 52):

Photo taken by D. Sheveiko, Saturday, June 15, 2013 at 2:00 PM

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Photos taken in April of 2013

These photos provide an interesting contrast with the photos of the empty parking lot supplied by Petitioner in Exhibit 101, which are reproduced on page 18 of this report. The fact that the parking lot is so crowded, even without the gas station added, may fairly be considered in assessing the overall compatibility of this proposal with this neighborhood. We turn now to the straightforward question of whether Petitioner is providing the number of parking spaces required for the proposed use.

The parking requirements for the special exception are contained in Zoning Ordinance §59-E-3.7, which specifies:

> ***Automobile filling station.*** *Two parking spaces for each car wash bay, grease bay or similar service area, and one parking space for each employee.*

Technical Staff states (Exhibit 70, p. 19) that the proposed use requires two parking spaces per §59-E-3.7. According to Staff, Petitioner complies with the parking requirement by providing one parking space within the subject site and the other in the adjoining parking spaces dedicated for the Costco store (leased from the Mall).

Staff's conclusion is based on the fact that the use will have no car wash bay, no grease bay and no "similar service area." Thus, the only required parking spaces are for the employees, the number of which Technical Staff assumed to be two, at most. Because of concerns about

controlling vehicle queues that might extend out to the ring road, Petitioner agreed to have a minimum of one attendant on site at the gas station at all times during the operation of the gas station and to have two attendants on site on weekends between the hours of 10:00 a.m. and 4:00 p.m. In addition, at all other times, Petitioner will dispatch one or more additional attendants as needed to manage the queue and direct traffic in order to avoid any queuing on the Ring Road. To ensure that it meets parking requirements for these additional employees, Petitioner will designate six parking spaces immediately to the west of the gas delivery area "employee only parking."

Although theses spaces would not be directly on the subject site, they would be adjacent to it in spaces designated for Costco by Westfield, the property owner. Technical Staff found the idea of a parking space off the site to be compliant with the Code requirement, and no authority has been presented to the Hearing Examiner to suggest that such an arrangement is impermissible under the Code. Given the fact that the proposed site is in a parking lot, albeit a crowded one, the Hearing Examiner finds it reasonable to allow the gas station's parking space requirements to be met with spaces designated in the adjacent parking lot. Therefore, he finds that Petitioner's proposal is in compliance with the parking space requirements for auto filling stations specified in Zoning Ordinance §59-E-3.7.

3. Noise, Odors, Dust, Vibrations, Fumes and Physical Activity Issues

Zoning Ordinance §59-G-1.21(a)(6) and Zoning Ordinance §§59-G-2.06(a)(1) both require a showing that the proposed use will not produce objectionable noise, fumes, odors, or physical activity. Section 59-G-1.21(a)(6) also requires such a determination with regard to vibrations, dust, illumination and glare. In addition to being statutory requirements, all these items, if excessive, can reduce compatibility with the neighborhood.

Petitioner's air quality expert, David Sullivan, studied and modeled both odor and noise issues in his November 2012 environmental study. *See* Exhibit 15(a), pp. 131-135, 151-163, and

176-180 (for odors) and pp. 164-167 and 180-183 (for noise). He also subsequently submitted a revised noise study (Exhibit 249(e)). Mr. Sullivan concluded that the proposed use would create neither objectionable odors nor noise in the general neighborhood.

Mr. Sullivan testified that, in his opinion, the noise levels would be below the County ordinance. The maximum modeled value, on an average day/night value, with a nighttime penalty, was 54.3 decibels. The ordinance provides, in a residential area, a limit of 65/daytime and 55/nighttime. It's below those values. For the pool, which is non-residential, it was 57 to 62 decibels, and it's below that as well. The actual contribution of the gas station above background was quite small. He showed the results with and without the inclusion of the green screening wall, which has some acoustic properties that will reduce noise levels. The 54.3 decibel level is the highest level that his model showed. Tr. 6/17/13, 277-279. Because some questions arose during cross-examination, Mr. Sullivan also submitted a revised noise study (Exhibit 249(e)). He obtained additional information by going out to the Mall area on a heavy day for Mall usage and a Saturday when the nighttime restriction for noise extended to 9 o'clock, looking for a worst-case situation. He found that noise levels were far below the standards, both for the daytime and nighttime. The levels are essentially background noise levels. Adding in the projected noise from the gas station, Mr. Sullivan concluded that there will not be noise violations when the gas station is built. Tr. 9/20/13, 56-58.

There was some evidence from the Opposition about current noise and activity on the site, especially from idling trucks, some of which may be delivering supplies to the Costco Warehouse. See, *e.g.*, Jim Core's testimony, Tr. 10/21/13, 144-149 (summarized in Appendix I, at pp. 112-114). and Karen Cordry testimony, Tr. 10/24/13, 165-174. (summarized in Appendix I, p. 100), but there was no evidence establishing that objectionable idling or excessive noise would actually result <u>from the proposed gas station.</u> A worry that some harm may result from a proposed use cannot overcome

expert evidence establishing that it will not. Moreover, Mr. Sullivan's conclusions in this regard were buttressed by the findings of Technical Staff. Staff found that ". . . the increase of traffic associated with the gas station will not increase the noise levels significantly." Exhibit 70, p. 13. Based on this record, the Hearing Examiner concludes that the proposed use will not produce objectionable noise levels.

To measure odors, Mr. Sullivan did odor testing at the Sterling Costco facility and did odor background sampling at Kensington Heights. Sometimes at Sterling, he did smell gasoline odors, but that station did not have vent control, which the proposed station would have. In his opinion, if it did have vent control, one would not have smelled any odors at a 300-foot distance. In the summertime, the study did not detect odors at 70 feet. Wheaton will have odor control which will greatly reduce the odors. Also, in two or three years, as new technology is introduced and the fleet turns over, he would expect a 4 times reduction in odor compared to what has been measured in Sterling. In summary, he expects any odors past the Mall ring road to be rare. Tr. 6/17/13, 279-283. Although Technical Staff disagreed with some of Mr. Sullivan's assumptions and conclusions regarding projected odor incidents, it accepted the Petitioner's assertion that the general character of the odor will be neutral. Exhibit 70, p. 13. There was no evidence from the Opposition establishing that the proposed use would create objectionable odors. Based on this record, the Hearing Examiner concludes that the proposed use will not produce objectionable odors.

Technical Staff also found that the proposed use would not create objectionable dust or vibrations in the general neighborhood, Exhibit 70, p. 16. In the absence of any contrary evidence, the Hearing Examiner so finds.

The issue of "fumes" was discussed at great length in Part III. B. of this report in terms of the proposed station's potential effect on air quality and therefore on the health of local residents, workers and visitors. Those impacts will be further discussed in Sections III.C.6. of this report in

connection with overall compatibility.

The Opposition certainly raised the issue of excessive physical activity at the subject site if the proposed use is approved. That activity would manifest itself, according to the Opposition, both in terms increased traffic and parking lot congestion, as well as excessive gas-line queuing at the pumps. As stated by Mr. Core, the gas station would "bring[] an intensity of activity that was never intended and is probably not safe in that space." Tr. 10/21/13, 145. Both the congestions issues and the queuing issues were discussed in Sections III.C.1. and 2. of this report. The Hearing Examiner found that the congestion and queuing issues would not create a legal nuisance, but they would adversely affect compatibility and therefore should be considered in that context. As mentioned, overall compatibility issues will be discussed in Sections III.C.6., below.

The issue of illumination and glare will be addressed in the next section.

4. View and Lighting Issues

Intrusive lighting certainly can be a compatibility issue with regard to auto filling stations, but there was no controversy over lighting issues in this case. The proposed lighting was reviewed in Section II.B.4. of this report. As stated on pages 32-34, the lighting will be designed to reduce glare by focusing the lights to eliminate spill-off outside the property boundary (Exhibit 10, pp. 4 and 12). Petitioner's Lighting Plan (Exhibit 6) demonstrates that light from the proposed gas station will not exceed applicable standards for residential areas (*i.e.*, will not exceed the 0.1 footcandle standard at the property line), and all of the lights associated with the filling station, except for a few dimly lit lights under the canopy, will be extinguished shortly after the station closes each day. Technical Staff agreed that the proposed lighting will meet the statutory standard. Exhibit 70, pp. 21 and 24.

Moreover, there will be an eight-foot tall, "greenscreen" wall along the southern and southwestern forest buffer to further block the proposed gas station from the view of residences to

the south and west. The effectiveness of the proposed greenscreen wall in blocking the view of the gas station from locations off outside of the mall is demonstrated in "Sections" provided by Petitioner (Exhibits 245(b) and (c)), portions of which are reproduced on page 32 of this report. Based on the evidence in this case, the Hearing Examiner finds that the proposed use will not produce objectionable illumination or glare intruding into neighboring residential areas. In addition, the proposed greenscreen should effectively block the view of the station and the gas line queue from the residences to the south and southwest of the subject site, a fact which reduces the visual impact of increased activity from the proposed use on the subject site.

5. Impacts on Property Values and Development

Zoning Ordinance §59-G-1.21(a)(5) requires that the Petitioner demonstrate that the proposed use "*Will not be detrimental to the use, peaceful enjoyment, economic value or development of surrounding properties or the general neighborhood at the subject site . . .*" Similarly, Zoning Ordinance §59-G-2.06(a)(3) requires that "*the use at the proposed location will not adversely affect nor retard the logical development of the general neighborhood . . .."*

The issue of the potential impact of the proposed station on nearby residential property values was hotly disputed. Petitioner called Joseph Cronyn, who testified as an expert in the field of real estate market analysis (Tr. 8/2/13, 26-86, 222-286). Mr. Cronyn's testimony is summarized in Appendix I at pp. 73-76, and his resume is contained in Exhibit 17(e). His original report is labeled as Exhibit 16, and his modified report, subtitled, "Impact on Nearby Property Values," is contained in Exhibit 243. Mr. Cronyn's conclusion is summarized in the cover letter to his report:

> LF&M [Lipman Frizzell & Mitchell LLC] finds that the Costco filling station use is not detrimental to the use, peaceful enjoyment, economic value or development of surrounding properties or the general neighborhood at the subject site, irrespective of any adverse effects the use might have if established elsewhere in the C-2 zone. We have reached this conclusion based on our analysis of conditions within the subject's immediate environment, of specific externalities which could affect neighborhood values, and of residential value trends in Kensington and Montgomery County.

The Opposition challenged Mr. Cronyn's credentials as an expert in property valuation because he is not a licensed real estate appraiser in any state, nor a real estate broker. The last time he listed a residential property for sale as an agent was about 30 years ago, and he has never had formal education in valuing residential real estate. Nevertheless, as part of his job with Lipman Frizzell & Mitchell LLC, he does market and feasibility analyses for a residential development, and has done so recently. Mr. Cronyn stated that over 35 years of real estate development, finance, and market analysis has prepared him to opine on the likely effects of the proposed gas station on the use, peaceful enjoyment, economic value, and development of surrounding properties and the general neighborhood. The Hearing Examiner found that Mr. Cronyn is qualified as an expert in real estate market analysis, which is the area in which he has been proffered as an expert, and the Opposition's objections go to the weight to be given his testimony. Tr. 8/2/13, 26-44.

Mr. Cronyn testified that he looked at the Costco property in its context within the shopping mall, and he looked at the neighborhood context in Kensington Heights. He also examined analogous situations to judge whether gas stations have an impact on home values, and he looked at arm's-length real estate transactions over a period of time to understand trends in values and trends in pricing over that period of time for homes adjacent to the shopping mall and to other similar situations in the Connecticut Avenue corridor. In his professional opinion, the proposed filling station will not adversely affect the local property values. He feels that there would be no negative externalities to adjoining residential properties because noise, hazards, odors, nuisance behavior, traffic, and visual impacts will be as close to zero as possible. Moreover, because of the green wall that will be put up between the gas facility and residential properties, in his opinion, many of those properties will actually be improved, in that their views of the Mall will be reduced even further than they are right now. He noted that in most cases, the views today are actually relatively low because of grade differential between the residential properties and the Mall, intervening trees and

forest area and also the distances between the residential properties and the Mall itself. Tr. 8/2/13, 44-47.

Mr. Cronyn further testified that he looked for data in similar situations to support his analysis. He tried to use paired sales -- the same home, selling at an earlier period and at a current period -- to minimize the subjectivity in a judgment. In looking for paired sales, one of the difficulties is that the number of properties in proximity to the Mall is relatively finite. He found 66 arm's-length sales, but the number of instances of the same property selling over time was relatively limited. He then looked at general trends in the market, trying to track sales over a period of time, from 1994 to 2011, on an average basis. He compared them to what he felt would be a reasonably analogous situation to the Costco gas station. Since there are no other Costco gas stations in Montgomery County, he felt a reasonable analogy was the situation at intersections close to Connecticut and Plyers Mill, in the area just south of the site. He found six gas stations that were at intersections along Connecticut Avenue and just off of Connecticut Avenue. The Costco station, in terms of scale, is probably comparable to the six stations together and their impact on a fairly tight neighborhood. He looked at the sales of residential properties within a 400-foot radius of those intersections to determine the value trends in those properties. He found a total of 82 arm's-length sales over that same period of time. Averaging those sales, he found that the price trends were not, in any major respect, different from what was happening on the blocks adjacent to the Mall. He found no evidence that anyone is going to have a problem selling their house in Kensington Heights or getting a reasonable value for their house based on general market conditions. Indeed, the sales trends rose through the top of the housing bubble, they declined through the housing recession, and then started to come back up again in 2010 and 2011. That is reasonably supportive of the conclusion that the proximity to the gasoline station was not a factor in prices increasing or decreasing. Indeed, the economy seemed to be the biggest factor, and overall prices were pretty

much the same in terms of dollar amounts and in terms of trends. Tr. 8/2/13, 50-54; 239-242.

Mr. Cronyn noted that there is no through traffic into the Mall through Kensington Heights, and these particular blocks are separated by a significant topography. There's no way that drivers can get into the residential properties from the Mall property and from the Costco gas station, so proximity doesn't mean that there is going to be any negative effect on property values at all. There also should be no stigma to locating a house in proximity to a gas station if you are part of a separated residential neighborhood. Mr. Cronyn does not believe that there are any negatives associated with being in the block next to the Mall versus being a block further away, and that Kensington Heights as a residential neighborhood enjoys a good reputation. People understand, when they're buying into Kensington Heights, that they're buying next to the shopping center, and the people who buy in think that that's wonderful. If somebody wants rural living, they're not going to buy in Kensington Heights; if somebody's more urban-oriented, then Kensington Heights is a terrific deal. Adding the Costco gas station to the equation and placing it on the Mall site does not change this situation, whether or not the green screen wall were constructed because of the existing buffer. Tr. 8/2/13, 54-57.

On cross-examination, Mr. Cronyn testified even if you could see the gas station that is proposed here from the second floor of the neighboring houses, the extent of the impact would depend on how serious any visibility is; however, given the distances involved and the type of operation, in his opinion, any visual negatives would be minimal, if there were any. He noted that he had looked at the cross sections and, as far as he could tell, there wasn't any visibility. People who bought homes on those blocks adjacent to the mall would be very much aware of the Mall, which has been there for 50 years. Various circumstances allow people in Kensington Heights to reside in close proximity to the Mall without it having direct impact upon them -- the forest buffer; the road network; the lack of connecting streets; the grade differential; and the topography

difference are all elements in the isolation of the neighborhood in certain ways from the Mall. Mr. Cronyn admitted that his conclusions are dependent on reports of the experts with regard to noise, hazards, odors, traffic or other nuisances. Tr. 8/2/13, 225-234.

Mr. Cronyn further testified that he did not do a market analysis of the Kensington View neighborhood because it is not adjoining the proposed gas station site. In his opinion, there is nothing about the location of Kensington View or the other neighborhoods that would make them more susceptible to being affected by this proposed gas station than the Kensington Heights neighborhood. They're more remote from the special exception, and traffic and other kinds of impacts seem to be relatively slight. Tr. 8/2/13, 276-277.

The Opposition presented no expert testimony to counter Mr. Cronyn's expert opinion, but two lay witnesses (Jim Core and Clifford Scharman[81]) testified challenging Mr. Cronyn's conclusions, and KHCA's Closing Brief analyzes and discounts Mr. Cronyn's evidence (Exhibit 624, pp. 62-70).[82]

A portion of Mr. Core's testimony (summarized in Appendix I at pp. 114-117) addressed the question of the potential impact of the proposed gas station on nearby home values. He stated that when he bought his home, he was aware of the ring road and the way the Mall was constructed, with most of the activity occurring in the center of the parcel, and with buffering parking lots. He viewed the Mall as an amenity, but he did not buy next to a gas station. He was also aware of the

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[81] Mr. Scharman testified that he was neither for nor against the petition (Tr. 7/31/13, 138-139); however, he noted that photographs show that there are fewer than 10 homes within 400 feet of the six gas stations that Dr. Cronyn studied in the Town of Kensington, which creates uncertainty in his statistics. On cross-examination, Mr. Scharman admitted that he had no evidence that gas stations in fact decrease the property values of a residential home. Tr. 9/9/13, 107-114.

[82] KHCA's Closing Brief also mentions a letter from Tim Harper, purportedly an experienced real estate agent (Exhibit 80(i)). As stated by Petitioner in its Closing Reply Brief (Exhibit 629, p. 43), "there is no evidence that he visited the site or surrounding neighborhood, whether he reviewed Mr. Sullivan's environmental analysis, if he knew about the green screen wall, or what, exactly, he based his opinions on." The Hearing Examiner views the Harper letter as an attempt at introducing expert evidence through the back door, without the benefit of a *voir dire* or cross-examination or a sufficient explication of the basis for the declarant's statements. The Hearing Examiner therefore gives it no weight.

normal trade hours, 10:00 a.m. to 9:00 p.m., and it was very quiet in the morning. The proposed gas station would be open much earlier. The Montgomery Ward's auto service station that at one time existed on the mall parcel was located well north of the proposed site, and was a completely different type of operation, with no fueling of cars and no idling. Tr. 10/24/13, 17-26.

Mr. Core opined that the gas station will have a negative economic impact on the value of his home because it will make his house more difficult to sell. He feels that the gas station will have a non-inherent negative impact from queuing and idling; the presence of underground tanks; and from its appearance. It's also going to make the area relatively less friendly to pedestrians. People -- potential home buyers, people who live in the area or are considering living in the area -- are going to be very concerned about potential adverse health effects, whether or not they are scientifically proven, and that perception is going to have serious impacts on the ability to sell his house. He stated that Mr. Cronyn's report has no analysis whatsoever of what the effect on home values will be in the existing residential neighborhood by putting in a mega gas station and relies on erroneous assumptions from the Sullivan reports regarding noise and health impacts. There will be additional noise, especially in the morning before the regular mall opens. A half-dozen fuel tankers per day will exacerbate those impacts and will definitely be noticed. It will fundamentally change the experience on the Mall property, and on the neighboring properties. Location matters, and many potential buyers will walk away, driving down the value of the homes. Tr. 10/24/13, 26-29.

Mr. Core further testified that Mr. Cronyn found that homes next to gas stations will appreciate, but he was talking about trend lines for appreciation of homes that are near gas stations, and people bought the homes when they were near gas stations. This case is very different because it involves putting a really large gas station right next to existing communities. He therefore feels that Mr. Cronyn's analysis is flawed and irrelevant. Mr. Core also challenges Mr. Cronyn’s use of an economic analysis model, rather than using appraisals, which would require that certain

standards be followed. Mr. Core feels that if an appraisal model were used, the houses in the neighborhood would lose value, since they would be relatively less attractive next to a gas station. Tr. 10/24/13, 54-60.

Mr. Core referred to an excerpt from an August 2010 study entitled, "Preliminary Stated-Preference Research on the Impact of LUST Sites [*i.e.*, Leaking Underground Storage Tank Sites] on Property Values: Focus Group Results" (Exhibit 352, p. 34), for the finding that 75 percent of one group of respondents reported that a gas station opening half a mile away affects home values with an average discount of $3,300.[83] His own home is about 650 feet away from the site. Mr. Core also discussed the articles he submitted in Exhibits 353-355.[84] A Michigan State University study indicated that opening an additional gas station within a quarter of a mile would reduce a home price by $6,052. All the references are to typical gas stations, not the mega gas station that the special exception would bring to his neighborhood. Home values can be affected by perception, whether or not based on reality, and people do not perceive gas stations favorably. Thus, they have a negative economic value on adjoining property owners. Tr. 10/24/13, 61-77.

Petitioner critiqued these studies as being insufficiently connected with the facts of this case. Closing Reply Brief (Exhibit 629,p p. 43-45). The Hearing Examiner agrees. The "LUST" study (Exhibit 352), as its name implies, was addressed to public attitudes about leaking underground storage tank sites (LUST sites), not what effect a new gas station might have on property values under all the circumstances of this case. As Mr. Core admitted on cross-examination, one of the focus groups mentioned in the LUST study had indicated that a nearby gas station would decrease

[83] The study in question was performed by the EPA's National Center for Environmental Economics (NCEE). Interestingly, the same result was reported for the opening of a fast food restaurant a half mile away.

[84] Mr. Core introduced a number of other publications (Tr. 10/24/13, 30-53). The exhibits are:
Exhibit 353 Report of the Land Policy Institute of Michigan State University, "Building Prosperous Places in Michigan: Understanding Placemaking Values, Perceptions, and Barriers." The Executive Summary (Exhibit 353(a)) and the full Report (Exhibit 615(b)) are also in the record.
Exhibit 354 April 14, 2009, article entitled Is It Safe to Live Near a Gas Station?
Exhibit 355 January 20, 2012, report entitled Welcome to the FHA Appraisal Inspection Requirements Webinar
Exhibit 355(a) Excerpts from Exhibit 355.

home values only if within sight of a home. Tr. 11/14/13, 39-63. The Michigan State University study (Exhibits, 353, 353(a) and 615(b)) also has the weakness of being a survey about general attitudes, not responses to the facts in the case at hand. The Hearing Examiner finds that evidence from general surveys and focus groups is not sufficiently consistent with and inclusive of the facts of this case (*e.g.*, the fact that the gas station will not be visible from the homes in question) to be relied upon in reaching any conclusions regarding effects on property values. He therefore will not rely on them in reaching his conclusions in this section.

Technical Staff found Mr. Cronyn's study of real estate values to be "valid" (Exhibit 70, p. 29), and concluded that the proposed gas station will not be detrimental to the use and peaceful enjoyment of the adjacent residential neighbors, except with regard to the health issues previously discussed (Exhibit 70, p. 16).

The Hearing Examiner concludes that while the proposed gas station may discourage some prospective home buyers from bidding on a house adjacent to the subject site, especially in light of health concerns, the sole expert evidence supports the finding that there will be no overall reduction in nearby property values or development from the proposed use. While the approach taken by Mr. Cronyn may not be perfect, it was addressed to the facts of this case, unlike the surveys presented by the Opposition, and outweighed the personal views and concerns expressed by the nearby resident (Mr. Core) with regard to home values. There is nothing in the Zoning Ordinance specifying that an expert evaluating impacts on "*economic value or development of surrounding properties*" must use a home appraisal approach sought by the Opposition, as distinguished from the market analysis approach taken by Mr. Cronyn. The Hearing Examiner therefore finds that Petitioner has met its burden of establishing, by a preponderance of the evidence, that the proposed use will not be detrimental to the economic value or development of surrounding properties. That is not to say that the points raised by Mr. Core do not have power on the issue of compatibility;

rather, the Opposition did not produce proof to adequately and scientifically connect Mr. Core's testimony with a likely result of any decrease in nearby home values. The compatibility issues will be discussed in the next section of this report.

Finally, a few words should be said about the requirement of Zoning Ordinance §59-G-2.06(a)(3) that the use at the proposed location not adversely affect nor retard the logical development of the general neighborhood. During the hearing, the Hearing Examiner stated that the Opposition's concerns about impacts on logical development were too speculative to allow any conclusions to be reached since the then-proposed rezoning had not been adopted. Tr. 2/24/14, 219-234 and Tr. 5/20/14, 162-171. On July 15, 2014, while the record was still open, the District Council removed that speculation by adopting District Map Amendment G-956 (Exhibit 619), in Resolution 17-1156, which rezoned the site to the GR-1.5 Zone, effective October 30, 2014.[85] However, the new zoning map did not change any of the zones to the south of the Mall in the vicinity of the subject site. Those Zones remain R-60, RT-8 and PD-9.

Petitioner's land use expert, Steve Gang, stated in his land planning report (Ex. 10, p. 21):

> The proposed location will not adversely affect nor retard the logical development of the general neighborhood or the residential neighborhood to the south and east of the Property. The Sector Plan reaffirms the existing residential uses to the south and west of the Mall Parcel and there is no growth planned in this established residential area. As envisioned in the Sector Plan, the location of the Filling Station does not preclude additional growth within and around the Mall. Westfield's only objective is the continued viability of the Mall. To this end, Westfield encouraged Costco, with its full array of services -- including the Filling Station -- to locate on the Mall Parcel. Westfield has determined that the proposed location will in no way be a detriment to the continued operation and growth of the Mall. As previously noted, the location of the Filling Station does not interfere with the potential future development of the CR zoned portions of the Mall Parcel located along Veirs Mill Road.

Nothing in the Council's action changes the fact that development on the Mall is controlled by its owner, Westfield, and Westfield has expressly consented to this special exception application.

[85] Auto filling stations are a permitted conditional use in the new GR-1.5 Zone, as they were in the C-2 Zone.

Exhibit 3(b). Development off of the Mall to the south is an established residential neighborhood, and the District Council has not changed those zones.

Although Donna Savage testified on behalf of KHCA, that she believes this proposed gas station would adversely affect or retard the logical development of the general neighborhood (Tr. 2/24/14, 111-122), the only land use expert who opined on the subject, Steve Gang, testified to the contrary. Tr. 6/4/13, 226 and 234.

The Planning Board majority found that "Approving such an auto-centric use at this location would . . . 'retard the logical development of the general neighborhood,' . . . ," but it did so in connection with its finding of non-compliance with the Sector Plan. Exhibit 89, p. 2. As discussed in Part III.A.5. of this report, the Hearing Examiner disagrees with the Planning Board's majority recommendation regarding Sector Plan compliance, finding Mr. Gang's testimony convincing on the point. Technical Staff also disagreed with the Planning Board majority with regard to Sector Plan compliance, as set forth in Part III.A.1. of this report. Similarly, Technical Staff did not share the Planning Board's view as to the impacts of the proposed gas station on logical development in the neighborhood, stating (Exhibit 70, p. 23):

> The proposed gas station will not adversely affect nor retard the logical development of the general neighborhood. It is consistent with the other uses in the Mall and the uses permitted in the C-2 Zone.

Based on the testimony of Petitioner's land use expert and the opinion of the Technical Staff, the Hearing Examiner finds that the proposed use would not adversely affect logical development in the neighborhood.

6. Overall Evaluation of Compatibility Issues

We now turn to the question of compatibility of the proposed use with the general neighborhood, considering all of the evidence regarding health effects, traffic congestion, parking congestion, physical activity and Sector Plan concerns. As mentioned at the beginning of this part

of the report (Part III.C.), to obtain a special exception, the Zoning Ordinance 59-G-1.21(a) requires a showing of compatibility both in general terms (*i.e.*, "harmony with the general character of the neighborhood") and in specific areas, such as health, traffic, parking, lighting, noise and physical activity. In addition, Zoning Ordinance §59-1.21(a)(2), provides:

> . . . The fact that a proposed use complies with all specific standards and requirements to grant a special exception does not create a presumption that the use is compatible with nearby properties and, in itself, is not sufficient to require a special exception to be granted.

Petitioner's land use expert, Stephen Gang, testified that the proposed special exception will satisfy all of the applicable code requirements and will be compatible with the long-standing commercial operation of the Mall and the general neighborhood as defined by Technical Staff. In his opinion, there will be no adverse impacts. It's an incremental density to the Mall itself; it's consistent with the existing zoning; and it's compatible with the by-right land uses surrounding the station. The use exceeds all the setbacks in the C-2 zone, including the separation requirements imposed by Zoning Text Amendment 12-07. Tr. 6/4/13, 265-266.

Petitioner summed up its position in its Closing Brief (Exhibit 616(a), pp. 29-30):

> The proximity of this gas station to a residential area is not unique in any way. Mr. Gang presented many examples of residences located as close, if not closer, to one or more gas stations. (Ex. 86(g); Tr. 6/4/14 at 253). In addition, the residential neighborhood already borders a major commercial center -- the Mall. The Mall parcel consists of 1.5 million square feet of development surrounded by a massive parking lot. Adding the gas station to an already thriving commercial center will not change the character of the Mall parcel.
>
> The gas station use fits within the "umbrella" of the existing Mall operations. Certain uses on the Mall parcel open as early as 5:00 a.m. and close as late as 12:00 p.m. (Tr. 5/6/13 at 39). The gas station hours will not extend beyond those of the existing commercial operations on the Mall in the morning or at night. The lighting provided by the station is minimal and except for safety lights, lights will be turned off by 9:30 p.m. during the week, and by 7:00 p.m. on the weekends. In contrast, the brighter Mall lights stay on until at least 10:30 p.m. (Tr. 4/26/13 at 246, 247).
>
> The incremental increase in commercial activity generated by the proposed gas station will have no measureable effect on the residential neighborhood, and moreover, Costco's eight foot high green screen will visually conceal certain areas

> of the Mall not just the gas station, from the residential neighborhood -- even from second floor windows -- and thus enhance the already existing natural buffer between the two areas. Further, the green screen will also help mitigate current noise impacts arising from the Mall's operations.
>
> In addition, for all the reasons already discussed herein, as well as those addressed in elsewhere in this brief, the gas station will not be detrimental to the use, peaceful enjoyment or the development of the surrounding properties.

It will come as no surprise that the Opposition disagrees with Petitioner on this point. For example, Mr. Core testified that the proposed gas station will adversely affect the use and enjoyment of his property. It would add hundreds of cars into an already constrained environment, and it will increase fumes and odors as cars idle longer than you would expect at a typical gas station. It's going to bring more fuel trucks rumbling into the neighborhood. In his home, sitting on his deck, you can hear and sometimes feel the large vehicles that are transiting on the ring road. It's going to slow progress on the Mall and local roads, and it will bring an intensity of activity that was never intended and is probably not safe in that space. Tr. 10/21/13, 144-149.

Mr. Core noted the proposed Costco filling station is not a typical retail filling station, but rather a mega gas station, which he characterized as a regional fueling depot, pumping 12 million gallons per year. It is expected to pump eight times the regular volume of a normal gas station and three to four times what the County Council defined as a large gas station. He feels it is like putting a highway rest area fueling station right next to an existing neighborhood. That's a big deal. It is materially different, and he is afraid of it because of what it's going to do to his neighborhood. Tr. 10/24/13, 23. In his opinion, this is an intensity of use that's going to bring traffic and idling cars and negatively affect the experience of people that live next to the Mall. The Mall itself is not the problem, but the proposed gas station, pumping 12 million gallons a year, is an entirely different thing. Tr. 10/21/13, 138-142.

Technical Staff concluded that the proposed use "will be in harmony with the general character of the neighborhood, when considering density, design, scale, and bulk of the proposed

new structures." Exhibit 70, p. 15. However, Staff found that the fumes from the proposed use were objectionable and would create adverse health effects. Exhibit 70, p. 16. Staff also observed that "the proposed location may not be the most desirable location for this use on the Mall property . . ." Exhibit 70, p. 15. The Hearing Examiner agrees with Staff's observation that a filling station is not out of character with the Mall's current mix of retail, transportation and office uses, but that observation does not address the question of whether the totality of circumstances surrounding the proposed use render it incompatible with the residential neighborhood to the south, southeast and southwest of the Mall.

The majority of the Planning Board also did not directly address the proposal in terms of "compatibility" with the adjacent residential neighborhood, but rather stated its concerns about compliance with the goals of the Sector Plan and the logical development of the general neighborhood (Exhibit 89). Despite the Hearing Examiner's disagreement with the majority of the Planning Board on the question of consistency with the Sector Plan, he finds that the Planning Board's conclusions in this regard are tantamount to a negative evaluation of compatibility with present and planned development in the neighborhood.

The Hearing Examiner finds that the compatibility issues arise in this case not because the proposal here is for a gas station, but because it is for this particular type of gas station (a very large one with lines of idling cars) located in this particular neighborhood (*i.e.*, 118 feet from single family residences, 375 feet from a neighborhood pool and 874 feet from a school with severely disabled children.) It is these particulars which render the proposal incompatible, not the mere fact that it calls for a gas station in a mall parking lot.

KHCA's Closing Brief (Exhibit 624, pp. 4-6, 104-106, 110-113)) emphasizes two points with regard to compatibility issues, the legal standard for analyzing compatibility and the potential impacts on the health of nearby residents and children at the Stephen Knolls School. As pointed out

by KHCA, Zoning Ordinance §59-G-1.21(a)(2) very explicitly warns that "[t]he fact that a proposed use complies with all specific standards and requirements to grant a special exception does not create a presumption that the use is compatible with nearby properties and, in itself, is not sufficient to require a special exception to be granted." This point was highlighted by the Maryland Court of Appeals in *Montgomery County v. Butler*, 417 Md. 271, 291, 9 A.3d 824, 835-836 (2010),

> . . . Finally, presenting a prima facie case meeting the County Code's standards and requirements applicable to specific special exception use does not ensure the approval of the special exception application. Rather, § 59-G-1.21(2) states that "[t]he fact that a proposed use complies with all specific standards and requirements to grant a special exception does not create a presumption that the use is compatible with nearby properties."

The court explained, 417 Md. at 295, 9 A. 3d at 838,

> Yet, even assuming the presumption [of compatibility] derives from the local legislative policy decision to provide in its original zoning regulatory scheme (or by amendment to its text) for the potential of such a use with the grant of a special exception, the use remains only permissible conditionally and each applicant must prove actually, to the satisfaction of the administrative decision-maker (subject to the narrow standards for judicial review and applicable constitutional principles), that his/her/its application will be compatible with the uses on (or future permitted use of) other properties in the neighborhood. [Emphasis added.]

The court added, 417 Md. at 305, 9 A. 3d at 844,

> . . . [I]t is for the zoning board to ascertain in each case the adverse effects that the proposed use would have on the *specific, actual* surrounding area. [Italics in original.]

In *Butler*, the court upheld the denial of a special exception to a landscape contractor, even though that type of use was permitted in residential areas of the zone, based on the evidence that ". . . the configuration of the commercial enterprise activities and installations on the lot, and the proximity of the commercial activities to adjacent properties were sufficient non-inherent adverse effects to persuade the Board to deny the application." *Butler,* 417 Md. at 308, 9 A. 3d at 846.

The Hearing Examiner finds that the situation described in the quoted sentence from the *Butler* case is analogous to the circumstances in the case at bar. The non-inherent characteristics[86]

[86] Non-inherent adverse effects, as defined by Zoning Ordinance §59-G-1.2.1, are "physical and operational

of the proposed auto filling station and the resulting adverse effects make the proposed use incompatible with the adjacent residential neighborhood to the south, southwest and southeast of the subject site. These adverse effects include the potential health impacts described in Part III.B. of this report and the traffic congestion, parking congestion and additional physical activity described in Part III.C. of this report.

To be clear, the Hearing Examiner is not finding that the additional traffic congestion, parking congestion and physical activity rise to the level of a legal "nuisance;" rather, he is finding that these adverse effects, all of which are linked to the unusual size of the proposed gas station, when combined with the adverse health impacts, which are also linked to the unusual size of the proposed station and its proximity to the residential neighborhood, the Kenmont pool and the Stephen Knolls School, create an incompatible situation. That incompatibility warrants denial of the application. As the Hearing Examiner stated in connection with his review of health impacts, this determination is based on the very specific facts of this case, and should not be taken as a finding that all auto filling stations of this size will create these incompatible conditions.

D. General Environment Issues (Leaks, Fire, Spills, Green Buffer and Global Warming)

In addition to the many issues discussed at length in Parts III. A., B. and C. of this report, the Opposition raised a number of concerns relating to the environment which will be addressed briefly in this part of the report. These include the potential for harm to groundwater from underground tank leakage; operational fire risks; concerns about gasoline spillage on the surface; alleged harm to the green buffer; and effects of air pollutants on global warming.

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characteristics not necessarily associated with the particular use, or adverse effects created by unusual characteristics of the site." The concept which will be explained further in Part IV of this report.

1. Potential Harm to Ground Water from Underground Tank Leakage

Early in the hearing, the Opposition raised a concern about the potential harm to groundwater if the underground gasoline tanks were to leak. In response, Petitioner produced three witnesses – Wayne Tucker, who testified as an expert in geo-technical engineering (Tr. 5/6/13, 156-178);[87] Daniel Goalwin, who testified as an expert in architecture and gas station design (Tr. 5/6/13, 179-240);[88] and Tim Hurlocker, Costco's director of operations for its gasoline division. He testified to the safety training and procedures used by Costco employees (Tr. 5/23/13, 63-253).[89]

Mr. Tucker did soil test borings to evaluate the types of soil and rock that would support the proposed structures and to determine the depth of the groundwater. He testified that, in his professional judgment, there is nothing, based on the geo-technical analysis, precluding the Costco gas station from being located at this site. The proposed depth of the tanks (*i.e.,* their bottoms) would be 20 feet (*i.e.,* 13 feet above the underground water level). Tr. 5/6/13, 156-169.

Mr. Goalwin testified that Costco's current prototypical standard is to use double-wall storage tanks and eight multi-purpose dispensers on eight islands for 16 fueling positions. The underground storage tanks and piping are secondarily contained, and the dispensers have other containing systems, so everything in the entire system is secondarily contained and continuously monitored with electronic monitoring systems. There is an inner-tank and an outer-tank that contains it, and an inner-pipe and an outer-pipe that contains it, and those spaces are electronically monitored continuously. Additionally, Costco uses other monitoring systems, an in-tank gauge and a pressure line detector on the main platform, which is a pressurized line that delivers the product to the dispensers. The primary driver in locating tanks is to locate them where the fuel trucks will not be in conflict with the gasoline operations or fueling of the customers or the queuing area. He sees

[87] Mr. Tucker's resume is in Exhibit 116, and his testimony is summarized in Appendix I, at pp. 27-28.
[88] Mr. Goalwin's resume is in Exhibit 115, and his testimony is summarized in Appendix I, at pp. 28-29.
[89] Mr. Hurlocker's resume is in Exhibit 133(a), and his testimony is summarized in Appendix I, at pp. 32-37.

nothing problematic about placement of the tanks on this Wheaton site. The ground water should not be close to where the tanks are, but even if the groundwater were to rise up, the tanks can be submerged under water without any difficulty and they would still operate just fine. Tr. 5/6/13, 189-195.

Mr. Goalwin has never experienced a leak since the advent of the double-wall tanks. If, in fact, remote as it may be, there were to be a leak in the double-wall system, the electronic monitoring system would reveal it. It's a level sensor, so a loss of brine between the walls sets off the sensor to the alarm system that notifies the attendant, a third-party and the warehouse that there's been a leak. Piping from the tanks goes to the dispensers. When the customer fills up at a gas station, recovery valves draw vapors back in and returns them to the tanks. There are other devices, such as a pressure line leak protector on the product line calibrated to sense a loss in pressure and shut the system down. Under the dispensers is a containment box. Also, there is a fire snuffer to provide extra level of fire protection at the dispenser, as well as tank sumps and in-the-vent sumps. Fiberglass tanks will be used since they are preferred to metal tanks for underground usage due to corrosion resistance. Tr. 5/6/13, 197-210.

Tim Hurlocker testified as Costco's director of operations for its gasoline division. He testified to the safety training and procedures used by Costco employees. Tr. 5/23/13, 63-253. In addition, Mr. Hurlocker further addressed the built-in protections in the system. At a Costco gas station, the underground storage tanks are connected to the above ground dispensers through underground piping. All the piping is secondarily contained (i.e., double-walled). Every tank is vented, meaning it's got a separate pipe going off to maintain vapor pressure within a tolerable range so there is not too much vacuum or too much pressure. Thus, the pressure in the tank is regulated. In addition, Maryland requires stage two vapor recovery which entails an entirely separate set of pipes returning to the tanks to return vapor that's displaced from the car's tank as it's

filled. It is routed back to the underground storage tank so it's not released to the atmosphere. These systems are monitored by a very extensive sensor system that's controlled with an above-ground control box. There's a liquid sensor in every underground containment area which is called a sump, and that's the underground enclosure that contains equipment, fittings and piping, and every one of those areas has a liquid sensor that's electronically monitored continuously. In addition, there is a pressurized line leak detector which monitors the pressure of the liquid product in the line and that also would sound an alarm if there were a sudden loss of pressure unrelated to normal operations. That's called line leak detection. There is also a variety of other sensors, particularly monitoring the secondary containment of the tanks. Tr. 5/23/13, 66-67.

The Opposition produced no substantial evidence to rebut the expert opinions expressed by Petitioner's witnesses that there is no significant risk of leakage from the underground tanks. The Hearing Examiner finds that Petitioner has established, by a preponderance of the evidence, that its safety and anti-leakage systems will be state-of-the-art, and that there is no significant risk of a leak from the underground tanks contaminating the ground water.

2. Risk of Fire from Operation of the Station

The Opposition raised a concern about the risk of fire from the proposed station. As mentioned, all the tanks and piping will be double-walled, and they will have other safety features to avoid spills and fires. They will have internal monitoring for leakage and will be required to meet all the current federal, state and local codes. There is also an emergency shut off at the pump island, so that if anything does happen, the pumps will immediately shut down.

Mr. Hurlocker testified that fire suppression is provided by snuffers. They are chemical fire extinguishers with an automatic sprinkler head fitting on them. If something were to explode underground in one of these containment areas, it would automatically trigger the chemical release and automatically put it out underground. Regulations do not require this device. The tanks are

typically buried in a large hole that's shrouded with pea gravel. Pea gravel is self-leveling, self-compacting and it provides a flexible setting for the tanks in the case of minor earth movement. Tr. 5/23/13, 67-68.

On behalf of SCGC, Mr. Larry Silverman introduced a summary of fires at U. S. Service stations put out by the National Fire Protection Association (NFPA), which was marked as Exhibit 142. It showed about 1,200 such fires each year. According to Mr. Hurlocker, the vast majority of fires at gas stations are cars themselves on fire, most often from static electricity, which can ignite gasoline vapor. That's much more common in dry, cold climates than it would be in Maryland, so it's typically a very minimal issue in the more humid east. There is virtually no chance of the station blowing up, mainly because gasoline vapor in its equilibrium state above liquid in a confined tank underground is too rich to burn. The fire cannot go back inside the gas tank of the car, and it cannot get sucked back into the gas tanks underground. All the valves and equipment placed into the system over many years by many engineers are designed to make sure that there's no way that air can be ingested back into those enclosed areas to possibly create an explosive situation. Every car is designed that way, every nozzle is designed that way and every storage tank piping system is designed that way. Tr. 5/23/13, 103-105.

In further response to Mr. Silverman, Mr. Hurlocker explained that a fire at an Exxon station in Jacksonville, Maryland occurred because in that case, a technician accidently drilled into a single-wall pipe, causing the leak, but Costco has double-walled pipes, and the monitors would have detected the leak immediately and shut the system down. Tr. 5/23/13, 221-223. According to Mr. Hurlocker, if a power failure lasted more than two hours and the battery of the non-interruptible power supply ran down, then the station cannot operate. When the power is off, there is no pressure on the lines and there is no power to the equipment, so there would be nothing pushing any product out. Also, without the monitoring system in effect, the station cannot reopen. Tr. 5/23/13, 223-228.

Mr. Hurlocker noted that there are a great many safety features, most of them typical to other gas stations as well as Costco, such as impact valves that close the product lines automatically if the dispenser is torn physically right off the island. There are fire extinguishers, emergency shut-off buttons, most of the things that are required at all gas stations and, of course, Costco does that also. The emergency button shuts off the dispensers and the underground turbines, which push the gas up to the dispensers, but not the ability to monitor what's going on underground, and the alarms are audible light alarms and sound alarms that are above ground. The electronic monitoring is done by a Veeder-Root system, which is very common in the industry. There is also monitoring by an outside service, 24-7, and Costco attendants are all trained in how to respond to the various alarms. The Veeder-Root system automatically, if it detects liquid accumulating (liquid includes both gas and water), will shut the product or the entire station down, depending on where the sensor is. Also, if double containment of the underground storage tanks is lost, the product is immediately shut down and that's automatically programmed in the system. Before that system can be restarted, they have to have a technician come out, identify and solve the problem and if there's any judgment involved, they actually call in and somebody from Costco's corporate office gets involved and helps evaluate the situation. Tr. 5/23/13, 69-72.

All the hoses and hanging hardware (the hose nozzle breakaway assembly) are inspected every single day with a checklist. Tr. 5/23/13, 72-75. There is a 9-1-1 phone that automatically calls the fire department. All attendants are equipped with a walkie-talkie and there are a hundred people inside the warehouse ready to assist as needed, so attendants can quickly call out for additional support. Tr. 5/23/13, 102. Before any Costco employee is allowed to work at a gas station, he must take a course on the company's computers, and pass a test. Attendants must recertify each year with a test. Tr. 5/23/13, 75-83.

The Opposition produced no evidence that the proposed station would present any more of a

fire risk than that which is inherent in the operation of any gas station, and the Hearing Examiner finds that Petitioner has proven by a preponderance of the evidence that the proposed station poses no undue risk of fire.

3. The Risk of Gasoline Spillage on the Surface

Another issue addressed at the hearing was the risk of gasoline spillage on the surface of the station site. Mr. Hurlocker testified that every attendant is trained to immediately address every spill. Costco has a very extensive process whereby attendants spray the spill with a solution (called FM-186, Fuel Mitigation 186) to immediately make it non-flammable, and there is a process to clean it up. Usually, the spray is in one or two garden sprayers, depending on the size of the station. It stops the gasoline from evaporating, so that takes the smell, the flammability and the safety hazard away instantly. It then becomes just a clean-up problem. Some state governments classify large spills by quantities, typically as 10 gallons or more (which is a gasoline nozzle on full, for one full minute, pouring on the ground). Maryland does not have a specific amount. Costco is more conservative. Any time a quart or so spills, which is quite rare, Costco calls the agency and reports it. That means Costco is reporting things that are far less than the standard reporting requirement. Costco has attendants look at the surface area of the spill. If the spill is larger than the footprint of the car, it is considered a large spill. If it escapes the drive slab and the surface area around the pumps, that's automatically a large spill of any quantity. If it escapes into landscaping or into the environment in some way, it's automatically a large spill, meaning station is shut down and more people are sent out, with 9-1-1 being called, as necessary. If a car pulls up and has a leaking gas tank, almost always that will require a fire truck response. Tr. 5/23/13, 106-111.

The Opposition produced no evidence that the proposed station would present any more of a spillage risk than that which is inherent in the operation of any gas station, and the Hearing Examiner finds that Petitioner has proven by a preponderance of the evidence that the proposed

station poses no undue risk in that regard, and in fact has standards for handling such spills which are beyond what is generally required.

SCGC had a lay witness, Pat Mulready, testify regarding concerns about emergency preparedness. She observed that the Kensington/Wheaton area is densely populated, and there is "everyday [traffic] gridlock," especially on the roadways around Wheaton Plaza. Under normal circumstances, police and fire services might be able to respond to an emergency situation at the gas station, but she worried that in an event such as "Snowmageddon," they could not get through. She expressed a concern about earthquakes and even "gang warfare." She complained that no emergency management plan has been filed, and argued that there should also be bigger fire extinguishers, and at least two people on staff at all times. Tr. 10/17/13, 221-248.

While the Hearing Examiner recognizes that there is always a possibility of a leak or a fire or a spill or even an earthquake, such risks are inherent in the operation of all gas stations, and there certainly is no credible evidence in this case that the risk of those events from the proposed gas station is any worse than for any other gas station. There was much evidence from the Petitioner regarding the safety measures to be employed at the proposed gas station, and the Hearing Examiner finds that the proposed station poses no undue risk of fire, tank leakage, surface spills or other similar damage to the community.

4. Risk of Harm to the Green Buffer

The risk of possible harm to the green buffer south of the ring road was another concern of the Opposition, as expressed by Danila Sheveiko on behalf of KHCA (Tr. 11/21/13, 179-244) and by Dr. Mark Adelman, on behalf of SCGC (Tr. 10/24/13, 261-275). Technical Staff had determined that Petitioner was not required to submit a new forest conservation plan for the proposed gas station site. Staff reasoned (Exhibit 70, p. 11):

This Site is subject to Chapter 22A, Montgomery County Forest Conservation Law;

> however, the proposed gas station is exempt from submitting a Forest Conservation Plan per Article II, Section 22A-5(t) as part of the approved NRI/FSD #42013053E for the following reasons: 1) no more than 5,000 square feet of forest will be cleared on a property of more than 40,000 square feet; 2) the project does not affect any forest in a stream buffer or is located on property in a Special Protection Area, which must submit a Water Quality Plan; and 3) the modification does not require approval of a new subdivision plan.

Mr. Sheveiko lamented this determination, and tried to raise the issue in his cross-examination of Mr. Duke. The Hearing Examiner explained that the question of whether Petitioner should have a forest conservation plan is not technically before him, since an exemption was granted by Technical Staff. It is the Planning Board that approves preliminary and final forest conservation plans, not the Board of Appeals or the Hearing Examiner. Tr. 8/2/13, 117-141.

Dr. Adelman argued that there is good reason to believe Applicant's landscape plan, calling for installation of sonotubes to hold the greenscreen wall, will damage the forest buffer. When asked for evidence of that assertion, he pointed to the testimony of Petitioner's landscape architect, Mark Willard, that some root damage within the forest buffer was probably done by pedestrians walking within the buffer. Dr. Adelman reasoned that this evidence demonstrates that any work done at the border of or within the forest buffer runs the risk of damaging the root systems of the trees. Tr. 10/24/13, 261-275.

Since the damage referred to by Mr. Willard was actually done by people walking within the forest buffer and not related to installing sonotubes outside, albeit on the periphery of, the buffer, the Hearing Examiner finds that these were not analogous situations. Petitioner's landscape architect, Mark Willard, testified that in his opinion, no root zones will be disturbed by either the construction of the wall or the proposed pedestrian path. Tr. 9/9/13, 86-105.90

Costco's engineer, Dan Duke, testified that the construction of the green wall will not in any

[90] Mr. Willard's expert testimony (Tr. 9/9/13, 60-105) is summarized in Appendix I, at pp. 76-78. His resume is contained in Exhibit 17(d).

way adversely affect the forest buffer. Tr. 8/2/13, 101.91 Moreover, Petitioner would be planting more than 100 new trees and other landscaping, in addition to preserving the exiting green buffer. Tr. 8/2/13, 100-101.

Mr. Duke also pointed out other environmental benefits of the proposal. First, the site was designed utilizing an environmental site design techniques for stormwater management to decrease runoff from the special exception area. Within the stormwater management areas, there are going to be new and additional plantings, all of which will actually decrease the impervious area on the site. The amount of green space within the special exception area goes up by about 900 square feet. Tr. 4/26/13, 227-228.

The Opposition produced no expert testimony or convincing lay evidence to contradict the evidence from Petitioner's experts. Based on this record, the Hearing Examiner finds that Petitioner has proven, by a preponderance of the evidence, that the proposed use will not harm the green forest buffer to the south of the ring road.

5. The Specter of Global Warming

The final item that will be addressed in this part of the report is the Opposition's contention that the Hearing Examiner must evaluate the effects of the proposed gas station on global warming (a/k/a climate change), based on the "greenhouse gasses" emitted by idling vehicles queuing at the proposed gas station. Tr. 5/20/14, 251-257.

Ms. Cordry testified that all of these idling vehicles will create greenhouse gasses, in violation of federal, state and county policy. The Opposition argues that County policy seeks to reduce greenhouse gasses because of their effects on climate change. Exhibits 546, 591 and 592. Moreover, she contends that such greenhouse gasses may have adverse health effects from the non-inherent operational characteristics of the proposed station (*i.e.*, queues of idling cars) and therefore

[91] Mr. Duke's expert testimony (Tr. 4/26/13, 193-276; Tr. 8/2/13, 89-221) is summarized in Appendix I, at pp. 13-18. His resume is contained in Exhibit 17(g).

must be considered in this case. Tr. 5/20/14, 251-257. Ordinary gas stations do not create these gases because cars do not sit idling waiting for gas. Ms. Cordry characterized this type of station as essentially unique. There are other stations in this County that have as many pumps as this station would but they do not have the volume of cars sitting there, idling. It is the idling cars that is the problem, which is not inherent in a gas station, and it is an adverse effect. Tr. 5/20/14, 251-257.

The Hearing Examiner agrees that the large number of idling cars queued up at the gas pumps is a non-inherent characteristic of the subject proposal. However, as the Hearing Examiner noted on the record (Tr. 5/20/14, 301-305), the controlling provisions of the Zoning Ordinance -- §§59-G-1.2.1 and 59-G-1.21(a)(5) and (6) – address adverse effects "at the subject site" and "on nearby properties and the general neighborhood," not globally, and the Hearing Examiner declines to broaden the scope of his purview beyond its prescribed statutory limits.

The potential health effects at the site and at nearby properties and the general neighborhood are the subject of reams of direct evidence in this case, and it is that evidence upon which the Hearing Examiner relies in making his findings. The broader effects of greenhouse gasses on the County, the state, the country, and the world are the proper subject of legislative analysis, not a quasi-adjudicatory proceeding by a Hearing Examiner regarding a single special exception application. The County Council has authorized auto filling station special exceptions that allow large gas stations, assuming an applicant meets its evidentiary burdens. If the County Council elects to do so, it can legislatively determine that gas stations which result in queues over some specified length are forbidden or it can specify that special exception reviews should consider the potentially global effects of greenhouse gasses. At the present time, the Zoning Ordinance calls for the more limited examination of the local effects described above. The statutory directions are very specific to the subject site, the properties nearby, and the general neighborhood. That is what it says in the Code. That is what the standard is in this case. Tr. 5/20/14, 301-305.

6. The Hearing Examiner's Findings on Environmental Issues

Based on this record, the Hearing Examiner will not consider issues of "global warming" and "climate change" in this special exception case, and he finds that Petitioner has met its burden of demonstrating, by a preponderance of the evidence, that the proposed use does not pose an undue risk of groundwater contamination from underground tank leaks, fire damage, surface spills or harm to the green buffer south of the ring road. For the reasons set forth in Part III. B. of this report, the Hearing Examiner has made the opposite finding with regard to harm to those in the general neighborhood from airborne pollutants.

E. Neighborhood Need

In most special exception cases, there is no requirement that the applicant make a showing that the proposed use is needed in the neighborhood. However, that requirement is added in Zoning Ordinance §59-G-1.24 for specified uses, and an Automobile filling Station is one of those specified special exceptions listed in Zoning Code §59-G-1.24:

> *59-G-1.24. Neighborhood need.*
> *In addition to the findings and requirements of Article 59-G, the following special exceptions may only be granted when the Board, the Hearing Examiner, or the District Council, as the case may be, finds from a preponderance of the evidence of record that a need exists for the proposed use to serve the population in the general neighborhood, considering the present availability of identical or similar uses to that neighborhood:*
>
> *(1) Automobile filling station.*
> *(2) Automobile and light trailer rental lot, outdoor.*
> *(3) Automobile, truck and trailer rental lot, outdoor.*
> *(4) Automobile sales and service center.*
> *(5) Swimming pool, community.*
> *(6) Swimming pool, commercial.*

Thus, to prevail in this case, Petitioner must demonstrate, "*that a need exists for the proposed use to serve the population **in** the general neighborhood, considering the present availability of identical or similar uses **to** that neighborhood.*" [Emphasis added.] The term "general neighborhood" and the prepositions used in the statutory language are significant to

understanding the dispute over this issue, as will be discussed below.

Three issues arose in connection with the "neighborhood need requirement":

1. How do we define the "general neighborhood" for purposes of evaluating the need?
2. How should the word "need" be interpreted, given the case law and language changes made by the Council? and
3. Has the Petitioner met its burden of demonstrating neighborhood need?

1. What is the "General Neighborhood" for Purposes of Evaluating Need?

The concept of "general neighborhood" is not defined in the Zoning Ordinance; however, we have to interpret it in special exception cases because Zoning Ordinance §59--G-1.2.1 provides, in relevant part ". . . the Board of Appeals, Hearing Examiner, or District Council, as the case may be, must consider the inherent and non-inherent adverse effects of the use on nearby properties and the general neighborhood at the proposed location, . . ." [Emphasis added.] Section 59-G-1.24 also specifies that the showing of "need" pertains to "*the population in the general neighborhood*."

In discussing the concept of general neighborhood, the Court of Appeals recently said in *Montgomery County v. Butler*, 417 Md. 271, 305, 9 A.3d 824, 844 (2010), "the Board's task is to determine if there is or likely will be a detriment to the surrounding properties [and] . . . it is for the zoning board to ascertain in each case the adverse effects that the proposed use would have on the specific, actual surrounding area." Similarly, in *People's Counsel for Baltimore County v. Loyola College in Maryland,* 406 Md. 54,102, 956 A.2d 166, 195 (2008), the court said there must be "an individual case analysis focused on the particular locality involved around the proposed site."

Thus, in special exception cases, the "general neighborhood" is generally considered as the area around the site that will be most affected by the proposed use. Usually, that means the area most affected by visibility of proposed structures, noise, commotion, activity, stormwater runoff, parking, traffic and the like. In the subject case, it also included those most likely to be affected by air pollution from the proposed use.

The first question in this section of the report is whether the usual definition of "general neighborhood" applies to the term as it is used in Zoning Ordinance §59-G-1.24, or some other concept, such as the market area? The idea of market area analysis was raised in two cases decided by the Maryland Court of Appeals in 1973, *American Oil Company v. Board of Appeals of Montgomery County, 270 Md. 301, 310 A. 2d 796 (1973)* and is the oft-cited *Lucky Stores, Inc. v. Board of Appeals of Montgomery County*, 270 Md. 513, 312 A.2d 758 (1973). In both of theses cases, the court, in part, supported its decision upholding a finding of no neighborhood need by citing to the fact that the applicant had failed to produce any studies of the market area. As stated by the court in the *American Oil* case, 270 Md. at 315, 310 A. 2d at 803:

> We have already indicated that Amoco offers no studies or reports prepared by it, showing perhaps the number of residents in the general trading area, the average number of automobiles per household and the average number of gallons of gasoline consumed per vehicle in Maryland, in order to indicate a need for an additional gasoline filling station on the subject property. Nor were surveys of the general market area supplied the Board, such surveys possibly indicating that residents in the area had expressed their views that another filling station was needed for their use and convenience.

Similarly, in *Lucky Stores,* 270 Md. at 537, 312 A.2d at 771, the court stated:

> We noted in *American Oil* that Amoco had offered no studies or reports indicating a possible need by the population in the general neighborhood of the proposed filling station. The same situation exists in the present case. Memco offered no studies or reports, possibly showing the number of residents in the marketing area, the average number of automobiles per household, the average number of gallons of gasoline consumed per vehicle in Maryland, and the indicated desire of a substantial number of residents that a Memco filling station was desired, in order to establish a possible need for an additional gasoline filling station at the Memco site. Memco clearly had the burden of proof to establish that need by a preponderance of the evidence. The Board could reasonably find that it had not met its burden.

It appears that in these decisions, the court conflated the concept of market area with the concept of general neighborhood. At least that is the way subsequent analysis of neighborhood need cases has been viewed, by the Technical Staff, by the Hearing Examiner and by the Board of Appeals. See, *e.g.*, the April 3, 2009, Report and Recommendation of the Hearing Examiner in the *Petition of Henderson Corner and 355, LLC*, Board of Appeals Case No. S-2743, (pp. 28-32), and

the Board of Appeals' Opinion, effective May 29, 2009, adopting the Hearing Examiner's report.

In the present case, Petitioner relied on reports and expert testimony from Thomas Flynn, a market analyst. His testimony (Tr. 7/30/13, 166-238; Tr. 7/31/13, 176-294) is summarized in Appendix I at pp. 70-73, and his resume is contained in Exhibit 17(a). In his first report (Exhibit 14), Mr. Flynn defined the general neighborhood, for the purpose of determining both supply and demand in his market analysis, in terms of a seven-minute drive time from the site. Technical Staff applied the same type of analysis in reviewing Mr. Flynn's first report, and even suggested that "a 10-minute drive time is an appropriate neighborhood definition in this case." Exhibit 70, p. 21.[92]

The Opposition initially pointed out that the language of Zoning Ordinance §59-G-1.24 requires a showing "*that a need exists for the proposed use to serve the population **in** the general neighborhood, considering the present availability of identical or similar uses **to** that neighborhood*." [Emphasis added.] Based on this language, the demand for the use logically comes from those **IN** the neighborhood, while the supply of gasoline may come from gas stations available **TO** that neighborhood. Exhibits 82 and 88((j) and (s).[93]

In order to make sure that the issue of the appropriate market area was fully aired at the hearing, the Hearing Examiner instructed Petitioner's counsel to submit a supplemental needs analysis assuming that the term "general neighborhood," as used in evaluating **demand** under Section 59-G-1.24, has the same geographical area as the general neighborhood defined by Technical Staff for purposes of evaluating compliance with Zoning Ordinance §59-G-1.21(a). Exhibit 106. Petitioner's needs expert, Mr. Flynn, did do such an analysis (Exhibit 198), and it will be discussed, along with his testimony, in the final part of this section.

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[92] See also Exhibit 77, Technical Staff's supplemental memo regarding Mr. Flynn's initial needs analysis, and Exhibit 360, Staff's evaluation of Mr. Flynn's supplemental needs analysis.

[93] Ms. Cordry subsequently indicated that KHCA accepts the larger market area approach for both supply and demand. Tr. 9/23/13, 62-66. KHCA also indicated in its Closing Brief (Exhibit 629, p. 44) that "KHCA had not sought to use such a limited neighborhood, because it would inevitably be skewed." Nevertheless, the Hearing Examiner believes that the language of Zoning Ordinance §59-G-1.24 raises the question of the proper neighborhood definition for determining demand.

It should be emphasized that the issue is not with the idea of doing a market area analysis (a process suggested by the Maryland Court of Appeals), but rather with how to select the correct market area to examine in determining demand, based on the statutory language. The Hearing Examiner's conclusion is that, to carry out the intent of the Zoning Ordinance, the better analytical approach to market analysis for determining neighborhood need for a gas station, would be to look at demand within the normally defined general neighborhood, and supply within some appropriate drive time (*e.g.*, 7 minutes) from the neighborhood, which would thus include the gas stations reasonably available to the population of the neighborhood. The general neighborhood for calculating demand would be, under this approach, more geographically limited than the broader supply market area, but it still would include not only those living in the neighborhood, but also those visiting and working there, and even those just on the road system there.

If that approach were followed in this case, the demand neighborhood would include all those shopping at the Wheaton Mall, which is the largest part of the defined general neighborhood, as well as those living and working in the area and those driving through. The supply market area would include all those gas stations within a 7-minute drive time from the subject site. On the other hand, analyzing market demand in this fashion would be a break with the method that has been traditionally followed by Technical Staff, the Hearing Examiner and the Board of Appeals in this type of case, as exemplified by the *Henderson Corner* case cited above. Moreover, both the Petitioner and the Opposition have accepted the traditional approach in this case. The Hearing Examiner will therefore apply the method traditionally followed in this type of case and will consider the same market area for both supply and demand analysis – the area described by a 7-minute drive time from the subject site.

We now turn to the question the correct meaning of the word "need" as used in the present version of Zoning Ordinance §59-G-1.24.

2. How Should the Word "Need" be Interpreted?

A significant legal issue was raised in this case by KHCA about the proper way to interpret the word "need" as used in the present version of Section 59-G-1.24. KHCA contends that, due to a Council amendment to this section, the word "need" should be taken to mean necessity. KHCA's Closing Brief (Exhibit 624, pp. 16-47). To understand this argument, we return to the famous *Lucky Stores* case, *supra,* 270 Md. at 527-528, 312 A.2d at 766 (1973), where the court defined the term "need," as used Zoning Ordinance §59-124 (f), a predecessor to Section 59-G-1.24:

> *". . .* Clearly, it does not mean absolute necessity. *Need has been judicially held to mean 'expedient, reasonably convenient and useful to the public . . .'"* [Italics in original.]

But the story does not end there. Section 59-124(f) had some language that is no longer in the current version of the Code that applies to his case,[94] Section 59-G-1.24. Section 59-124(f), interpreted by the court in *Lucky Stores*, provided:

> (f) In addition to the findings required in sections 59-123 and 59-125 through 59-184, the following special exceptions may be granted when the board or director, as the case may be, *finds from a preponderance of the evidence of record that for the public convenience and service a need exists for the proposed use for service to the population in the general neighborhood considering the present availability of such uses to that neighborhood:*
>
> (1) *Automobile filling stations*.

On April 16, 2002, the County Council adopted Zoning Text Amendment No: 01-10, in Ordinance No: 14-47, effective May 6, 2002. Exhibit 415. ZTA 01-10 was a comprehensive amendment to the sections of the Zoning Ordinance governing special exceptions. One of the changes made was to change the words in Section 59-G-1.24 from "that for the public convenience and service a need exists for the proposed use for service to the population" to "*that a need exists*

[94] We say "that applies to this case" because, as mentioned at the beginning of this report, a new Zoning Ordinance has replaced the one that was in effect at all relevant times in this case. This special exception application is grandfathered into the Zoning Ordinance that existed when the application was filed, per Section 59-7.7.1.B.1 of the newest Zoning Ordinance.

for the proposed use to serve the population . . ." KHCA argues that this amendment, removing the "convenience" modifier, changes the meaning of the word "need," to "necessity."

KHCA relies on the case of *Brandywine Enterprises, Inc. v. County Council for Prince George's County,* 700 A. 2d 1216, 1223, 117 Md. App. 525 (Ct. Spec. App. 1997), *cert. denied*, 700 A.2d 1214, 347 Md. 253 (1997). KHCA's argument is set forth in its Closing Brief (Exhibit 624, pp. 23-24),

> That case involved a requested Special Exception to expand an existing "rubble fill." pursuant to a county ordinance that required that the District Council "find that the proposed use is necessary to serve the projected [population] growth in Prince George's County" over the next 15 years. The hearing examiner agreed that no additional capacity was actually *needed* for the next 15 years, but also found that, based on the applicant's experience to date, it was likely that some *use* probably would be made of the new fill area. Although the examiner found that need existed based on that likely *use* of the site, the District Council reversed. It stated – and the Court of Special Appeals agreed – that the reference to "need" in *Lucky Stores* as meaning "reasonably convenient or useful" was made in the context of a statute that defined "need" in terms of "public convenience and service." The Prince George's statute with the requirement that a site be "necessary" had no such provision, and the Court of Special Appeals held that, in its absence, the "most reasonable interpretation of the needs analysis provision" required showing an "actual deficit . . . of capacity." *Brandywine*, 117 Md. App. at 540-41. Put another way, it was the language referring to "public convenience and service" that convinced the court that the Montgomery County ordinance did not make actual lack of capacity dispositive.

KHCA's argument is certainly a colorable one, but there are three problems with it. The first is that the Court of Appeals, in *Lucky Stores* gave no indication that it was relying on the "convenience" language in the Zoning Ordinance when it interpreted the former Section 59-124(f). On the contrary, it was relying on and quoting its decision in *Neuman v. Mayor & City Council of Baltimore,* 251 Md. 92, 246 A. 2d 583 (1968), which interpreted a Baltimore Zoning Ordinance that required a showing of need for the services of a physician or a dentist. The court did not mention the word "convenience" being in the Baltimore statute. Thus, the *Lucky Stores* gloss on the word "need," as used in our Zoning Ordinance, stands on its own, whether or not the section includes the word "convenience."

Secondly, the *Brandywine* case is distinguishable because the Prince Georges County statute interpreted in that case required a showing that a proposed use was "necessary to serve the projected growth," not that there was a "need" for the proposed use. While the Court of Special Appeals correctly pointed out that the words "public convenience and service" are in the former Section 59-124(f), it did not analyze whether the Court of Appeals in *Lucky Stores* had actually based its decision on those words. As discussed above, the Court of Appeals did not, and the Court of Special Appeals' decision interpreting a different word in a different statutory scheme cannot trump the higher Court of Appeals' interpretation of the word "need" in our statutory scheme.

Thirdly, and most importantly, the real question is whether the County Council truly intended, by its zoning text amendment, to change the meaning of the word "need" as used in Section 59-G-1.24. What governs the interpretation of a statute is the intent of the legislature. In *Montgomery County v. Robinson*, 435 Md. 62, 76-77, 76 A.3d 1159, 1168 (2013), the Maryland Court of Appeals stated:

> . . . It is well established that when engaging in statutory interpretation, "our goal is to identify and effectuate the legislative intent underlying the statute." *Dep't of Health & Mental Hygiene v. Kelly*, 397 Md. 399, 419, 918 A. 2d 470, 482 (2007). Our analysis always begins with "the normal, plain meaning of the language of the statute, reading the statute as a whole." *Burnside v. Wong*, 412 Md. 180, 194, 986 A. 2d 427, 435 (2010) (internal quotations omitted). "If the language of the statute is clear and unambiguous, we need not look beyond the statute's provisions and our analysis ends." Id. at 195, 986 A. 2d at 435. If, however, because it is a part of a larger statutory scheme or for some other reason, the language of the statute is not clear, is ambiguous, or is subject to more than one interpretation, "we endeavor to resolve that ambiguity by looking to the statute's legislative history, case law, and statutory purpose." *People's Ins. Counsel Div. v. Allstate Ins. Co*., 408 Md. 336, 352, 969 A. 2d 971, 980, (2009) (citing *Barbre v. Pope*, 402 Md. 157, 173, 935 A. 2d 699, 709 (2007)).
>
> In determining whether the statute is clear or ambiguous, "[w]hen the statute is part of a larger statutory scheme, it is axiomatic that the language of a provision is not interpreted in isolation; rather, we analyze the statutory scheme as a whole considering the 'purpose, aim, or policy of the enacting body.'" *Anderson v. Council of Unit Owners of Gables on Tuckerman Condo.*, 404 Md. 560, 572, 948 A. 2d 11, 19 (2008) (quoting *Serio v. Baltimore Cnty*., 384 Md. 373, 390, 863 A. 2d 952, 962 (2004); *Drew v. First Guar. Mortgage Corp*., 379 Md. 318, 327, 842 A. 2d 1, 6 (2003)). Moreover, we interpret statutes within a statutory scheme with reference to one another even if the statutes were enacted at different times and do not refer to

> each other. *Gov't Employees Ins. Co. & GEICO v. Ins. Com'r,* 332 Md. 124, 132, 630 A.2d 713, 717 (1993). We attempt, in that regard, to harmonize the statutes with each other and within the scheme without rendering any language or portion of the statutes meaningless, surplusage, superfluous, or nugatory. *Id*. [Emphasis added.]

Thus, in determining whether the new Zoning Ordinance language is clear or ambiguous, we must analyze the statutory scheme as a whole, "considering the purpose, aim, or policy of the enacting body" in making the changes it did. The Council did not say why it was making the change in Section 59-G-1.24, so we must look to the legislative history surrounding the changes to the Zoning Ordinance in ZTA 01-10, in an effort to ascertain the Council's intent.[95]

In August of 2001, the Planning Board extensively reviewed the special exception process in response to a request by the Council, and made recommendations for changes. A table attached to the Planning Board's letter of August 13, 2001, includes a category of changes characterized as, "Plain language and technical changes to Sections 59-A and 59-G," in addition to specific recommendations for substantive changes to the general language and the specific language pertaining to numerous individual special exceptions. Exhibit 411. As is apparent from Technical Staff's submission,[96] the Planning Board did not suggest the subject changes in the language of §59-G-1.24.[97] However, the Council's <u>first</u> draft proposal for ZTA 01-10, introduced on October 2, 2011, included, without explanation, a change to the language of Zoning Ordinance §59-G-1.24 that would eliminate the words "for the public convenience and service," as well as other minor language changes. Exhibit 413.

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[95] The Hearing Examiner takes official notice of the legislative history of this ZTA (Exhibits 411- 415). All parties were given an opportunity to comment on that legislative history.

[96] Exhibit 411 and Exhibits 411(a) and (b).

[97] During the hearing (Tr. 10/17/13, 199-207), Ms. Rosenfeld referred to Exhibit 86(s), which contains, *inter alia,* an April 27, 2001 memo from Michael Ma of Technical Staff to Ralph Wilson, former Council Legislative attorney. Ms. Rosenfeld suggested that the Planning Board's recommendation to the Council was to remove essentially the entire neighborhood need requirement. In fact, the subsequent memo from the Planning Board to the Council, dated August 13, 2001, prior to the introduction of then proposed ZTA 01-10, appended an "Attachment 2" listing all the Planning Board's proposed changes, and page 26 of that document recommends retaining the need requirement and leaving the language in §59-G-1.24 untouched with regard to the words "for the public convenience and service." Exhibit 411(b). Thus, the later omission of those words apparently originated at the Council level, not with the Planning Board or its Technical Staff.

The new language proposed for this section remained unchanged throughout the review of this ZTA, which included multiple meetings of the Council's Planning, Housing and Economic Development Committee (*i.e.*, the "PHED Committee"), as well as public hearings. Ralph Wilson, the Council's former Senior Legislative Analyst, stated in his memorandum summarizing the ZTA's proposals for the Council's PHED Committee, that "Clarifying and technical changes are recommended throughout."[98] In the same memorandum, he also notes that "Plain language changes do not require the Committee's attention."[99] The proposed substantive changes were listed individually by the Planning Board's Technical Staff and submitted by Mr. Wilson to the PHED Committee for its review.[100] The omission of the "convenience" language was not included in any of the listings of substantive changes.

When the PHED Committee completed its review, its recommendations were submitted by Mr. Wilson to the Council. On page 2 of his memorandum of March 1, 2002, submitting the PHED Committee's recommendations to the Council, Mr. Wilson mentions the neighborhood need provision, but not with regard to the language change in question. Exhibit 414. Once again, the omission of the "convenience" language was not included in the listing of substantive changes.

Zoning Text Amendment No: 01-10 was adopted on April 16, 2002, effective May 6, 2002, in Ordinance No: 14-47. Exhibit 415. The Council's Opinion accompanying the legislation noted that "Clarifying and technical Changes . . ." were part of the ZTA,[101] as previously mentioned by Mr. Wilson. At no point was that language change in question discussed as a substantive change.

Ordinarily one must attach some meaning to the Council's change in the language of an ordinance; however, this case is different because the change was part of a large number of

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[98] Wilson Memorandum to the PHED Committee of November 15, 2001, p. 1 (Exhibit 414). It should be noted that Exhibit 414 contains eight memos from Ralph Wilson to the Planning, Housing and Economic Development (PHED) Committee and to the Council (from 11/15/01 to 4/12/02) discussing the proposed ZTA 01-10.
[99] Wilson Memorandum to the PHED Committee of November 15, 2001, p. 1. (Exhibit 414)
[100] Wilson Memorandum to the PHED Committee of November 29, 2001. (Exhibit 414)
[101] ZTA 01-10 Opinion, p.1 (Exhibit 415).

substantive changes, and as noted by the Court in the *Robinson* case, *supra*, we must consider the language in question in the context of all the other legislative changes accompanying it. The legislative history appears to show that the change in question was considered a technical or language change and not a substantive change because unlike the substantive changes made, there was no explanation of the change in the language in question. It was also never listed with the substantive changes to be considered by the PHED Committee or the Council. Thus, there is no evidence that the Council intended to vary from the standard accepted by the courts when it amended the law, and no party in the subject case has submitted legislative history to the contrary.

The Council certainly muddied the waters when it amended the wording of Section 59-G-1.24, without explanation. Nevertheless, the Technical Staff, the Hearing Examiner and the Board of Appeals have continued to follow the *Lucky Stores* interpretation of the "need" language, following the Council's amendment. In the Hearing Examiner's Report and Recommendation in *Germantown Walter Johnson Prop., LLC*, Case No. S-2631, at 87 (August 8, 2005), former Hearing Examiner Françoise Carrier suggested that the Council's amendment, in "[r]emoving [the convenience] language arguably has the effect of loosening the [need] requirement by making it less specific." In any event, Ms. Carrier continued to apply the *Lucky Stores* interpretation of the need standard, and the Board of Appeals adopted the Hearing Examiner's report in approving special exception S-2631 on October 12, 2005.

Thus, the question of the Council's change in language is not precisely an issue of first impression. This Hearing Examiner agrees with the holding in the *Germantown Walter Johnson* case that the *Lucky Stores* standard still applies, but does not agree with Ms. Carrier's suggestion that the Council's language change arguably loosened the need standard. Rather, this Hearing Examiner concludes that the Council never intended to make a substantive change in Section 59-G-1.24 because the new language was never presented to the Council as a substantive change.

This conclusion is buttressed by the fact that reading the term "need" as requiring a showing of necessity would also mean that a showing of necessity would be required for the other special exceptions listed in Section 59-G-1.24, including community swimming pools. It is hard to imagine that such a showing could ever be made with regard to a recreational facility, and it is equally hard to imagine that the Council would have intended such a result and remained silent on the point.

Given the legislative history described above, the Hearing Examiner concludes that the Council did not intend the omission of the words, "for the public convenience and service" to be a substantive change, but rather a "clarifying and technical change." Thus, the *Lucky Stores* analysis is still applicable, and this case in not governed by the subsequent *Brandywine* case, as KHCA argues. The applicable standard for a showing of need is not necessity, but a showing that the proposed use would be "expedient, reasonably convenient and useful to the public," as held in *Lucky Stores, supra,* 270 Md. at 527-528, 312 A.2d at 766. The next section addresses the question of whether Petitioner has actually made such a showing in this case.

3. Has the Petitioner Met its Burden of Demonstrating Neighborhood Need?

a. The Petitioner 's Evidence Regarding Neighborhood Need

As mentioned previously, Petitioner relied primarily on reports and expert testimony from Thomas Flynn, a market analyst, to establish need. Tr. 7/30/13, 166-238; Tr. 7/31/13, 176-294.[102] Twelve individuals from the community also testified about their need to have convenient access to the affordable gasoline available at a Costco gas station. *See* Appendix I, pp. 83-89.[103] In addition, Petitioner submitted a compact disc (Exhibit 183) imaging 5,053 form postcards received by Costco

[102] Mr. Flynn's testimony is summarized in Appendix I at pp. 70-73.

[103] Fourteen community witnesses testified supporting the petition, but two of them (Boris Lander and Steven Morrison) didn't directly address need questions.

in support of the proposal, and samples of the postcards are included in Exhibit 183(b).[104]

Mr. Flynn testified, as reflected in his initial report (Exhibit 14), that he had defined the general neighborhood, for market analysis, in terms of a seven-minute drive time from the site.[105] Using a program known as Nielsen Claritas,[106] he looked at the population, the workforce, the travel patterns and other aspects of this general neighborhood. He then estimated how much gasoline was likely to be required by the people who are in this neighborhood – passing through it and residents of it – to determine the demand within the general neighborhood. Tr. 7/30/13, 166-182, 209.

Mr. Flynn then looked at the gas stations that already existed in that neighborhood. When Mr. Flynn first started this work several years ago, there were 27 stations. He went to each station, walked around, and looked at the prices and at the condition of the stations. He used Claritas to estimate the amount of gasoline that these stations sold (*i.e.*, the supply). He then compared the demand, that is, the amount that the population within the area would require under normal assumptions, with the supply, that is, the amount that is actually being sold, and he found that there was a very significant difference. Mr. Flynn concluded that that difference was in fact the market need that Costco could address in this area. Tr. 7/30/13, 182-183.

In Mr. Flynn's opinion, based on this evaluation, there was a need that met the requirements of the Zoning Ordinance. He has done this analysis three times, beginning about three years ago, and each time the conclusions were more or less the same. The number of stations has declined from 27 to 25, and there was a significant and growing gap between supply and demand. In his

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[104] Letters in support of the proposed special exception are listed on page 40 of this report.

[105] Mr. Flynn also calculated the results for a market area defined by both a 5-minute and a 10-minute drive time for comparison purposes. As mentioned above, Technical Staff preferred a market area defined by a 10-minute drive time. Exhibit 70, p. 21

[106] As explained by Technical Staff (Exhibit 70, Attachment 10, p. 2, note 2), "Claritas tracks consumer spending and sales at retail stores such as restaurants and gasoline stations. It is a widely-accepted source of detailed retail market information and modeling, and its retail gap data has been a key component of previous needs analyses for gas station special exceptions in Montgomery County. The Planning Department also uses Claritas data for its retail gap analyses."

November 2012 report (Exhibit 14), he estimated the retail gap at $71 million, which represented a potential sale of about 13 million gallons of gasoline a year. Tr. 7/30/13, 183-186.

On July 3, 2013, Mr. Flynn did another report (Exhibit 198), based on the Hearing Examiner's request that Costco submit a supplemental market analysis assuming that the term "general neighborhood," as used in evaluating demand under Section 59-G-1.24, has the same geographical area as the general neighborhood defined by Technical Staff for purposes of evaluating compliance with Zoning Ordinance §59-G-1.21(a). He identified the general neighborhood for this new report as "the limited neighborhood." That limited neighborhood is basically Wheaton Plaza and a small part of the neighborhood that borders it, the area defined by the staff of the Maryland-National Capital Park and Planning Commission.

Mr. Flynn found that there were four parts to the demand within this limited area. The first one was the traffic going by, with people stopping in, which is how gasoline is very often sold – to pass-by traffic. Recognizing that all these people have to be members of Costco, he estimated that the sale to pass-by traffic -- from Georgia Avenue, University Boulevard, and Veirs Mill Road -- would be about 4.4 million gallons a year, a very significant number because the station would be very convenient to people passing by.

The second source in this limited neighborhood was of people working at the Mall itself and the buildings around it, which are not technically part of the Mall, but rather outparcels, operated by health clubs and by Giant and by other entities that use the land of the Mall. He estimated that the sale to these workers would be 246,000 gallons a year. This is a relatively small number, but it's still important.

The third source of demand would be to the people who are shopping on the site, which includes the people shopping not only at Costco, but also including people who go to the other parts of the Mall. This was a very significant source of demand, and these sources (shoppers already in

this neighborhood), he estimated would buy 6.4 million gallons per year.

Finally, some of the people who live in this area are going to be Costco members and are going to buy gas at Costco since it would be so close. That's a very small number (29,025 gallons per year) but it should be included.

Summing all this up, in this limited neighborhood, he estimated a potential need for 11.1 million gallons of gasoline per year selling to Costco members (about 25% of the residents).[107] There are no gas stations in the limited neighborhood. Tr. 7/30/13, 186-190.

According to Mr. Flynn, each time he visited the gas stations in the larger defined neighborhood, the Costco price at the nearest Costco station was lower than any of the prices at any of the other stations in this entire area. He stated that he had visited the subject site numerous times and also used other sources, including national energy use figures, to understand trends out to 2035, and online sources about Costco prices and gas prices in general. The other sources seemed to confirm what he concluded here. Mr. Flynn also informally surveyed users of the Costco gas station in Greenbelt, and he reported that convenience and cost were the predominant reasons for shopping there. He concluded that price, convenience and safety are three most important factors in determining need. Mr. Flynn discounted the impact of gas saving programs at Safeway and Giant, saying they are not marketed effectively. Costco has the lowest prices, and he estimated that the average household can save about $300 a year buying gas there. Tr. 7/30/13, 191-204.

Mr. Flynn further testified that from a market perspective, Costco draws from 15 to 20 minutes away. People will come from outside that seven-minute drive, no matter which neighborhood definition you use, whether it's the limited or the general. In his opinion, need can be established whichever definition is used, but it is likely that additional gas will be sold to people outside either the limited neighborhood or the general neighborhood. Tr. 7/30/13, 204-208.

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[107] It is undisputed that about 25% of the neighborhood residents are Costco members. Tr. 10/17/13, 164-165.

Mr. Flynn found that the gas station would be reasonably convenient for four types of people – the pass-by travelers who need gas, *e.g.*, while they're on their way to work; the people who work at the Mall; the people who are shopping, not only the Costco shoppers, who are huge consumers of this, but the other shoppers; and, finally, the residents. He took into account that 24 percent of households and 92 percent of businesses would be Costco members.

Mr. Flynn also noted that Costco stations are different from any of the other stations in the general neighborhood. There is no other station that has the kind of safety features that it offers. The physical safety, the environmental safety, the attendants and the convenience are features which no other station offers. Mr. Flynn stated that the 7-minute drive is an area of about 15 square miles, with a radius of about two and a half miles (Exhibit 217). Tr. 7/30/13, 213-220.

On cross-examination, Mr. Flynn admitted that there is no shortage of gasoline in the general neighborhood. He indicated that the need is not determined by capacity or shortage. He indicated that three things created need – price, convenience and safety, with price being the most important. Tr. 7/31/13, 197-211, 230. Mr. Flynn agreed that about 35 to 40 percent of the current gas sales at the Costco Beltsville station will shift to Wheaton if the gas station is permitted. Tr. 7/31/13, 263. Mr. Flynn distinguished between markets and needs. When there is a need, a market is created. Thus, sometimes a market can reflect a need. Tr. 7/31/13, 276.

Petitioner argues, in its Closing Reply Brief (Exhibit 629, pp. 3-4, 8-18) that Costco's expert established that the gas station will fill a neighborhood need for gas and will sell several million gallons of gas annually, addressing the existing 13.1 million gallon retail gap in gas sales. Petitioner notes that even the Opposition admitted that the gas station will sell 2 million gallons of gas a year. Petitioner argues that the Opposition incorrectly applies the "absolute necessity" standard, and Costco easily meets the correct standard of "expedient, reasonably convenient and useful to the public." Petitioner also points out that even if many gas patrons do not live in the adjacent

residential neighborhood, the Code treats the more than 4,000 Costco members who come to the Mall each day as part of the general neighborhood for purposes of the need analysis.

b. The Opposition's Evidence Regarding Neighborhood Need

Most of the Opposition's evidence regarding need was presented by Ms. Karen Cordry (Tr. 9/23/13, 8-177, 207-285; Tr. 10/17/13, 12-112, 149-221),[108] and the need issue is discussed at length in KHCA's Closing Brief (Exhibit 624, pp. 16-47).

Ms. Cordry testified that the proposed gas station cannot be justified under either analysis presented by Petitioner. The starting point for her is that need is a counterbalance to burden; the need requirement in the statute only really makes sense when it's analyzed as being a trade-off to the inherent adverse effects of the station. Tr. 9/23/13, 17.

Ms. Cordry argued that the proposed station cannot satisfy either the necessity or usefulness standard. First, it will only serve about 25 percent of the neighborhood. The remaining 75 percent will not benefit from or use the station. Second, the station will provide nothing that is not already available in great abundance from other stations, with 27 to 30 stations within the market area as defined by Mr. Flynn. It does not sell diesel or kerosene or E-85 ethanol type gasoline or any other unique product. It does not provide electrical charging services. It does not provide air or water or cleaning solutions for your windshield. It does not provide restrooms, and it will not have a convenience store nor sell any convenience items. The store is expected to pump more gas than any other in the County. Tr. 9/23/13, 31-40.

According to Ms. Cordry, the Federal Information Agency predicts that gasoline sales have peaked and that they will continue to decline for the next several decades up to 2040. Thus, any sales obtained by any new station going forward can be expected to be cannibalizing sales from existing stations. New stations are going to take sales from old stations. She cited the testimony of

[108] The relevant portion of Ms. Cordry's testimony is summarized in Appendix I, at pp. 89-99.

Kamran Youssefieh (Tr. 7/31/13, 79-100), the operator of a nearby gas station, who pointed out the strong likelihood of sales declining and stations closing if the special exception were granted. Ms. Cordry made the point that, in terms of overall benefit to the general neighborhood, if stations close that the local population does use, and 75 percent of the population is not going to use the Costco station, then that 75 percent is going to suffer a net loss of benefits and net loss of capacity. Thus, this area is not going to benefit from the Costco station. Moreover, the very real potential for loss of overall uses in this area would affect not only the 75 percent, but it would also affect the Costco members for all of the time period when Costco stations are not open, and they operate much more limited hours than many other gas stations, providing no services apart from gas. To the extent that the Costco station results in closure of any of these stations, there is a net loss to everyone in this community – in effect a reduction in convenience. Tr. 9/23/13, 41-46.

Ms. Cordry further testified that the only true quantitative base of Costco's need analysis was based on calculations by the Claritas Company, but of the number that it calculated for retail gap, the vast majority of the amount that it calculated was for a gas station with a convenience store and that is not what Costco is going to provide. The Costco warehouse is not a convenience store, nor will this be a gas station with a convenience store. According to Ms. Cordry, when limited to a gas station without convenience stores, the Claritas analysis shows that there's less than a 2 million gallon need, not the 13.1 million gallons gap that Mr. Flynn came up with. The need for the kind of gas station that is being proposed here (*i.e.*, one without a convenience store) is about a sixth or less of what is shown of the total gas station need. The County may be underserved by gas stations with convenience stores, but that's not what is proposed here. Tr. 9/23/13, 46-53.

Ms. Cordry launched into a detailed evaluation of Mr. Flynn's analysis, including a calculation of the pumping capacity of the existing gas stations in the market area (Exhibits 291 and 292). She concluded that the overall pumping capacity of these stations is about 235.5 million

gallons per year. She noted the sales totaled about 47 million gallons a year, well below pumping capacity. She concluded that Mr. Flynn was not making any assertion there's any lack of applicable capacity. There is also no evidence that people are backed up waiting for gas at the existing stations. Her point is that the existing stations have a significant amount of additional capacity for pumping beyond what they are pumping and, therefore, there's less demonstration of a need for the Costco station. The fact that Costco stations have a buildup of cars queued is the result of a design decision to cut costs, which makes economic sense for a company and allows cheaper gas, but it does so by putting a burden on the neighborhood through idling and queuing. Tr. 9/23/13, 74-90.

Ms. Cordry also criticized the demand calculations in Mr. Flynn's report, which she says are wholly based on simply the Claritas figures. She noted that Mr. Flynn stated that there are 37,382 households in the study area and that each family uses an average of 1,012 gallons per year. That multiplies out to a demand of 37.8 million gallons a year for the neighborhood defined in the same seven-minute drive area. That amounts to about one sixth of the pumping capacity of 235.5 million gallons per year from the existing stations. Tr. 9/23/13, 90-95. The proposed station would create a regional need. To characterize that as a neighborhood need eliminates the distinction between these two. Tr. 9/23/13, 95-98.

Ms. Cordry introduced excerpts from National Association of Convenience Stores (NACS), regarding petroleum industry statistics (Exhibit 293) to show that gasoline stations are operating on very narrow profit margins now. In 2012, it was only 5.1 percent of the price of the fuel, that ties the lowest in 2007, and those two are less than half of what it used to be in 1999. She argued that the lower the margin, the more likely a station is to close. The *Lucky Stores* case specifically points to declining gasoline sales as a factor that could be looked at in terms of whether there's already a proliferation of stations and whether it serves the market. Tr. 9/23/13, 112-117.

Ms. Cordry analyzed Mr. Flynn's price comparisons between Costco gas stations and

others. She concluded that a customer would be saving 12 cents a gallon at Costco, and not 28 cents a gallon, so the annual savings are down to $121 rather than $283, for someone who buys all of their gas at Costco. Tr. 9/23/13, 148-175. Ms. Cordry critiqued Mr. Flynn's Claritas analysis, challenging his conclusions about retail gap. She argued that just because Claritas figures show an excess of demand over supply does not mean that the entire demand figure would be captured in the local area.[109] Ms. Cordry argued that Mr. Flynn failed to provide an estimate for total demand in the area, so she could not properly apply a capture rate to his figures. 9/23/13, 211-242.

According to Ms. Cordry, the gap between supply and demand does not translate out into 13.1 million gallons; it translates into less than two and they are proposing to a build a station that is six times the size of that. She also argued that Costco may sell the 12 million gallons a year, but the people will come from outside the neighborhood, establishing a County need or regional need, versus a neighborhood need. 9/23/13, 242-261.

Ms. Cordry next addressed Mr. Flynn's supplemental report which assumes that the demand area is the more limited neighborhood as defined by Technical Staff. She contends that it's really just the same regional or county need analysis wrapped up in a different packaging. She also asserted that the report confuses the data that it takes from Mr. Guckert's report and other sources and has at least one clearly incorrect calculation. She concluded that the supplemental report does not show a need for a station of this size in this location. According to Ms. Cordry, Mr. Guckert's figures were not intended to be used as an estimator of gas consumption, and Mr. Flynn's application of them leads to an overstatement of likely consumption. Tr. 10/17/13, 80-110.

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[109] The Hearing Examiner questions Ms. Cordry's logic on this point. The fact that demand is not captured locally now does not mean that the demand would not be captured locally if a local station were opened, with or without a convenience store. As suggested by the data, the reason the demand is not captured locally is that the supply does not exist here, at least for stations with convenience stores. Thus, the capture data seems to cut against Ms. Cordry's argument. A low capture rate is not an argument for fewer local suppliers but for more local suppliers. If there is demand in the neighborhood for more gas than is being sold in the neighborhood now (*i.e.,* a capture rate of under 100%), then opening a station which successfully sells 12 million gallons probably means that a fair portion of the neighborhood demand that is currently not captured locally will be captured locally because it will be conveniently available at a reasonable cost.

Ms. Cordry agreed that needs analysis must factor in demand from transient shoppers, but not necessarily those drawn from all over the region, even beyond the 7 minute drive time. She feels that the Costco gas station is of no value to the roughly 75 percent that are not Costco members and is only of partial use to even the ones that are Costco members because they need to depend on other stations to actually supply portions of their gasoline station needs at the times when Costco is not available or for services that Costco does not supply. She admitted that the "face price" of Costco gas may be cheaper, but there are a number of discount programs, such as Safeway, K-Mart and Giant which allow her to get 20, 30, 40 cents a gallon off in gas with relatively minor amounts of purchases, so the price she actually pays at the pump quite often is substantially less than what she would pay at Costco. Tr. 10/17/13, 164-183.

Another Opposition witness, Donna Savage, also testified about the availability of other discounted gasoline. She argued that there is little benefit in gas cost savings at Costco because people can get gas discounts at Shell stations, *e.g.,* by shopping at Giant supermarket (Exhibit 460(d)) or using a Citibank card (Exhibit 460(e)). Safeway and Kmart also have similar programs. These programs are accessible to everyone, while only Costco members who pay $55 a year membership fees can access the Costco stations, and drivers also have to wait in line to get gas. She noted that only 25% of the Wheaton population are members, but the whole community would be impacted by the non-inherent adverse effects. Tr. 2/24/14, 179-209.

c. Technical Staff's Evaluation of Neighborhood Need

Technical Staff addressed the needs analysis in its main report (Exhibit 70, pp. 21-22, and Attachment 10); in a "Supplemental Staff Memorandum" dated February 27, 2013 (Exhibit 77); and in a December 20, 2013 "Evaluation of Costco's supplemental need analysis based on limited definition of "general neighborhood" (Exhibit 360). With some caveats, Technical Staff generally accepted the findings of Petitioner's market analyst and concluded that there was a need for the

proposed station; however, its conclusion is based mainly on its finding that the need for the proposed gas station is driven by Costco membership within the defined neighborhood, and is merely buttressed by the market analysis.

In its main report, Technical Staff stated (Exhibit 70, pp. 21-22):

> . . . For a typical gas station, it is reasonable to accept a five- to seven-minute drive time for purposes of defining a neighborhood for need analysis. Staff believes that, due to the members-only nature of the proposed use and that Costco members in the area typically drive longer than seven minutes to the Beltsville Costco station (or others farther away), a 10-minute drive time is an appropriate neighborhood definition in this case. . . .
>
> Costco fuel is not available within the defined neighborhood. The closest Costco station is about a 20-minute drive to Beltsville in Prince George's County, requiring Costco members living in Wheaton to travel out of Wheaton to purchase Costco fuel.
>
> There is an existing base of Costco customers in the defined neighborhood. The applicant states that 23% of the households and 92% of businesses within a 7-minute drive time from the proposed location are currently Costco members. It is reasonable to assume that membership will increase when the retail store is completed.
>
> While staff believes that the need for the proposed gas station is justified by Costco membership within the defined neighborhood (both households and businesses, existing and future), staff also reviewed the retail gap analysis submitted by the Applicant. Staff used this retail gap analysis not as the primary mechanism for determining the need, but to understand the full picture of gasoline sales and purchases in the area. Although there can be a number of reasons for [a] gap in spending and sales, a retail gap analysis has generally been accepted as an objective measure of unmet demand (and therefore, need) in an area (see Attachment 10).
>
> Supply estimates are based on sales by existing gas stations in the study area. Demand estimates are based on the amount that households located in the study area spend on gas purchases, regardless of where those stations are located. A retail gap is calculated by subtracting the total gasoline sales (supply) from total spending (demand). This figure represents the amount (in dollars) that households in the study area spent on gasoline purchases (regardless of the study area), minus total sales by gasoline stations located within the study area. In other words, this unmet demand reflects the extent to which households in the study area are buying gasoline elsewhere (see Attachment 10).
>
> At the 10-minute drive time, there is a retail gap of $215.4 million. The Applicant's consultant, however, estimated that the gasoline sales typically account for about 65.4% (about 2/3) of all consumer purchases, which reduced the estimated gap to $140.9 million at the 10-minute drive time.
>
> Staff has determined that this retail gap analysis further confirms the need for the proposed gas station at this location.

It is noteworthy that using Technical Staff's preferred 10-minute drive time to calculate the market area, the retail gap is quite a bit larger than that determined by Mr. Flynn using a 7-minute drive time to determine the market area. Staff's analysis and conclusions did not change in its supplemental memorandum (Exhibit 77), which was simply a response to questions raised by the Opposition after Staff had filed its initial report.

At the Hearing Examiner's request, Technical Staff also reviewed Mr. Flynn's supplemental need analysis based on limited definition of "general neighborhood." In its December 20, 2013 Evaluation (Exhibit 360), Technical Staff raised some concerns about Mr. Flynn's assumptions. The main concern raised by Technical Staff regarding Mr. Flynn's supplemental need analysis is with the assumptions he made about demand due to traffic passing through the neighborhood, which Mr. Flynn estimated as a demand for 4.4 million gallons a year. The Hearing Examiner agrees with Staff that Mr. Flynn may have incorrectly assumed demand from a 24-hour traffic count, even though the Costco station will not be open 24 hours a day. However, even if we discount half of the demand from pass-by traffic, that still leaves a demand of almost 9 million gallons per year from the limited neighborhood. In any event, Technical Staff concluded that,

> Subject to these caveats, Costco's supplemental need analysis provides a reasonable estimate of market demand for gasoline, within the more narrowly defined "general neighborhood" of the proposed Costco gas station in Wheaton.

d. The Hearing Examiner's Findings Regarding Neighborhood Need

The Opposition devoted a great deal of attention to the question of neighborhood need, and they clearly established that, if the standard were "necessity" and not "convenience," Petitioner failed to make its case; however, as discussed in Section III.E.2, above, the proper standard is not necessity. Whether the Petitioner proved that the proposed use would be "expedient, reasonably convenient and useful to the public," is a close question because of the plethora of gas stations available to the general neighborhood as well as many other factors raised by the Opposition,

including the limitation of the proposed use to only Costco members. On balance, the Hearing Examiner finds that Petitioner has proven, by a preponderance of the evidence, that the availability of a Costco gas station in the Wheaton area would be expedient, reasonably convenient and useful to the public.

In reaching this conclusion, we do not factor in some of the potential adverse effects mentioned by the Opposition, such as the increase in air pollution and traffic congestion, because those consequences are already accounted for in other sections of the report, such as the health and compatibility analyses.[110] On the other hand, the lack of some amenities, such as the absence of air pumps, restrooms and convenience items for sale, was evaluated, but the Hearing Examiner considers those a matter of customer choice – people who want those features will visit other gas stations, and people who like Costco's setup will go to Costco.

The absence of air pumps, restrooms or other services at the proposed Costco station does not reduce convenience in the community, unless one assumes that other gas stations offering these amenities will be driven out of business, and the Hearing Examiner believes it is inappropriate to evaluate need based on that assumption. The possibility of driving other nearby stations out of business should not be considered as part of this analysis because it is not the intent of this Zoning Ordinance section to reduce price competition, but rather to assure that a proposed use will meet a need in the community. As the court recognized in *Lucky Stores, supra,* 270 Md. at 528, 312 A.2d at 766, a zoning decision may affect competition, but the need requirement should not be applied for the purpose of preventing competition. Moreover, the fact that other stations (*e.g.*, those participating with programs run by Safeway or Giant) may also sell discounted gas does not make the proposed Costco Station less convenient to those who want to use it; rather, it creates more price

[110] Ms. Cordry suggested that need must be counterbalanced against burden – benefits v. potential adverse effects of the station. Tr. 9/23/13, 17. The Hearing Examiner's view is that such balancing of all the benefits against all the negatives should be done in the case, but as part of the evaluation of compatibility, not as part of the needs analysis. Technical Staff agrees that these factors should not weigh in the needs analysis. Exhibit 77, p. 2.

competition, which presumably will benefit the consumers in the community.

In terms of market analysis, Ms. Cordry convincingly established, in painstaking (if not painful) detail, that the existing stations have the capacity to pump much more gasoline than they are selling. However, Claritas does indicate, as confirmed by Technical Staff, that folks living in, working in or visiting the area are buying more gas than the local stations are selling, thus indicating an actual retail sales gap. Though Ms. Cordry systematically challenged Mr. Flynn's conclusions that there is a 13.1 million gallon retail gap of demand over supply produced by the stations in the market area, even Ms. Cordry admits that, under the Claritas analysis, there is approximately a 2 million gallon market gap for gas stations without convenience stores. Tr. 9/23/13, 51-52.

Whether the actual market gap demonstrated is 13 million gallons a year or 2 million gallons, Petitioner has shown need under the market approach by establishing either. If the retail gap is less than estimated, but more than zero, Petitioner will just sell less gas and will produce fewer of the side effects feared by the Opposition. Under the *Lucky Stores* convenience standard, if there is some excess of demand over supply, and the proposed station would be "expedient, reasonably convenient and useful to the public," that is sufficient, even if only 25% of the residents reap the benefit.

In fact, one could argue that, if the meaning of the word "need" as used Section 59-G-1.24, is convenience, not necessity, it really is superfluous to have a market area analysis – whether or not there is a shortfall of supply in the area, as measured against demand, having a nearby gas station, selling discounted gasoline, might still be considered a convenience. Nevertheless, the Maryland courts have suggested the benefit of a market area analysis in this type of case, and it seems now to be ingrained in the system. In any event, Costco did produce the economic analysis that the court said was lacking in the *Lucky Stores* case.

Petitioner's market analyst found that demand exceeded supply, using either definition of general neighborhood for purposes of calculating demand, and Technical Staff confirmed these findings, albeit with some reservations.[111] The Opposition picked apart much of Mr. Flynn's analysis, but produced no expert testimony to contradict it or Technical Staff's findings, and even admitted that some market gap could be found. Moreover, twelve community witnesses testified that they felt a need for the proposed Costco station to allow them to conveniently obtain more affordable gas (Appendix I, at pp. 84-89), and Petitioner submitted thousands of cards from community members supporting the proposed station (Exhibit 183).

Based on this record, the Hearing Examiner finds that the weight of the evidence supports a finding of need under the *Lucky Stores* "convenience" standard.

IV. FINDINGS AND CONCLUSIONS

A special exception is a zoning device that authorizes certain uses provided that pre-set legislative standards are met, that the use conforms to the applicable master plan, and that it is compatible with the existing neighborhood. Each special exception petition is evaluated in a site-specific context because a given special exception might be appropriate in some locations but not in others. The zoning ordinance establishes both general and specific standards for special exceptions, and the Petitioner has the burden of proof to show that the proposed use satisfies all applicable general and specific standards. Weighing all the testimony and evidence of record under a

[111] The Hearing Examiner also has reservations about Mr. Flynn's supplemental analysis (Exhibit 198), some of which are noted in the Technical Staff evaluation (Exhibit 360), and others are raised in KHCA's Closing Brief (Exhibit 629, pp. 44-46). In addition, the Hearing Examiner notes that Mr. Flynn's supplemental analysis establishes only a total demand figure of 11.1 million gallons a year, not a retail gap figure, although he compares this figure with the retail gap figure for the larger market area of 13 million gallons. Presumably, this is because he observed that there are no gas stations within the limited general neighborhood, and therefore there is currently no supply of gas within the limited general neighborhood. Under that assumption, the amount of demand equals the retail gap; however, that assumption does not satisfy the Hearing Examiner's concern about the proper way to asses the market area spelled out in Section III.E.1. above. Nevertheless, given Technical Staff's general approval of Mr. Flynn's conclusions and the Opposition's rejection of the Hearing Examiner suggestion that the general neighborhood should be narrowly defined for market demand purposes (Exhibit 629, p. 44), the Hearing Examiner has accepted the larger market area analysis that has been consistently followed in this type of case.

"preponderance of the evidence" standard (Zoning Ordinance §59-G-1.21(a)), the Hearing Examiner concludes that the instant petition does not meet all of the general and specific requirements for the proposed use.

A. Standard for Evaluation

The standard for evaluation prescribed in Zoning Ordinance § 59-G-1.2.1 requires consideration of the inherent and non-inherent adverse effects on nearby properties and the general neighborhood from the proposed use at the proposed location. Inherent adverse effects are "the physical and operational characteristics necessarily associated with the particular use, regardless of its physical size or scale of operations." Section 59-G-1.2.1. Inherent adverse effects, alone, are not a sufficient basis for denial of a special exception. Non-inherent adverse effects are "physical and operational characteristics not necessarily associated with the particular use, or adverse effects created by unusual characteristics of the site." *Id*. Non-inherent adverse effects, alone or in conjunction with inherent effects, are a sufficient basis to deny a special exception.

Technical Staff have identified seven characteristics to consider in analyzing inherent and non-inherent effects: size, scale, scope, light, noise, traffic and environment. For the instant case, analysis of inherent and non-inherent adverse effects must establish what physical and operational characteristics are necessarily associated with an Automobile Filling Station use. Characteristics of the proposed Automobile Filling Station use that are consistent with the "necessarily associated" characteristics of Automobile Filling Station uses will be considered inherent adverse effects, while those characteristics of the proposed use that are not necessarily associated with Automobile Filling Station uses, or that are created by unusual site conditions, will be considered non-inherent effects. The inherent and non-inherent effects thus identified must then be analyzed, in the context of the subject property and the general neighborhood, to determine whether these effects are acceptable or would create adverse impacts sufficient to result in denial.

Technical Staff opined that the inherent adverse effects associated with automobile filling stations include (Exhibit 70, p. 13):

(1) fuel pumps;
(2) a structure providing storage space and shelter for employees;
(3) traffic generated by customers, employees, and fuel delivery trucks;
(4) potential for queuing vehicles on site;
(5) noise associated with the use;
(6) signage advertising gas products and prices;
(7) outdoor lighting;
(8) longer hours of operation than the average business establishment;
(9) environmental impacts that may include fumes from idling vehicles and potential spillage of automobile fluids; and
(10) underground fuel storage tanks.

The Hearing Examiner agrees that these characteristics are inherent in the use. Technical Staff also identified six non-inherent characteristics of this particular proposed use (Exhibit 70. pp. 13-14):

1) Sales to Costco members only;
2) Location along a private road, near houses;
3) Size (volume of gasoline sold, and number of pumps);
4) Queues and traffic volume along the southern ring road;
5) Type of gasoline sold (Regular and Unleaded, only); and
6) Payment by debit or credit card only.

Technical Staff analyzed the potential impacts of the listed non-inherent characteristics (Exhibit 70, p. 14):

> Three of the six non-inherent characteristics are cause for concern with regards to the health and safety of the residents and visitors within staff's defined neighborhood. They are the location, size and queuing. The other three--sale to Costco members only, type of gasoline sold, and method of payment--are either neutral or small in scope and will not have any negative impacts. For example, most stations provide diesel; this gas station is not proposing to sell this type of fuel, so the type of gasoline sold will not have any adverse impacts.
>
> Staff also disagrees with the Applicant's statement that the scale of the operation will not be adverse to the neighborhood. Although the design of the gas station is typical of gas stations (canopies, signage, lighting, etc.), the estimated volume of gasoline is not, nor is the proposed number of fueling stations. The anticipated queues were not included as potential non-inherent characteristics in the Applicant's statement. Second, the Applicant only considered the Mall property as its neighborhood, which disregarded the effect of the non-inherent characteristics of the proposed use on the residential homes between 120 feet and 200 feet from the Site.

> Staff believes that three non-inherent characteristics—the location, the size (volume of gasoline sold), and anticipated queues--will adversely affect the neighborhood and could potentially cause adverse health impacts to the nearby residences . . .
>
> 1) Location. The proposed Site is along a private ring road. Most gas stations are located along arterial or major roads. This non-inherent characteristic alone may not adversely affect the neighborhood, but it needs to be considered in conjunction with the second non-inherent characteristic, volume of gasoline sold.
> 2) Size. The volume of gasoline estimated to be sold is 3 to 4 times (at the most conservative estimate) the volume of a typical gas station. The volume of gas sold is naturally aligned with increased emissions from both the number of vehicles waiting for a service, and the size of underground storage tanks, etc. close to the residential neighborhood to the south, which contribute to multiple air pollutants.
> 3) Queuing. The Applicant's queuing study suggests that, for 50% of the operating time, 22 or less vehicles will be in the queue waiting (and idling) to purchase gasoline. While the refueling happens quickly (four minutes per vehicle, according to the Applicant), the anticipated queuing will not be like a typical gas station.

Staff also noted that "the cumulative impacts of the non-inherent characteristics are cause for concern." Exhibit 70, p . 14.

Petitioner agreed with Staff's list of non-inherent effects, except that it argues that a gas station's proximity to nearby residences is not a non-inherent characteristic because it occurs elsewhere in the County (Exhibit 86(g)). Tr. 6/4/13, 210, 211. Petitioner also argues that,

> None of these non-inherent characteristics . . . will create any adverse effects on the nearby properties or the general neighborhood. No evidence was presented regarding any non-inherent characteristics sufficient to deny the Special Exception. To the contrary, many of these characteristics *reduce* the potential adverse effects. [Petitioner's Closing Brief (Exhibit 616(a), p. 13-15.]

Petitioner lists those beneficial factors as the credit card payment system, which is safe and speeds transactions; the members only requirement, which will serve members coming to the Costco warehouse; the fact that no diesel fuel will be sold, thereby eliminating trucks in line for gas; location off of a private road; closeness to nearby residences, which Petitioner argues is not a non-inherent characteristic, noting the station is physically segregated and buffered from the residential area and not visible from the residences; the large volume of gasoline sold, which

Petitioner argues is not adverse because the resultant pollution will allegedly meet NAAQS standards; and the environmental effects of traffic and queuing will be mitigated by Costco's state-of-the-art technology, such as the Arid Permeator.

Thus, Petitioner argues, "The evidence supporting the Special Exception, along with Costco's proposed conditions, establishes that the proposed station will be in harmony with the neighborhood and will create no significant non-inherent adverse effects." Petitioner's Closing Brief (Exhibit 616(a), pp. 7-8).

The Hearing Examiner disagrees. The fact that gas stations at other locations may be closer to some residences does not make the proximity of the subject site to residences (and the Kenmont Pool and the Stephen Knolls School) an inherent characteristic of this particular site. As stated by the court in *Montgomery County v. Butler*, *supra,* 417 Md. 271, at 305, 9 A.3d 824, at 844 (2010),

> . . . [I]t is for the zoning board to ascertain in each case the adverse effects that the proposed use would have on the *specific, actual* surrounding area. [Italics in original.]

Each combination of site and surrounding area has some unique characteristics that must be evaluated in the context of the particular characteristics of the use. It is the non-inherent characteristics of this particular proposal, at this particular location, at the level of usage planned (12,000,000 gallons of gas sales a year), with the proposed design, and the proximity of residences, a community swimming pool and the Stephen Knolls School which serves many medically fragile children, that create the adverse effects warranting denial of the petition.

Based on the record in this case, as discussed at length in Part III of this report, the Hearing Examiner finds that the proposed use would have the non-inherent characteristics identified by Technical Staff, and those non-inherent effects alone, and in combination with the inherent characteristics of the use, will have significant adverse effects on the general neighborhood. The non-inherent characteristics of the proposed auto filling station and the resulting adverse effects

make the proposed use incompatible with the adjacent residential neighborhood to the south, southwest and southeast of the subject site. These adverse effects include the potential health impacts described in Part III.B. of this report and the traffic congestion, parking congestion and additional physical activity described in Part III.C. of this report.

The Hearing Examiner therefore concludes, based on the evidence, and considering all the factors discussed above, that the petition should be denied.

B. General Conditions

The general standards for a special exception are found in Section 59-G-1.21(a). The Technical Staff reports, the exhibits and the testimony of the witnesses provide ample evidence that some, but not all, of the general standards would be satisfied in this case.

Sec. 59-G-1.21. General conditions.

§5-G-1.21(a) *-A special exception may be granted when the Board or the Hearing Examiner finds from a preponderance of the evidence of record that the proposed use:*

(1) Is a permissible special exception in the zone.

Conclusion: An Automobile Filling Station use is a permissible special exception in the C-2 Zone, pursuant to Code § 59-C-4.2(e).

(2) *Complies with the standards and requirements set forth for the use in Division 59-G-2. The fact that a proposed use complies with all specific standards and requirements to grant a special exception does not create a presumption that the use is compatible with nearby properties and, in itself, is not sufficient to require a special exception to be granted.*

Conclusion: The proposed use complies with the specific standards set forth in §59-G-2.06 for an Automobile Filling Station use as outlined in Part C, except for the provision of §59-G-2.06(a)(1) relating to fumes. For the reasons set forth in Part III.B. of this report, the fumes that would be produced by the proposed use would be a nuisance, in violation of the section.

(3) *Will be consistent with the general plan for the physical development of the District, including any master plan adopted by the Commission. Any decision to grant or deny special exception must be consistent with any recommendation in a master plan regarding the appropriateness of a special exception at a particular location. If the Planning Board or the Board's technical staff in its report on a special exception concludes that granting a particular special exception at a particular location would be inconsistent with the land use objectives of the applicable master plan, a decision to grant the special exception must include specific findings as to master plan consistency.*

Conclusion: The special exception site is subject to the Wheaton CBD and Vicinity Sector Plan (the "Sector Plan"), which was approved and adopted in January 2012. Exhibits 9 and 150. As discussed in Part III.A. of this report, Technical Staff concluded that the proposed use would be consistent with the Sector Plan, but the majority of the Planning Board disagreed. The Hearing Examiner's findings on this issue are set forth in Section III.A.4. of this report. In sum, the Hearing Examiner found that, while mixed use TOD and reducing reliance on automobiles are goals of the Sector Plan, that Plan, as adopted, does not call for them in lieu of the auto-centric, regional mall and its necessarily auto-centric uses, but rather in addition to those existing and planned uses.

Despite the Hearing Examiner's disagreement with the majority of the Planning Board on the question of consistency with the Sector Plan, he finds that the Planning Board's conclusions in this regard should be considered as part of the evaluation of compatibility with present and planned development in the neighborhood. The sense of the Planning Board's letter is that the proposed gas station does not fit within the Board's concept of development in the area covered by the Sector Plan.

(4) *Will be in harmony with the general character of the neighborhood considering population density, design, scale and bulk of any proposed new structures, intensity and character of activity, traffic and parking conditions, and number of similar uses.*

Conclusion: Technical Staff found that the proposed use would be in harmony with the general character of the neighborhood, when considering density, design, scale, and bulk of the proposed new structures. Staff also observed that "the proposed location may not be the most desirable location for this use on the Mall property . . ." Exhibit 70, p. 15. The Hearing Examiner agrees with Staff's observation that a filling station is not out of character with the Mall's current mix of retail, transportation and office uses, but that observation does not address the question of whether the totality of circumstances surrounding the proposed use render it incompatible with the residential neighborhood to the south, southeast and southwest of the Mall. The Hearing Examiner finds that the proposed auto filling station will not be in harmony with the adjacent residential neighborhood to the south, southwest and southeast of the subject site due to the adverse effects of traffic congestion, parking congestion and additional physical activity, as described in Part III.C. of this report, as well as the potential health impacts described in Part III.B. of this report.

(5) Will not be detrimental to the use, peaceful enjoyment, economic value or development of surrounding properties or the general neighborhood at the subject site, irrespective of any adverse effects the use might have if established elsewhere in the zone.

Conclusion: The Hearing Examiner concludes that the proposed use will not be detrimental to the economic value or development of surrounding properties at the site for the reasons set forth in Section III.C.5. of this report; however, for the reasons discussed in Part. III.B. and Sections III.C. 1., 2. and 6 of this report, the Hearing Examiner finds that the proposed use will be detrimental to the peaceful enjoyment of the general neighborhood.

(6) *Will cause no objectionable noise, vibrations, fumes, odors, dust, illumination, glare, or physical activity at the subject site, irrespective of any adverse effects the use might have if established elsewhere in the zone.*

Conclusion: For the reasons discussed in Sections III.C.3. and 4. of this report, the Hearing Examiner finds that the proposed use will not cause objectionable noise, vibrations, odors, dust, illumination or glare; however, there will be considerable physical activity, as discussed in Part III.C of this report, and objectionable fumes, as discussed in Part III.B. of this report.

(7) *Will not, when evaluated in conjunction with existing and approved special exceptions in any neighboring one-family residential area, increase the number, intensity, or scope of special exception uses sufficiently to affect the area adversely or alter the predominantly residential nature of the area. Special exception uses that are consistent with the recommendations of a master or sector plan do not alter the nature of an area.*

Conclusion: Technical Staff reports that (Exhibit 70, p. 16):

> There are no special exception gas stations within the Staff's defined neighborhood; one was approved in 1975, but it no longer exists. There are six other special exceptions within the defined neighborhood, including the Kenmont Swim Club, but they do not constitute a predominance of special exception uses as the defined neighborhood is a mix of retail and residential uses. Therefore, staff believes that this use will not alter the nature of the area.

The Hearing Examiner agrees with Staff, and so finds.

(8) *Will not adversely affect the health, safety, security, morals or general welfare of residents, visitors or workers in the area at the subject site, irrespective of any adverse effects the use might have if established elsewhere in the zone.*

Conclusion: For the reasons set forth in Section III.B.7. of this report, the Hearing Examiner finds that Petitioner has failed to prove, by a preponderance of the evidence, that the proposed use will not adversely affect the health, safety and general welfare of residents, visitors or workers in the area at the subject site.

(9) *Will be served by adequate public services and facilities including schools, police and fire protection, water, sanitary sewer, public roads, storm drainage and other public facilities.*

(A) If the special exception use requires approval of a preliminary plan of subdivision, the Planning Board must determine the adequacy of public facilities in its subdivision review. In that case, approval of a preliminary plan of subdivision must be a condition of granting the special exception.

(B) If the special exception:
(i) does not require approval of a new preliminary plan of subdivision; and
(ii) the determination of adequate public facilities for the site is not currently valid for an impact that is the same as or greater than the special exception's impact;
then the Board of Appeals or the Hearing Examiner must determine the adequacy of public facilities when it considers the special exception application. The Board of Appeals or the Hearing Examiner must consider whether the available public facilities and services will be adequate to serve the proposed development under the Growth Policy standards in effect when the application was submitted.

(C) With regard to public roads, the Board or the Hearing Examiner must further find that the proposed development will not reduce the safety of vehicular or pedestrian traffic.

Conclusion: As discussed in Part II.C. of this report, the Hearing Examiner and the Board of Appeals are not empowered by this section to make a determination as to the adequacy of public facilities because there is a currently valid determination of adequate public facilities for the whole of Wheaton Plaza, and that approval is sufficient to cover the impacts on public facilities anticipated from this proposed gas station. Exhibit 70, p. 17.

The issue of the safety of vehicular or pedestrian traffic is discussed in Section III.C.1. of this report. The Hearing Examiner found that additional cars on the road as a result of this use would add to the number of vehicle-on-vehicle and vehicle-on-pedestrian interactions, but they will not be sufficient to amount to a traffic hazard or

nuisance. The Hearing Examiner therefore concludes that the proposed use would not reduce the safety of vehicular or pedestrian traffic.

C. Specific Standards

The testimony and the exhibits of record provide sufficient evidence that some, but not all, of the specific standards required by Section 59-G-2.06, as amended by ZTA 12-07, would be satisfied in this case, as described below.

Sec. 59-G-2.06. Automobile filling stations.

(a) In addition to findings required in division 59-G-1, an automobile filling station may be permitted if the Board of Appeals finds that:

(1) the use will not constitute a nuisance because of noise, fumes, odors or physical activity in the location proposed;

Conclusion: For the reasons discussed in Sections III.C.3. and 6. of this report, the Hearing Examiner finds that the proposed use will not constitute a nuisance because of noise odors or physical activity; however, Petitioner has not proven by a preponderance of the evidence that there will not be a nuisance from fumes, as discussed in Part III.B. of this report.

(2) the use at the proposed location will not create a traffic hazard or traffic nuisance because of its location in relation to similar uses, necessity of turning movements in relation to its access to public roads or intersections, or its location in relation to other buildings or proposed buildings on or near the site and the traffic pattern from such buildings, or by reason of its location near a vehicular or pedestrian entrance or crossing to a public or private school, park, playground, or hospital, or other public use or place of public assembly; and

Conclusion: For all the reasons set forth in Part III. C. of this report, the Hearing Examiner finds, as did Technical Staff (Exhibit 70, p. 23), that the use will not create a traffic hazard or a traffic nuisance for any of the stated reasons; however, it will lead to some additional interactions between vehicles and pedestrians, some additional delays and

some additional inconvenience in the neighborhood, and thus will add to the incompatibility of the use at this particular location.

(3) the use at the proposed location will not adversely affect nor retard the logical development of the general neighborhood or of the industrial or commercial zone in which the station is proposed, considering service required, population, character, density, and number of similar uses.

Conclusion: As discussed in Section III.C.5. of this report, the Planning Board majority found that "Approving such an auto-centric use at this location would . . . 'retard the logical development of the general neighborhood,' . . . ," but it did so in connection with its finding of non-compliance with the Sector Plan. Exhibit 89, p. 2. Technical Staff did not share the Planning Board's view as to the impacts of the proposed gas station on logical development in the neighborhood, stating (Exhibit 70, p. 23):

> The proposed gas station will not adversely affect nor retard the logical development of the general neighborhood. It is consistent with the other uses in the Mall and the uses permitted in the C-2 Zone.

The only land use expert who testified at the hearing, Stephen Gang, stated in his land planning report (Exhibit 10, p. 21) that the proposed use would not adversely affect nor retard the logical development of the general neighborhood. Based on this record, the Hearing Examiner finds that the proposed use would not adversely affect logical development in the neighborhood.

(b) In addition, the following requirements must be satisfied:

(1) After August 13, 2012, the area identified by a special exception application for a new automobile filling station designed to dispense more than 3.6 million gallons per year must be located at least 300 feet from the lot line of any public or private school or any park, playground, day care center, or any outdoor use categorized as cultural, entertainment and recreation use.

Conclusion: As stated by Technical Staff (Exhibit 70, p. 23), "[t]he proposed Site is more than 300 feet from the lot line of any public or private school or any park, playground, day care

center, or any outdoor use categorized as cultural, entertainment and recreation use." The Hearing Examiner so finds.

(2) When such use abuts a residential zone or institutional premises not recommended for reclassification to commercial or industrial zone on an adopted master plan and is not effectively screened by a natural terrain feature, the use must be screened by a solid wall or a substantial, solid fence, not less than 5 feet in height, together with a 3-foot planting strip on the outside of such wall or fence, planted in shrubs and evergreens. Location, maintenance, vehicle sight distance provisions, and advertising pertaining to screening must satisfy Article 59-E. Screening must not be required on street frontage.

Conclusion: As noted by Technical Staff (Exhibit 70, p. 24), the subject site "does not directly abut residential or institutional uses," but the nearest residence is only 118 feet away. On the other hand, it is screened from the subject site by an existing forest buffer and a significant difference in elevations. Nevertheless, Petitioner has agreed to construct an eight-foot high "greenscreen" wall to provide additional buffering, as described in Sections II.B. 3. and 4 of this report. The Hearing Examiner finds that the requirements of this section have been met. Compliance with all other applicable regulations would be required by conditions, if this special exception is approved.

(3) Product displays, parked vehicles, and other obstructions that adversely affect visibility at intersections or to station driveways are prohibited.

Conclusion: The submitted plans indicate that no displays or other obstructions would adversely affect visibility at the station driveways. This subject site is not located adjacent to any public roadway intersections. Conditions are proposed require an extra Costco attendant to avoid any backups onto the Mall ring road from the gas pump queues.

(4) Lighting must not reflect or cause glare into any residential zone. Lighting levels along the side and rear lot lines adjacent to a residential zone must not exceed 0.1 footcandle.

Conclusion: As discussed in Section II. B.4 and elsewhere in this report, the lighting is designed to shield light and glare, and direct it to prevent spillover. There will also be a significant amount of landscaping and a green wall to screen the site. Petitioner's photometric plan shows that illumination levels surrounding the gas station will not exceed 0.1 footcandles at the adjacent property lines. This measurement meets the Zoning Ordinance standard for lighting in residential zones under §59-G-1.23(h)(2). The Hearing Examiner concludes, as did Technical Staff (Exhibit 70, p. 24), that the use will not cause any light spillage or glare into any residential zone.

(5) When such use occupies a corner lot, the ingress or egress driveways must be located at least 20 feet from the intersection of the front and side street lines of the lot as defined in Section 59-A-2.1, and such driveways must not exceed 30 feet in width.

Conclusion: This provision is not applicable since the subject site does not occupy a corner lot.

(6) Each gasoline pump or other service appliance must be located on the lot at least 10 feet behind the building line; and all service, storage, or similar activities in connection with the use must be conducted entirely within the building. There must be at least 20 feet between driveways on each street, and each driveway must be perpendicular to the curb or street line.

Conclusion: As stated by Technical Staff (Exhibit 70, p. 25),

> A building line is defined as a "line, parallel to a lot line, creating an area into which a structure must not project." In the C-2 Zone, there is no building setback; therefore, the building line is the lot line. According to the applicant's site plan, all pumps are more than 10-feet behind the building line.

The Hearing Examiner so finds.

(7) Light automobile repair work may be done at an automobile filling station, but major repairs, spray paint operation or body and fender repair are prohibited uses.

Conclusion: No automobile repair work is proposed.

(8) Vehicles must be parked completely off of the public right-of-way.

Conclusion: No parking spaces are proposed in any public right-of-way.

(9) In a C-1 zone, an automobile, light truck, and light trailer rental, as defined in Section 59-G-2.07, and in a C-2 zone, an automobile, truck and trailer rental lot, as defined in Section 59-G-2.09, may be permitted as a part of the special exception if the requirements of this section are satisfied. In addition, a car wash with up to 2 bays may be allowed as an accessory use as part of the special exception.

Conclusion: No automobile services other than fuel dispensing are proposed.

(10) In a Rural Village Overlay Zone the following additional standards apply for new development:

(A) Car wash is prohibited.

(B) Pump canopies must not exceed 35 feet in height.

(C)Any structure approved for the use must not exceed the scale and bulk of existing commercial structures in the village.

Conclusion: This provision is not applicable since the subject site is not located in a Rural Village Overlay Zone.

D. Additional Applicable Standards

In addition to the general and specific standards set forth above, this special exception is required to meet certain additional general development standards and a neighborhood need standard, the latter of which was discussed in Part III.E. of this report. These additional standards are listed below:

59-G § 1.23. General development standards

(a) ***Development Standards****. Special exceptions are subject to the development standards of the applicable zone where the special exception is located, except when the standard is specified in Section G-1.23 or in Section G-2.*

Conclusion: As previously stated, the subject site is located in the C-2 Zone. The following chart from the Technical Staff Report (Exhibit 70, pp. 18-19) demonstrates that the proposed application meets the required development standards of the zone.

Table 1: Applicable Development Standards – C-2 Zone

Development Standards	Required	Provided
Maximum Building Height:	3 stories or 42 ft.	17 ft. 6 in.
Floor Area Ratio (FAR)	1.5	.47
Minimum Width at Front Lot Line:	10 ft.	± 1,354 ft. (University Blvd) ± 1,513 ft. (Veirs Mill Rd)
Minimum Side and Rear Yard Setback:	If the lot adjoins a residential zone, the setback must not be less than required in the adjoining zone.[112] Rear (R-60): 20 ft. Side (R-60): 18 ft.[113]	 258 ft. 379 ft.
Minimum Green Area	10%	13.6%
Parking Requirement (§59-E-3.7)	*1 space for each employee; 2 for each car wash bay, grease bay or similar service area* 2 staff X 1 = 2 0 service bays X 2 = 0 Total = 2	1 (within special exception Site); the 2nd parking spot is to be located within the Costco leased parking area for the warehouse store.

(b) ***Parking requirements****. Special exceptions are subject to all relevant requirements of Article 59-E.*

Conclusion: Zoning Ordinance §59-E-3.7 specifies that an automobile filling station must provide one parking space for each gas station employee, and additional spaces for services such as car washes and service bays. Since none of those additional services will be provided on the subject site, the only required parking spaces are for employees. For the reasons set forth in Section III.C.2. of this report, the Hearing Examiner finds that Petitioner's proposal is in compliance with the parking space requirements for auto filling stations specified in Zoning Ordinance §59-E-3.7.

[112] To determine the rear and side yard setback, Staff took the most conservative development standard of the Zones around the Mall.
[113] Sum of both sides.

(c) ***Minimum frontage***. *In the following special exceptions the Board may waive the requirement for a minimum frontage at the street line if the Board finds that the facilities for ingress and egress of vehicular traffic are adequate to meet the requirements of section 59-G-1.21:*

(1) Rifle, pistol and skeet-shooting range, outdoor.
(2) Sand, gravel or clay pits, rock or stone quarries.
(3) Sawmill.
(4) Cemetery, animal.
(5) Public utility buildings and public utility structures, including radio and T.V. broadcasting stations and telecommunication facilities.
(6) Equestrian facility.
(7) Heliport and helistop.

Conclusion: According to Technical Staff (Exhibit 70, p. 19), the application satisfies the minimum frontage requirements of the C-2 Zone. There is no contradictory evidence, and therefore the Hearing Examiner finds compliance.

(d) ***Forest conservation***. *If a special exception is subject to Chapter 22A, the Board must consider the preliminary forest conservation plan required by that Chapter when approving the special exception application and must not approve a special exception that conflicts with the preliminary forest conservation plan.*

Conclusion: As explained in Section III.D.4. of this report, Technical Staff determined that Petitioner was not required to submit a new forest conservation plan for the proposed gas station site since "the proposed gas station is exempt from Article II, in accordance with Section 22A-5(t) as part of the approved Mall's NRI/FSD #42013053E." (Exhibit 70, p. 19). The Hearing Examiner so finds.

(e) ***Water quality plan***. *If a special exception, approved by the Board, is inconsistent with an approved preliminary water quality plan, the applicant, before engaging in any land disturbance activities, must submit and secure approval of a revised water quality plan that the Planning Board and department find is consistent with the approved special exception. Any revised water quality plan must be filed as part of an application for the next development authorization review to be considered by the Planning Board, unless the Planning Department and the department find that the required revisions can be evaluated as part of the final water quality plan review.*

Conclusion: The site is not within a Special Protection Area, so a water quality plan is not required. The Water Resources Section of the Department of Permitting Services accepted Petitioner's proposed stormwater management concept plan for the site (Exhibit 103) on December 11, 2012 (Exhibit 70, Attachment 9).

(f) ***Signs.*** *The display of a sign must comply with Article 59-F.*

Conclusion: Proposed signage is discussed in Section II.B.1. of this report. Permits will have to be obtained for the proposed signs, and copies thereof will be filed with the Board of Appeals prior to posting the signs.

(g) ***Building compatibility in residential zones****. Any structure that is constructed, reconstructed or altered under a special exception in a residential zone must be well related to the surrounding area in its siting, landscaping, scale, bulk, height, materials, and textures, and must have a residential appearance where appropriate. Large building elevations must be divided into distinct planes by wall offsets or architectural articulation to achieve compatible scale and massing.*

Conclusion: This provision is not applicable. The site is in a commercial zone.

(h) ***Lighting in residential zones.*** *All outdoor lighting must be located, shielded, landscaped, or otherwise buffered so that no direct light intrudes into an adjacent residential property. The following lighting standards must be met unless the Board requires different standards for a recreational facility or to improve public safety:*

(1) Luminaires must incorporate a glare and spill light control device to minimize glare and light trespass.

(2) Lighting levels along the side and rear lot lines must not exceed 0.1 foot candles.

Conclusion: As previously discussed, no direct light will intrude into adjacent residential properties. The limit of 0.1 footcandles at the property line will be met.

59-G-1.24. Neighborhood need.

In addition to the findings and requirements of Article 59-G, the following special exceptions may only be granted when the Board, the Hearing Examiner, or the District Council, as the case may be, finds from a preponderance of the evidence of record that a need exists for the proposed use to serve the population in the general neighborhood, considering the present availability of identical or similar uses to that neighborhood:

(1) Automobile filling station.

(2) Automobile and light trailer rental lot, outdoor.

(3) Automobile, truck and trailer rental lot, outdoor.

(4) Automobile sales and service center.

(5) Swimming pool, community.

(6) Swimming pool, commercial.

Conclusion: An Automobile filling Station is one of the special exceptions listed in Zoning Ordinance §59-G-1.24 that requires a determination of neighborhood need. That need was demonstrated in a "neighborhood need analysis" performed by Petitioner's market analyst (Exhibit 14). The case law interpreting this provision does not define need as requiring a showing of necessity, but rather that the proposed use would be "expedient, reasonably convenient and useful to the public." *Lucky Stores, supra,* 270 Md. 513 at 527-528. For the reasons discussed in Part III.E. of this report, and based on the evidence of record, the Hearing Examiner finds that Petitioner has met its burden of demonstrating that a need exists for the proposed use to serve the population in the general neighborhood, considering the present availability of identical or similar uses to that neighborhood.

Based on the testimony and evidence of record, I conclude that Petitioner has not met its burden of proving, by a preponderance of the evidence, that the automobile filling station use it proposes would meet all of the specific and general requirements for the special exception. While Petitioner made many of the required showings, it has not made all of the required showings, and therefore the Petition should be denied. Nevertheless, if the Board of Appeals elects to grant the special exception, contrary to the Hearing Examiner's recommendation, I have provided a list of possible conditions for the Board to consider (in Appendix II).

V. RECOMMENDATION

Based on the foregoing analysis, I recommend that the Petition of Costco Wholesale Corporation, Board of Appeals No. S-2863, seeking a special exception, pursuant to §59-G-2.06 of the Zoning Ordinance, to allow an Automobile Filling Station at 11160 Veirs Mill Road, Silver Spring, Maryland (Lot N631, Wheaton Plaza-Parcel 10), also known as the Westfield Wheaton Mall, be DENIED.

Dated: December 12, 2014

Respectfully submitted,

_____

Martin L. Grossman
Hearing Examiner and Director
Office of Zoning and Administrative Hearings

APPENDIX I

SUMMARY OF THE COSTCO HEARING – S-2863

This summary of the hearing is organized into the following categories: opening statements, testimony in Petitioner's case-in-chief, testimony of supporting individuals, testimony of opposing groups, testimony of opposing individuals, testimony of those neither supporting nor opposing the petition, the Petitioner's rebuttal, the Opposition's surrebuttal and closing arguments. The hearing dates and the names of each witness are also indicated. *Where a witness was recalled on subsequent days in the case-in-chief, all of his testimony will be included under the first hearing day he testified (in order to keep all his testimony together), but this summary will note the new hearing date. The exception will be for rebuttal testimony and surrebuttal testimony, which will be summarized separately even though a number of those witnesses are the same as those previously called.* Because of the number of hearing dates required for this case (37), and the resultant volume of testimony (9,540 pages of testimony and argument), the Hearing Examiner has attempted to concentrate on the significant portions of the testimony in these summaries, rather than trying to capture everything that was said. However, a full summary of the opening statements was included to give the reader a good picture of the parties' views of the case.[1]

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[1] Where argument of counsel or rulings by the Hearing Examiner occur in the middle of a witness's testimony, they are set off by brackets ([. . .]) to indicate that the arguments and rulings are not part of the sworn testimony.

Costco Hearing Date List and Transcript Page Totals

HEARING DAY NO.	TRANSCRIPT DATE	TRANSCRIPT PAGES
1	April 26, 2013	281
2	May 1, 2013	252
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29	April 1, 2014	300
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31	May 1, 2014	174
32	May 8, 2014	311
33	May 12, 2014	247
34	May 20, 2014	318
35	May 22, 2014	186
36	May 29, 2014	199
37	September 19, 2014	129
	TOTAL TRANSCRIPTS = 37	**TOTAL PAGES = 9,540**

In the Beginning: Day 1 – April 26, 2013

The Hearing began in the COB Auditorium with counsel for the Applicant (Patricia Harris, Esq. and Michael Goecke, Esq.) and counsel for KHCA (Michele Rosenfeld, Esq.) present, as well as representatives of the SCGC (Abigail Adelman and Larry Silverman, Esq.[2]), KHCA (Danila Sheveiko, Donna Savage and Karen Cordry) and KVCA (Eleanor Duckett). Two other individual participants, Virginia Sheard and Clifford Scharman, spoke from the audience; the latter seeking only to ask questions, not to testify. Tr. 4/26/13, 120-122.

The proceedings were recorded, not only by a court reporter, but by a documentary maker, John Echave, of "Blue Lagoon Productions," who video-recorded much of the hearing. Applicant's counsel objected that they did not authorize the use of their images for commercial purposes. Their objection was noted, but since this is a public hearing, and there are no rules against video-recording as long as the hearing is not disrupted, the Hearing Examiner permitted it. Tr. 4/26/13, 17-22.

Both sides requested that the Hearing Examiner conduct a site visit, but the Hearing Examiner expressed his concerns about attempting one in this kind of situation, where so many are interested, but he would consider it. Tr. 4/26/13, 24-25.

After the Hearing Examiner explained procedures in this type of hearing and addressed preliminary matters, he read and distributed a list of 20 questions (Exhibit 105) he derived from reviewing the case file, and asked the parties to address them. Tr. 4/26/13, 28-39.

Opening Statements made by Petitioner, by SCGC and by KHCA

Pat Harris, Esq, for Petitioner (Tr. 4/26/13, 41-50):

Ms. Harris stated that "this case is about fact versus emotion." She pointed to "a very extensive record replete with in-depth, quantitative studies performed by the Applicant evidencing Costco's compliance with the special exception standards. On the other hand, you have a vocal minority of opponents who from day one, before even seeing the first study produced by Costco, have decided that they do not like this gas station. This position has not changed despite the overwhelming evidence in the record. Unfortunately, positions driven by emotion are not influenced by facts."

Ms. Harris noted that during the 2 1/2 year period between the original filing and present, the County Council has had several opportunities to stop the gas station on the site and they have not. According to Ms. Harris, larger gas stations are the market trend in the United States, and large stations in close proximity to residential uses are not unique either. There are examples of stations in California which have residential uses within 60 feet of a Costco gas station. This large volume of gas does not equate or translate into a large impact onto the community, partly because Costco employs state-of-the-art technology. This includes a vapor recovery device on

[2] Mr. Silverman does not have an attorney-client relationship with the SCGC, but is assisting SCGC in examining witnesses and providing his own testimony.

tanks to keep the gas from evaporating. "The reality is a gallon of gas at Costco is a cleaner, safer gallon . . . ."

Mr. Sullivan will testify regarding environmental impacts, and other Costco experts will testify. Dr. Ken Chase has determined that there will be no adverse effect on health, safety or welfare; Mr. Tom Flynn, will be testifying that the proposed filling station is expedient, reasonable, convenient and useful to the public and satisfies the needs requirements of 59G 1.24. Mr. Wes Guckert will testify that there is more than adequate traffic capacity to accommodate the station, that the station will not be a nuisance to the surrounding area, that the station will be safe and in harmony with the general character of the neighborhood in terms of parking and traffic and it will not create traffic hazards with respect to pedestrian or traffic circulation. Mr. Steve Gang, the land planner, will testify that the proposed use is wholly consistent with both the over-arching world of the Wheaton Sector Plan, as well as the very specific recommendations relating to this very auto centric mall site which is delineated as its own district within the Sector Plan. This determination actually conforms to what the staff report determined and also is consistent with the findings and determination of two of the five Planning Board members.

Although zoning is not done by plebiscite, Costco has received more than 5,000 postcards from community members that want the ability to buy economically-priced gas.

Applicant will begin with Mr. Erich Brann, the representative from Costco, who will be followed by Mr. Dan Duke, the civil engineer. Then Mr. Wes Guckert will address the traffic issues. David Sullivan will address the environmental concerns and issues. Mark Willard will then present testimony regarding the landscaping. Mr. Jim Agliata, the Westfield representative, will follow. Then the architect, Gina Volpicelli will testify, and Mr. Joe Cronyn will address property valuation. Dr. Ken Chase will be followed by Mr. Steve Gang, Applicant's land planner.

<u>Abigail Adelman, Chair of the Stop Costco Gas Coalition (Tr. 4/26/13, 50-56)</u>.

Ms. Adelman gave her opening under oath.

The Coalition was formed in October of 2012 with members drawn from both local communities and communities throughout the United States, all supporting the goal of protecting public health by advocating appropriate conditions for the location of mega gas stations. These new stations are the business model of the future. Their size creates concern about air pollution, hence, the need to establish adequate buffers between these installations and people who live, work and play nearby. The Stop Costco Gas Coalition has not retained counsel.

Mr. Larry Silverman, Esq. or Dr. Mark Adelman will cross-examine the Applicant's witnesses, and Mr. Silverman will deliver the Coalition's closing statement. Mr. Silverman will begin SCGC's presentation with an analysis of the Clean Air Act (CAA), including the various ways in which SCGC contends that the Applicant has misrepresented the CAA as it applies to the air quality or facilities such as this proposed mega gas station.

Also, Mr. Silverman will discuss the Applicant's engineering report. In particular, he will

review the lack of information on how Costco plans to construct and monitor the operation of the underground gasoline holding tanks and the lack of information on plans to monitor and contain events that might lead to cross-contamination of these tanks with the holding tanks that are part of Costco's storm water management system.

SCGC's filing on water resources in conjunction with its filing on the Applicant's engineering report explains why SCGC feels this application should be rejected on the grounds that its mode of operation is likely to subject the water resources of the region to additional risk of pollution. Danila Sheveiko, a Coalition member, and Diane Cameron of the Audubon Naturalist Society, will testify that this application is not in compliance with the Wheaton Sector Plan, as it fails to assure preservation of the existing green buffer area.

SCGC asserts that the process by which the Applicant was exempted from the requirement to file a pre-forest conversation plan was invalid and has consequences.

Ms. Patricia Mulready will discuss a lack of filing by the Applicant of an emergency and disaster plan. The Applicant must satisfy adequate public facilities requirements. The absence of a plan prevents those supervising first responders from conducting a careful review of the potential impacts on public facilities from the proposed mega gas station.

The Planning Board recommended denial of S-2863 based on non-compliance with the Wheaton Sector Plan and SCGC concurs. Dr. Mark Adelman will discuss parts of SCGC's rebuttal of the Applicant's land use report, including failure to conform with the Sector Plan, inherent conflicts between Costco's landscaping plans, their lack of a forest conservation plan and several factual errors as to conformity of the application with elements of the zoning code.

Switching topics, Dr. Adelman will discuss the applicant's traffic impact analysis, focusing on issues that were not addressed in the Applicant's filing. Of primary concern is the failure of the Applicant to consider traffic impacts within the mall from the siting configuration and mode of operation of the proposed gas station. These impacts will result in increased congestion in the parking lot and on the ring road around the gas station's proposed location. SCGC's presentation will include adverse impacts on air quality and public safety in the vicinity of the station.

We will also discuss how the proposed gas station will create a traffic nuisance adversely affecting residents of the Kensington Heights neighborhood. Ms. Abigail Adelman, Chair of the Coalition, will show that the applicant has not met the burden of proof for zoning code Section 59G 1.21(a)(8), that the proposed 16-nozzle, mega gas station, "will not adversely affect the health, safety, security, morals or general welfare of residents, visitors or workers in the area at the subject site irrespective of any adverse effects the use might have if established elsewhere in the zone."

SCGC contends that there is danger to public health from the proximal exposure to the evaporation fumes of fueling and the toxic pollutants, including particulate matter from vehicle tailpipe emissions, danger to those using the parking lots surrounding this mega gas station, to the health of nearby residents and to the medically fragile students at Steven Knolls School.

SCGC's concern and emphasis is on public health risks which in SCGC's opinion would be sufficient reason to deny S-2863.

Finally, Dr. Henry Cole, SCGC's expert on atmospheric sciences and air quality, will discuss in considerable detail air quality issues, including the types and concentrations of airborne pollutants associated with Costco's proposed mega gas station and their potential impact on people who live or frequently use the areas adjoining the proposed facility. Dr. Cole will also offer his expert opinion on the scope, accuracy and methodology provided in the applicant's reports on emissions, air quality and dispersion modeling, as well as the applicability to this case of EPA standards, regulations, guidance and policies on assessments of air pollution sources. SCGC's concludes that the Sullivan reports do not prove that the gas station can operate without an adverse effect on the health of nearby residents, visitors and workers. Dr. Cole's testimony will show that Mr. Sullivan's attempts to discount these deficiencies are without merit. SCGC asks that the special exception application be denied.

Michele Rosenfeld, Esq., on behalf of KHCA (Tr. 4/26/13, 56-62):

Ms. Rosenfeld noted that in 2010 there had been a zoning text amendment introduced that would allow the gas station to proceed by right, and that text amendment was not adopted.

Ms. Rosenfeld stated that the issues raised by the community organizations had not morphed over the years, but rather as time has passed and there has been more time to evaluate and study the special exception application, and the arguments and concerns have been cumulative. There are issues of health, traffic and Sector Plan conformance. Each independently, in fact, would justify denial of this case.

The zoning text amendment did establish a 300-foot setback from recreational uses for this particular application. She contends that the proposed 300-foot setback is inadequate to ensure compatibility and to avoid nuisance issues between the proposed gas station and the neighborhood. KHCA will demonstrate that more than a 300-foot setback would be required to ensure the health of adjoining residents, the students at the Stephen Knolls School, many with significant, long-term medical conditions, including respiratory conditions, and at the Kenmont Pool.

An automobile filling station must prove that there's a local need for the facility. As in Costco's first submission, the Applicant mis-states the legal standard governing how need is measured. The Applicant's statement in support of its application erroneously quotes the zoning ordinance, while the correct legal standard is whether the proposed use is available to the neighborhood. KHCA submits that the needs analysis provided by the Applicant, in fact, evaluates need under the standard mistakenly quoted by the Applicant and not under the correct rubric and has not met its burden of proof with respect to this standard. In addition to showing that this use is available to the neighborhood by virtue of the nearby Beltsville Costco gas station, KHCA intends to show that there is no absolute need for the automobile filling station, specifically, that there is an ample supply of cheap gasoline in the neighborhood and that the proposed use does not serve any unmet need.

Park and Planning staff concluded that the proposed automobile filling station prevents significant, non-inherent adverse effects, including, but not limited to, extensive vehicular queuing and idling at the site. KHCA intends to show the adverse impacts on the neighborhood that result from these non-inherent, adverse effects to justify denial of this application.

Furthermore, KHCA agrees with and will provide supplemental testimony in support of the Planning Board's determination that the proposed use violates the Wheaton Sector Plan recommendations. KHCA argues that Applicant cannot meet §59-G-1.21(a)(3) of the general conditions, given the Board's Master Plan findings, and that the proposed use will not be in harmony with the general character of the neighborhood, will be detrimental to the use, peaceful enjoyment and economic value of the surrounding properties, resulting from such impacts as traffic and parking conditions and the physical activity and intensity of use at this site.

Finally, the Applicant must prove by preponderance of the evidence that the proposed use will not adversely affect the health of residents, visitors or workers in the area of the general site. KHCA argues that that standard goes beyond just meeting EPA Clean Air Act standards. Moreover, KHCA intends to show that the Applicant has not demonstrated that it has used the proper modeling to accurately show the impact of the station on air quality and that the applicant has failed to prove that the proposed use will not have an adverse effect on the nearby residents.

Those adversely affected visitors to the area of the subject site include the students at the Stephen Knolls School who also frequent Wheaton Mall on school outings. Many of these students are dependent on oxygen and/or suffer from severe respiratory medical conditions and are particularly susceptible to the adverse health effects of pollutants that will be generated by this use. The fact that there may be other large stations in other jurisdictions is irrelevant to this case.

In summary, KHCA expects to prove on multiple legal and factual grounds that the Applicant has failed to meet its burden of proof in this case and KHCA will ask that the special exception be denied.

Petitioner's Case-in-Chief

1. Erich Brann (Tr. 4/26/13, 64-192; Tr. 6/19/13, 100; Tr. 7/30/13, 14-15; Tr. 7/31/13, 173-175; Tr. 8/2/13, 178-179; Tr. 9/9/13, 43-59, 91-92; Tr. 9/23/13, 197; Tr. 10/21/13, 217-221); Tr. 2/25/14, 183-185):

Erich Brann testified that he is the director of real estate development for Costco Wholesale. Costco is a wholesale club, and is the third largest retailer in the world. Costco accepts memberships from all people. Costco has 10 warehouses in Maryland, and 8 of them have gas stations. Over 463,000 households are Costco members in the state of Maryland. There are approximately 138,000 memberships in Montgomery County alone. There are two basic memberships, one is $55, and an executive membership is $110. You have to be a member in order to use the services of Costco, except for the pharmacy and the food court. You do have to be a member to utilize the gas station. Tr. 4/26/13, 67-68.

Costco gas stations are very busy, and typically offer lower prices. Maryland has 16 total gas suppliers, and Costco will buy its gas from whoever has the best price that week.

The Wheaton store on a weekly basis will see about 27,000 transactions occur. Costco uses oversized carts. The majority of members arrive in their cars. There are 389 surface parking spaces that are allocated for Costco, but any mall shopper can use these spaces. Those would be standard Costco, 10-foot by 18-foot spaces. To the east of the warehouse building is a the 3-story parking structure. On the second floor of the parking deck, there are 349 spaces anyone can use, and Costco built a ramp that goes directly from the Costco warehouse to the second floor, so a shopper can push his shopping cart directly across. The parking deck also contains a third floor that is under-utilized, and elevators were installed that will accept up to three Costco shopping carts. Tr. 4/26/13, 72-73.

The warehouse has only been open less than a month (opened April 10, 2013), and the surface lot has been full pretty much every day; however, members are starting to learn about the parking deck and are utilizing it more. It was a little over half full the other day when it was counted. The amount of surface parking will not diminish when the gas station is constructed because the old proposed location will be paved and utilized for parking. Tr. 4/26/13, 75-76.

Of the 138,000 memberships in Montgomery County, 38,000 members buy gas from Costco. They all most go outside the County because there is no Costco gas station within the County. If the subject gas station is approved, Mr. Brann believes that these members will be doing their shopping and purchasing their gasoline from the Wheaton site as opposed to going to these out-of-County locations. Tr. 4/26/13, 77.

The Costco warehouse is located where the former Hechts building was in the mall. The building itself is a little over 151,000 square feet. Costco has a 20-year lease with options to extend it 40 years. Tr. 4/26/13, 79-80.

Gasoline is a popular convenience for members. Typically members will come in and get gas and then go into the warehouse. In the Woodmoore Towne Center, in Lanham, Maryland, the Costco gas station is about 280 feet from the nearest residence. Approximately 82 percent of Costco warehouses in the U.S. have gas stations. One in California is about 60 feet away from a residential property. One has never been denied because of health effects. Tr. 4/26/13, 83-84.

Costco's gas stations are unique that in all transactions are done at the pump. There are no cash transactions. Costco gas stations don't sell anything but gasoline. People come in, they swipe their Costco cards, swipe their payment card. It's either done through the Costco American Express card, a debit card or a Costco gift card. The process is very convenient and quick. Tr. 4/26/13, 85.

Costco has safety and environmental standards that meet and exceed all of the Maryland state requirements. All Costco gas stations are designed to the same standards, sufficient for seismic areas in California. Costco also provides an arid permeator on the underground tank vents and that, as David Sullivan will testify to later, means that the air coming out of the tank vents is 98 percent pure. Most non-Costco stations have only what the state requires as phase I

and phase II venting. Stage I is at the tanker truck, when the tanker truck pulls up and fills up. Stage II is at the pump nozzle where gas is pumped into the car. The stage II pumps a lot of air into the underground tanks and those vent at any time with no restrictions. Costco puts the arid permeator on it which keeps the hydrocarbons from going out with the vented air. So all the venting out of the tanks is air. Tr. 4/26/13, 85-86.

Costco is one of the few stations that has attendants at the pumps. They are not behind the counter accepting payments. They assist the members. In fact, the attendant responsibilities are to assure member safety, educate members the use of the equipment, assist members and answer their questions, direct traffic, keep the station very clean (as mentioned in the manual) and to perform general maintenance. Tr. 4/26/13, 87.

Costco complies with all the state laws and the national laws. All the tanks are double-walled tanks. The interstitial space in between the tanks is filled in with a saline solution. There are monitors in the interstitial space on the outside of the tank and on the inside of the tank. If a leak occurs, they are notified and an alarm goes off if 1/10 of a gallon leaks from the underground tank. The safety requirement is 10 gallons, so Costco more than complies with the requirement. All the piping to the tanks is double-walled. The sumps are double-walled. The sumps are also equipped with ancillary fire suppression systems in case of an emergency. And then the hoses are actually long hoses so the customer can fill a car from either side. Leak monitors will set off an alarm and they will shut down the entire system if an alarm goes off, and the system cannot be turned back on until the leak or the monitor is resolved.

The station is designed so that he drainage in the area drains toward one inlet over in the corner of the station. That inlet goes into a oil/water separator, which can be shut down in case of a spill. There are also rubber mats to cover the inlets. The gas station area holds in excess of a tanker truck, if there was to be such a catastrophic accident, so that it can be cleaned up as a surface spill rather than getting into the drainage system. The biggest difference between Costco and other stations is that it has trained attendants on the site. They help make sure that people shut their engines off, that people aren't smoking at the gas station and that people are paying attention to what's going on. They're also there to assist people if they need assistance with the pumps. Tr. 4/26/13, 87-93.

Mr. Brann described the day-to-day operations of the gas station. The first thing that happens is the trained attendants get to the site and they check all the pumps. They run almost a daily check to make sure that the card readers have not been tampered with. They make sure everything is clean and ready to go. They check inventories and then they start to open the gas station. It opens at approximately 6:00 a.m. seven days a week, and the gas station typically runs for about an hour after the warehouse closes, until around 9:30 p.m. weekdays and until 7:00 p.m. on weekends. Deliveries are handled by both the truck driver that comes in and the attendant. The deliveries cannot be made unless there is a trained attendant on site. In fact, the attendant has to unlock the tank, after checking the manifest on the deliveries. They make sure that the tanks will accept the amount of delivery that's being brought in and that it is the right type of fuel going into the right tank. The truck comes in, pulls up. There is a special area next to the tanks where he pulls up. He is not in the line with the human traffic. The truck is offloaded and then the truck goes away. It takes about 45 minutes to offload the fuel, and during that time the truck is shut

down. Deliveries are made six days a week, Monday through Saturday. Occasionally, there are deliveries on Sundays also, if Saturday sales were high or if there's an inclement weather event happening. There will be anywhere from one to five deliveries a day. Tr. 4/26/13, 93-95. The fleet of trucks that are utilized are all clean diesel certified vehicles. They pull up next to the gas station on the far western side in the aisle, outside the customer stacking area, offload their fuel and they depart by heading to the north and coming out of the parking area. Clean diesel means that the exhaust is to a point that in a congested area the air coming out of the tailpipe is cleaner than the air going into the intake. Tr. 4/26/13, 98-100.

A customer coming into the Costco gas station enters from the main road on the south end of the site and turns north into the gas station area. The traffic in a Costco gas station is one-way traffic only. They come in that single entrance on the south, pick the line they want to get into, pull up to the pump. They swipe their Costco card. They swipe their bank card and pump their gas. It takes 2 1/2, 3 minutes from the purchase. And then they pull up to the north and exit the gas station area and either find a parking spot and go into Costco and shop or they leave the mall site and go on wherever they may. Tr. 4/26/13, 96-98.

One of the conditions of approval that was recommended by Technical Staff was that one employee should be directing traffic if the queuing of the vehicles were to block the entrance from the ring road into the queuing area. Typically Costco will have one associate or one employee at the gas station in the morning and then, as volumes increase throughout the day, a second employee will be out there. Costco would bring a third employee from the warehouse if needed. All Costco gas station attendants carry both a radio and a cordless phone so that they can be in touch with the warehouse if they needed at any given moment to call an employee out to help direct traffic at the ring road. Even if the queue lines are within the special exception area, it is possible to have two attendants assisting. Tr. 4/26/13, 102.

Actual anticipated sales from the gas station are 10 million gallons a year. Costco utilizes a higher figure, 12 million gallons a year, as a worst case scenario for environmental testing studies, because the highest gas sales on the east coast in the Sterling, Virginia, location were at 12 million gallons. The Beltsville station did 9 million last year, and Columbia did 9 1/2 million. Tr. 4/26/13, 102-103.

Mr. Brann testified that Costco met numerous times with the community about its plans for the gas station, and he described those meetings. Tr. 4/26/13, 103-107.

Costco's original site was in the southwest corner of the ring road. The zoning text amendment that was passed by the Council precluded that because it was within 300 feet of the Kenmont Swim Club. The rest of the site is very limited just by the nature of how malls work. There are areas of control where that particular tenant has control over that area and what happens to that area. In addition, the Sector Plan actually took the areas of the mall outside the ring road along Veirs Mill Road and changed that zone to a CR zone, which would make it much more difficult to build a gas station. There is a park on Reedie Drive, and the 300-foot setback touches that property line. Also, the proximity to the warehouse itself important in terms of the gas station operation. The warehouse opened April 10, 2013. As with other Costcos, they experience a surge in the very beginning because everybody is happy to come visit and see the new store. The surge will typically dissipate by the end of the 90 days. Any traffic count done

now would reflect the surge. Tr. 4/26/13, 107-110.

According to Mr. Brann, for every dollar spent at a gas station, there's an additional 30 cents spent in the warehouse. So the gas station is something that does bring sales up in the warehouse itself. Tr. 4/26/13, 112.

Mr. Brann further testified that Costco was agreeable to Technical Staff's recommended Conditions 1-4; 6; the part of 7 that requires fuel delivery vehicles to be turned off during off-loading fuel, but not the part that limits deliveries to 5 per day, Monday through Friday; 8; 9 is okay with Costco, but this is an area controlled by Westfield, not Costco; 10; 11; 12 is okay with Costco, but this is an area controlled by Westfield, not Costco; 13; 14; and 15. Costco disagrees with proposed condition 5, since employees should not be limited to less than 3, if needed for safe operations. Costco also disagrees with limiting deliveries to five per day and only on weekdays. At certain times may have more than five in one day or in the event of a weather event such as Hurricane Sandy that came up the east cost, the tanks should be kept full (FEMA actually utilized Costco as a center for getting their fuel and the water and other things that they needed.) He stated that a fair daily limit would probably be seven deliveries a day. Also Saturday is Costco's peak sales day, so deliveries must be made on Saturdays. Peak gas station hours are usually late afternoon or early evening. Costco's highest sales day by far is Saturday, but the peak generally occurs sometime between 3:00 and 6:00 p.m. Tr. 4/26/13, 110-117.

According to Mr. Brann, if the queuing were to extend into the ring road, Costco's employee would waive people off and ask them to come back later. Costco never operates a gas station without a warehouse. Tr. 4/26/13, 117-118.

On cross-examination, Mr. Brann admitted that the Costco gas station at Woodmore Towne Center in Lanham, Maryland had been allowed as a matter of right under their zoning rules, which are not the same as those governing here. However, he cited it as an example of another community that has approved gas in an area that has residential as part of a mixed use project. Tr. 4/26/13, 122-123.

Around 80 parking spaces will be displaced by the new station, and they will be relocated here in the southwestern quadrant where the grass area is. Tr. 4/26/13, 124-125. The entrance to the Costco warehouse is actually inside the mall. There is no outside entrance. Tr. 4/26/13, 127.

The nearest structure to the proposed gas station will be the Costco warehouse, approximately 140 feet from the line of the special exception area. The nearest residential would be directly to the south, at a distance of around 135 to 140 feet to the property line, but Costco will verify that distance. Tr. 4/26/13, 129.

When a fuel tanker is off-loading fuel, it will be parked partially within the drive aisle. Costco does not try to manage the traffic in that area since the truck is a static, stationary object. Costco expects people to be able to get around the truck. "There's plenty of room in the drive aisle to be able navigate the truck." Tr. 4/26/13, 136-137. The tanker delivery vehicles are not owned by Costco. Tr. 4/26/13, 148.

As to the amount of gas sold in the Sterling station, the estimates for Sterling for the fiscal year ending in the fall of 2012 were 13.9 million gallons. If the gas station is not approved, Costco will not discontinue any of its charitable programs; nor will it shut down the warehouse, which remains self-sufficient. Tr. 4/26/13, 150-152.

Costco has the Veeder Group company monitoring its stations 24 hours a day, seven days a week. They also have observation wells. They are very similar to monitoring wells; it is a steel well and they are put in the corners of the tank, so if the monitoring system indicates a leak, they can take a sample of the groundwater immediately to find out what's going on. Tr. 4/26/13, 165-166.

The typical Costco customer is going to rely on a personal vehicle. Occasionally people would use the Metro or employees would use the Metro. Costco doesn't dictate how people get to or from the warehouse. Tr. 4/26/13, 175-176.

An emergency could be many different things. Costco has different scenarios of what to do in the case of many different events. It just depends on what the emergency is. Tr. 4/26/13, 182.

On *Hearing Day 7*, Mr. Brann noted that use of the new technology diesel engines (NTDE), otherwise known as clean diesel engines, is actually a State of Maryland requirement, and that Applicant wouldn't object to a proposed condition that all the fuel trucks supplying the Costco station have this clean technology. Tr. 6/19/13, 100.

On Hearing Day 9, Mr. Brann clarified that the original engineering report had a typographical error regarding the amount of underground fuel storage. He sated that there would be four underground tanks. Two would each hold 30,000-gallons of regular unleaded; one would hold 30,000 gallons of premium fuel; and one would hold 1500-gallons of a detergent additive when allowed by the State of Maryland. Tr. 7/30/13, 14-15.

On Hearing Day 10, Mr. Brann noted that Costco was handing out a flyer at the warehouse to help people find the parking deck (Exhibit 223). All three decks of the parking garage comprise about 1,000 spaces, and there are around 457 spaces on the surface lot. The second level of the parking deck and the area that Costco considers its preferred area in the lot are striped at 10-foot wide spaces. Tr. 7/31/13, 173-175.

On Hearing Day 11, Mr. Brann confirmed that Costco has an agreement with Westfield to maintain the green wall and that he was agreeable to a special exception condition so specifying. Tr. 8/2/13, 178-179.

On Hearing Day 12, Mr. Brann indicated that the DPS parking waiver included in Exhibit 90(c) requires the overall parking for the mall to be 5,998 parking spaces, based on 4.0 spaces per thousand square feet. According to Westfield, there are 6,072 parking spaces provided for the mall, which is 4.01 per thousand square feet. Tr. 9/9/13, 43-59. Mr. Brann indicated that Costco would have no objection to a special exception condition that the plantings and the stormwater management facility be maintained. Tr. 9/9/13, 91-92.

On Hearing Day 15, Mr. Brann indicated that if it's a feasible method of construction, Costco is willing to have the proposed pedestrian path constructed as a permeable surface. Tr. 9/23/13, 197.

On Hearing Day 17, Mr. Brann described the garage under the Costco warehouse, which has no direct access to Costco since it is specified as parking for Dick's Sporting Goods. He also noted that the garage just east of the warehouse has a pedestrian exit right onto the mall at the Costco level, and there is a ramp that goes from the level Costco is on directly to the second level of the parking deck. There are elevators, as well. The garage can be accessed by making either a left or a right from the ring road and entering on the southeastern side of the garage. Tr. 10/21/13, 217-221.

On Hearing Day 27, Mr. Brann stated that the intended green wall along the southern ring road would not impede pedestrian access to the mall. Tr. 2/25/14, 183-185.

2. Dan Duke (Tr. 4/26/13, 193-276; Tr. 8/2/13, 89-221):

Dan Duke testified as an expert in civil engineering. His firm, Boehler Engineering, was responsible for preparing the engineering plans and documents that were submitted with the application. Those documents include a field survey, the NRI-FSD plan, the forest conservation plan exemption, the special exception plats, the stormwater management concept plans and calculations and various other exhibits and studies.

Mr. Duke described the mall, its access points and the location of the special exception site. The proposed Costco fill station is within the mall property. Veirs Mill Road is on the east, along with Georgia Avenue. University Boulevard runs in a northeast direction. There are residentially zoned properties to the west and south. There are a total of five access points to the overall mall property. There are three on the Veirs Mill Road side, one by the Wendy's, one by the garage and then a third that is actually part of the CVS parcel. There is an inner-parcel connection between the CVS and the mall. On the north side of the mall, off University Boulevard, there are two more access points, one by the office building and a second behind the Giant. The Costco warehouse has been constructed, and the fuel station will be located just beyond the Costco loading dock area, just to the west of the Costco warehouse. The Costco fuel station will be an island within the mall property, surrounded by the mall itself. The Costco warehouse is on the east, parking directly to the north, a drive aisle and soon-to-be parking to the west and the ring road to the south. There is a forested buffer that is located on the south of the mall property, as well as on the west of the mall property. Tr. 4/26/13, 198-199.

Mr. Duke further testified regarding the regulations of the C-2 zone. The first requirement is a 10-foot setback from the property line adjoining any structure. That is measured from the main roads to the actual fuel station itself. The distances are from University Boulevard to the fuel canopy, which is 1,354 feet and from Veirs Mill Road to the canopy, which is 1,513 feet. The next criterion is the side and rear yard setbacks. There are residential R-60 zones to Costco's side and rear, so the requirements are 20 feet and 18 feet. The south or rear setback

from the canopy structure to the property line is 258 feet. On the west side, from the kiosk that's a little attendant's booth, to the property line on the west side is 379 feet. The next C-2 Code criterion is the minimum green space on the property, based on the overall mall property itself. The minimal requirement is 10 percent. The overall site provides 13.6 percent. The next criterion is parking. The parking requirement for the fuel station is basically for employees. They provided one space, which is an ADA space. That's within the special exception area and there are also additional spaces all around for the other station employees. Tr. 4/26/13, 200-201.

The special exception will be located at least 300 feet from the lot line of any public or private school, park, playground, daycare center or outdoor control entertainment or recreational use, as required by Zoning Text Amendment 12-07. On the west, from the Kenmont Swim Club to the special exception line is 375 feet. The other nearby facility that falls into that category is the Stephen Knolls School. From the corner of the special exception area to the Stephen Knolls School property line is 875 feet. Going south, from the special exception line to the nearest residential property line is 118 feet and to the west from the special exception line to the nearest residential property line is 331 feet. The residential properties are abutting the mall property line. Between the special exception area and the residential properties, there is a forested buffer that exists today. The forested buffer is going to be augmented with a proposed screening wall on the western portion of the property that runs just behind the curb line and goes around the curve beyond the loading zone for the Costco warehouse, as reflected on Exhibit 86(i). There's also a significant amount of topography between the special exception area and the residential properties. The station is at an elevation of 10 to 30 feet higher than the residential properties. Tr. 4/26/13, 202-209.

The filling station will not have a retail sales component, and there will be no products displayed on site. The subject property is not a corner lot, and the gasoline pumps and service appliances will be located at least 10 feet behind any building line because there is no real building line on an island in the mall. There's no requirement for a 20-foot separation between the driveways because the gas station will not be on a street. It's internal to the property. Since the site is not located on a street as defined by the zoning ordinance, the drive aisles access points are not required to be perpendicular, but they are. There will be no service store, repairs, spray paint operations or body or fender repairs conducted on the site. Parked vehicles will not overhang the right-of-way. No automobile, truck or trailer rental lots or car washes are proposed at the special exception. The site is not located within the rural village overlay zone. Tr. 4/26/13, 210-212.

The screening wall be mounted on “sonotubes” drilled into the ground. There's no earth movement required to install the green wall. Mr. Duke also described the path the delivery trucks will follow. He mentioned that a new pedestrian path is going to be installed just south of the islands on the east-west access road that that will take pedestrians to the parking area beyond the fuel station layout. That is reflected in a striped area on Exhibit 54(i). Tr. 4/26/13, 213-216.

The drive aisle is 24 feet wide, which is a very wide drive aisle. The parking spaces are 10 feet wide, which is wide as well. When the trucks park to unload gas, the minimum amount of space that will be provided in the drive aisle is 16 feet, and 16 feet is sufficient for a vehicle parked within one of the spaces to pull out and be able to exit the space. Right now within the

parking area where the fuel station is going to go, there are 109 parking spaces. Of those 109 spaces, seven will be put back in place after the fuel station goes into place. On the adjacent pad where it's grass right now, there are a total of 162 parking spaces that will be proposed. So the number of parking spaces on the mall will actually increase if the gas station is approved. Tr. 4/26/13, 217-218.

Mr. Duke testified that the stormwater management concept plan was approved by the Department of Permitting Services on December 11, 2012. That is approval No. 241647 (Exhibit 54(a)). The corresponding stormwater management plan (Exhibit 103). In the course of permitting for the fuel station, a sediment control plan will be prepared for the fuel station improvements that will include sediment control devices such as silt fence, stone construction entrances and the protection of the property. The stormwater management concept has been prepared in accordance with environmental site design criteria. There are two fire retention areas that are located on the south side of the site labeled on the plans as ESD-1 and ESD-2. In addition to those facilities, the area underneath the canopy will drain to a Costco required oil/water separator. That is a Costco-specific device that will be provided for the area that drains underneath the canopy. In addition to that, there is another County-required device, a second oil and water separator that is provided. It goes through those two devices or through the bioretention areas. It leaves those areas via pipes and then it goes through two more systems. One system is located to the west that's actually already installed, it was part of the overall development. That water drains into another filter and pipe storage system and then there is yet another system that's actually already installed that was located just to the south of the loading bays that drains more of the site. So there are multiple levels of stormwater management treatment that the water goes through. The Costco requirement is above and beyond what the County would require. All the water from the special exception area will flow to the Wheaton branch regional facility. None of the water from the special exception area goes to Kensington. Within the Wheaton branch, there is a regional stormwater management facility that provides quantity control. Before the warehouse was there, all the water in this area flowed out to the Kensington branch, and Costco redirected the water away from the Kensington branch. Tr. 4/26/13, 218-221.

According to Mr. Duke, the application did not require preparation on the preliminary forest conservation plan because forest conservation plan exemption No. 42013053(e) was granted by M-NCPPC, Park and Planning, on November 9, 2012. That forest conservation plan exemption was specifically only for the subject special exception area. The NRI/FSD with the exemption stamp was marked Exhibit 104. The property is exempt from forest conservation requirements because, one, it is an existing, developed property which does not require subdivision plans. Two, it does not propose removing more than 5,000 square feet of forest. And, three, it does not affect any forest in the stream buffer. Tr. 4/26/13, 222-227.

In terms of sustainability, the Wheaton Sector Plan, pages 73 and 74, emphasizes sustainability for the Wheaton Sector Plan area. There are several elements that comply with that requirement. First, the site was designed utilizing an environmental site science technique for stormwater management to decrease runoff from the special exception area. Another item is the forested buffer was retained and that forested buffer will be enhanced with additional landscaping. Within the stormwater management areas, there are going to be new and additional

plantings that are provided on site. And given the stormwater management and the plantings, there's actually a decrease in the impervious area on the site. The amount of green space within the special exception area goes up by about 900 square feet. The overall mall actually exceeds the green area requirement for the C-2 zone. 10 percent is required, 13.6 is provided. Tr. 4/26/13, 227-228.

Mr. Duke further testified that the property will be served by adequate public facilities. During the permeating phase, a new site utility plan will be submitted to the water and sewer providers. The site will be serviced by a one-inch line. There will be a new fire hydrant that is proposed to provide for adequate fire coverage. A new 6-inch sanitary lateral connection will be provided to the kiosk facility and all of these utilities exist within the mall property today. The electric, power, natural gas, phone services are all also available within the mall and will be provided to the filling station as needed. Since this is not a residential use, there are no school impact issues. This site is located within two miles of a police station at 2300 Randolph Road and it is also within half a mile of the fire and rescue station at the corner of Blue Ridge Ave and Grandview Ave. Montgomery County Fire and Rescue received the plan and determined that it was sufficient. And I would also note that the fuel station itself will be required to comply with any and all state, Federal and local requirements and permits. In Mr. Duke's professional opinion the special exception satisfies all applicable code requirements. Tr. 4/26/13, 228-229.

On cross-examination, Mr. Duke was questioned about the elevations on the site, about the installation of the screening wall and about the pedestrian path along the southern ring road that had been in the earlier plans, but was omitted from the plans when Mr. Duke testified.[3] Mr. Duke indicated that there would be parallel parking along the ring road. He did not know why the pedestrian path had been removed from the plans. Tr. 4/26/13, 230-244.

In response to questions about the amount of room for the refueling trucks, Mr. Duke indicated that the trucks were 8 feet wide. Tr. 4/26/13, 245-247.

Mr. Duke was further cross-examined about stormwater management. He did not feel that the presence of underground gas tanks would prevent the addition of more water retention facilities if needed in the future. He also opined that this project, assuming that it is approved exactly as requested, will improve the stormwater management situation here and will reduce the likelihood of flooding or stormwater runoff from the site. It is consistent with all applicable regulations. Tr. 4/26/13, 263-272.

On Hearing Day 11(August 2, 2013), Mr. Duke returned to the stand. Tr. 8/2/13, 89-221. Mr. Duke testified outlining Petitioner's latest changes to the special exception plans (Exhibits 229 through 238). He noted that the special exception area has not changed and the pump configuration has not changed. The curb alignment around the station itself in a few areas has been modified, which he detailed. The primary purpose of the changes was to facilitate greater ease of entering/exit for the fuel delivery trucks and for vehicles parked across the drive aisle. There will be the same net amount of green space. The concrete pad that is over the tanks will be expanded, the primary purpose being to give fuel operators flexibility when they actually

[3] Subsequent revisions to the plans added a modified pedestrian path back along the southern ring road. Exhibits 233(a) through (d).

place those tanks, to give them a greater space and greater leeway to place those tanks within that concrete pad. Lastly, within the special exception area, a series of bollards and a chain were placed on the eastern side. The special exception plan itself has also been modified to reflect the addition of the five-foot wide pedestrian path that is outside of the special exception area, and restriping of the ring road to accommodate it. Mr. Duke opined that these changes are an improvement because the drive aisle was increased in width to 30 feet. With an eight-foot truck parked, it will leave a 22 feet of drive aisle space between the truck and the parking space located to the west of the fuel pad area. The standard drive aisle width is 20 feet, so it will actually exceed the minimum width requirement. There is also adequate room for the delivery truck to make the necessary turn into the drive aisle and to then position itself at the gas unloading spot. There's more than adequate site lines for vehicles from the ring road into the site and from that western drive aisle exiting the site as well. Tr. 8/2/13, 89-94.

Under the new plans (Exhibits 233(a) through (d)), a five-foot wide, concrete, elevated, pedestrian path will be installed behind the curb, starting from the area in front of Target that ties into an existing sidewalk and running along the eastbound lanes of the ring road, continuing in front of the Costco store itself, and terminating at the crosswalk where the Stephen Knolls School is located. The ring road's width will be reduced accordingly, but the parallel parking spaces will be retained at a reduced width of about 7 feet along most of the road. In his opinion, the sidewalk will meet all the ADA code compliance in terms of widths and grade, and will be very safe for pedestrians. On the eastern end, past the Stephen Knolls School, there will be a crosswalk across the ring road and a sidewalk/crosswalk/handicap ramp system that takes you through the perimeter of the Westfield Mall up to the Metro station. None of the forested buffer or the trees will be affected by the pedestrian path, nor will the construction of the pedestrian path in any way interfere with the existing forest buffer. The green wall will be shifted about a foot-and-a-half closer to the sidewalk in order to get it as far away from the forested buffer as possible. The green wall will be mounted on drilled sonotube pilings. A tube one foot four inches in diameter is drilled it into the ground every 8 feet. A post is inserted, the tube is filled up with concrete, and then panels are placed in between. He opined that he construction of the green wall will not in any way adversely affect the forest buffer. Tr. 8/2/13, 94-101.

Mr. Duke further testified that he evaluated the turning radius of the trucks going into the Costco warehouse loading dock (Exhibit 232(b)), and found that the turning radius is adequate and that the proposed removable bollards would not interfere with the trucks. Tr. 8/2/13, 101-102.

Danila Sheveiko cross-examined Mr. Duke with regard to forest conservation matters. 8/2/13, 103-168. Initially, Mr. Duke clarified that the forest conservation exemption, approved by Technical Staff on November 9, 2012, for the current site, is numbered 42013053E (Exhibit 104). Although the typed version ends in a 2E, the actual approval number is the 3E. A new exemption was required when the location of the proposed gas station was changed. Tr. 8/2/13, 103-117.

Mr. Duke identified Silver Creek on the extreme southwest corner of his NRI/FSD. He noted that no forest was disturbed. The 1.29-acre area of disturbance is limited to the actual special exception area. He said that Technical Staff agreed that just drilling the 97 tubes for the

wall doesn't count as true disturbance. The portion of the forested green buffer that is immediately adjacent to the guardrail and the ring road is not actually considered forest. Just having a tree there doesn't make it a forest canopy. He noted that the staff report, dated February 28th, 2013, states that this wall can be installed while still meeting the conditions of the forest conservation exemption. The Hearing Examiner explained that the question of whether Petitioner should have a forest conservation plan is not technically before him since an exemption was granted by Technical Staff. That is a matter for the Planning Board and the Technical Staff, and if there is one required by them, then that's something different, but if there's not, that's their issue. It's the Planning Board that approves preliminary and final forest conservation plans. It's not the Board of Appeals or the Hearing Examiner. Tr. 8/2/13, 117-141.

New planting plans were introduced as Exhibit Nos. 241(a) through 241(e). L1.01 is Exhibit 241(a), and then L1.02 is 241(b), and then L1.03 will be Exhibit 241(c), and L1.04 will be Exhibit 241(d), and L1.05 will be Exhibit 241(e). Tr. 8/2/13, 148. Mr. Duke noted that the original 26E forest stand delineation that was approved by Technical Staff was not required to label Silver Creek as a stream. At the time that approval was granted, it was determined that it was not a stream. They later changed their minds. Mr. Sheveiko argued that a forest conservation plan is indeed required, and the Hearing Examiner reminded him that that's something he'd have to take up with the Planning Board, not with the Board of Appeals or the Hearing Examiner. Tr. 8/2/13, 155-168.

Ms. Rosenfeld then cross-examined regarding details of the revised special exception plans. Mr. Duke stated that the bollards would not have to be removed except in unusual circumstances, such as delivery of a new air-conditioning unit. Tr. 8/2/13, 168-193. Mr. Duke said it was his understanding that Costco would pay for maintaining the wall. [Mr. Brann confirmed that Costco has an agreement with Westfield to do so and he was agreeable to a special exception condition so specifying.] Tr. 8/2/13, 178-179. Mr. Duke agreed that the existing green buffer along the property's southern edge between the residential community and the mall ring road was broader than just the forest conservation area, but he indicated that no tree removal will be needed. Tr. 8/2/13, 192-193.

Dr Adelman asked Mr. Duke whether the change from 20,000-gallon to 30,000-gallon tanks give Costco the capacity, should sales warrant it, to sell much more than 12 million gallons a year, but Mr. Duke could not answer that question. Tr. 8/2/13, 198-199. Mr. Duke also indicated he was not aware of whether or not there was any study that addressed the underground pollutants or lack thereof. Tr. 8/2/13, 203-204. Mr. Duke indicated that there would be handicap ramps on both sides of the path, but presently none are planned in-between. There is no technical reason preventing them from being be added. Tr. 8/2/13, 205-208.

On re-direct, Mr. Duke indicated that the trucks currently unloading at the Costco warehouse docks have to make the same maneuvers they will have to make if the gas station is approved. Tr. 8/2/13, 209-213.

3. Wes Guckert (Tr. 5/1/13, 18-250; Tr. 5/6/13, 113-155; Tr. 5/23/13, 254-272; Tr. 6/4/13, 40-84):

On Hearing Day 2 (May 1, 2013), Wes Guckert testified as an expert in traffic

engineering and transportation planning. Mr. Guckert is a traffic and transportation planner employed by the Traffic Group and has worked on development and redevelopment at the Wheaton Mall site for approximately the last 28 years. Tr. 5/1/13, 18-20, 22. Mr. Guckert testified that Costco's special exception in this case meets the following zoning requirements: 1) 59-G- 1.21(a)(4) the use will be in harmony with the general character of the neighborhood considering traffic and parking conditions; 2) 59G-1.21(a)(9) the station will be served by adequate public services and facilities, including public roads; 3) 59-G-1.2(a)(9)(C) the station will not reduce the safety of vehicular or pedestrian traffic on public roads; 4) 59-G-2.06(a)(2) the use of the proposed location will not create a traffic hazard or traffic nuisance because of its location in relation to similar uses, necessity of turning movements in relation to its access for public roads or intersections or its location in relation to other buildings or proposed buildings on or near the site and the traffic pattern from such buildings or by reasons of its location near vehicular pedestrian entrance or crossing to a public or private school, park, playground or hospital or other public use or place of public assembly; 5) Section 59-G-1.21(a)(9) the site already has a valid adequate public facilities determination. Tr. 5/1/13, 20-22.

Mr. Guckert explained the determination by the Department of Permitting Services in November of 2012, that, excluding the proposed gas station, there is currently 183,000 square feet of development space available on the Wheaton Mall parcel (Exhibit 86(b)). He explained that when the property went through Adequate Public Facilities (APF) approval, the developer and the County worked together to set up the development to allow the additional development and redevelopment to occur through the local area transportation program. In reviewing local area transportation, Mr. Guckert testified that he looked at existing traffic (determined via traffic counts), background traffic (determined by the amount of traffic projected from proposed developments using standard methodology and the Local Area Transportation Review guidelines, ITE rates or Planning Commission rates) and total site traffic for the special exception site, added those together and went through a mathematical analysis as prescribed in the guidelines and approved by the County Council. Tr. 5/1/13, 32-33.

Once the developer determined what the total traffic increase would be, accounting for new development, Westfield spent about $2.5 million on road improvements to meet the adequate public facilities at that time. This left a certain amount of development that could be built on because the overall Local Area Transportation Review had been satisfied. The developer paid for the density that has come about over time, including Dick's, Costco and the special exception. There is room for additional development to occur. In 2011, the allotted square footage was 1,000,681. The remaining density is 183,000 square feet (Exhibit 11(a)). If the special exception is approved, there will be 175,000 square feet available that Westfield may use to build additional parking and/or additional retail uses or other free-standing parcels. Tr. 5/1/13, 22-25. The additional 175,000 square feet of space, if utilized, would translate to about 650 evening peak hour trips, which would still be accommodated under the LATR. Tr. 5/1/13, 25.

Mr. Guckert, referring to Exhibit 54(i), described the special exception area as follows: At the south end of the area, there is an arrow that says one way and a 24-foot drive aisle from the ring road into the special exception area. The queuing area takes up approximately 60 to 65 percent of the total special exception area. Between 48 to 50 cars can fit within the queuing area

of the box. Tr. 5/1/13, 60. Just to the north of the queuing area are eight aisles for pumping gas. There is also a bypass lane available so if a driver were in the queue and changed his mind, he could get through and leave. Tr. 5/1/13, 54.

At the north end of where the fueling pumps are, there is the exit onto a drive aisle that runs in an east-west direction through the special exception area. Cars would come up to the east-west drive aisle at 90-degrees and then either make a right turn to go to the next part of the parking lot or make a left turn to go to a north-south drive aisle within the mall parking lot itself. Tr. 5/1/13, 55.

There is a pedestrian path from the mall property/Costco that customers may use to reach the western parking area. It could also be used to reach the northern area or the parking area between the drive aisle and the special exception area. Tr. 5/1/13, 55.

Mr. Guckert testified that rather than using a queuing model based on theory to estimate the site's capacity for cars pumping gas and cars waiting to pump gas, they used empirical data based on the Sterling, Virginia Costco gas station's data. After finding the Wheaton site would generate approximately 86% of the gas that the Sterling site generates (12 million gallons at the Wheaton site vs. 13.9 million gallons at the Sterling site), Mr. Guckert used this information to estimate the average numbers of cars "in the box" on various days and times ("in the box" equates to the number of cars at the pump and queued waiting to pump gas). Tr. 5/1/13, 27-29. The analysis showed that 50% of the time the gas station would be open, there would only be two cars "in the box" total. Tr. 5/1/13, 29.

Mr. Guckert testified that to project the increased amount of traffic that the Costco gas station would generate, a series of processes was used. First, they decided on a description of the amount of traffic projected to be generated by the 16-pump facility based upon the estimated gallons that will be sold. That traffic is adjusted for internal trips (i.e. cars coming from inside the mall - either Costco customers shopping at Costco or Costco customers that are shopping at the mall). Adjustments are made for cars that are passing by the site. These may be people driving by Veirs Mill Road or Costco customers that pull in to get gas. Next, a projection is made as to where the cars would be coming from; in this case, the assumption was 20% of the cars would be from the west along University Boulevard, 20% from the north along Veirs Mill Road, and 20% coming from the north and south along Georgia Avenue and from the east on University Boulevard. Tr. 5/1/13, 34-35.

Mr. Guckert then undertook the capacity analysis for the 20 intersections involved, using critical lane methodology, which is the methodology prescribed in the guidelines approved by the County Council. Tr. 5/1/13, 36. The results of the intersection capacity analysis for existing background and total conditions during the morning peak hour demonstrated all of the intersections fall well within the congestion standard which is either 1,800 or 1,600. The same thing holds true during the evening peak hour, which is also well within the CLV congestion standard. The congestion standard is determined by the Planning Board and the County Council and there are slightly different congestion standards at some of the intersections. At four of the intersections, the CLV standard is 1,800 because they are located within or on the border of the Wheaton CBD policy area, and the others are 1,600. Tr. 5/1/13, 36.

Mr. Guckert testified that the increased congestion projected from the special exception is less than 1%. Tr. 5/1/13, 37. The internal capture rate (the amount of customers already at the Wheaton Mall site) is estimated conservatively at 30%. Tr. 5/1/13, 38. The analysis showed that about 69 or 70 new cars would be generated during each of the peak hours off of the public road system into the site. Tr. 5/1/13, 39.

Mr. Guckert testified that the special exception site is exempt from TPAR (Transportation Policy Area Review) because the site is located within a designated Metro station policy area. Tr. 5/1/13, 40. He also stated that the Planning Board identified this station's location off of the private ring road as a non-inherent effect. This differentiates the site from most gas stations located off of the public road system; in the special exception location, the entry and exits do not interfere with the public road system. Mr. Guckert opined that in this case, the non-inherent effect is a positive thing for the County because entry/exit and queuing all occur off the public roads. Tr. 5/1/13, 42-43.

Mr. Guckert testified that he looked at pedestrian activity in the vicinity of the special exception as part of the LATR analysis that was done and what he found is there is very little pedestrian movement either across or along the ring road. Tr. 5/1/13, 46. The special exception site differs from most gas stations, which generally choose locations on a public road on a corner with a traffic signal so that they can have access to both arterials or both collector roads (i.e. you can enter in from one road and exit back out on that road, or enter in on road A and exit out back on road B). In that scenario, there are generally sidewalks in an urban area or a suburban area and pedestrians who walk along those sidewalks. However, this special exception use, which is located in an auto-centric mall, inside a mall parking lot where customers drive through the parking lot, is different, as drivers are expecting to see shoppers/pedestrians. Tr. 5/1/13, 48.

Regarding the flow of traffic into and out of the gas station, Mr. Guckert testified that cars will enter from one way, exit from another way and then turn right or left and at a 90-degree angle. This makes for a very regimented, detailed and structured flow of how cars get into and out of the Costco facility, as opposed to the free-for-all that can occur at gas stations with less structured traffic patterns. Tr. 5/1/13, 49. With a typical gas station, located on the corner of a public road, the cars enter and exit almost always on an acute angle because they are not making a 90-degree turn off the road. When the cars enter back onto the road from the gas station after pumping, they almost always go on an acute angle. If making a right turn, for example, the drivers are then looking to their left for cars, they see pedestrians and then they pull out. This can lead to a problem when pedestrians are travelling from the right, and drivers do not see them when they are turning on an acute angle. Tr. 5/1/13, 51-52. However, in the special exception case, as cars exit the pump, they are travelling at a 90-degree angle to the parking aisle. This means drivers can easily see both directions before they make their turn into the parking aisle, and turning into a travel aisle of a parking lot, rather than onto a public road, collector road or material road, is safer for pedestrians as well. Tr. 5/1/13, 52.

Mr. Guckert gave his opinion that the special exception site would be safer for pedestrians than a typical gas station, as the site will not offer convenience items or car washes, leading to less foot traffic around the site. Tr. 5/1/13, 51. Additionally, since cars will not be

coming from a public road with a higher speed limit, but from a mall access road where cars are generally travelling slower (posted speed limit is 15 mph) and where pedestrians are expected, the special exception site will be safer for pedestrians than the typical gas station. Tr. 5/1/13, 58.

Mr. Guckert testified that during the queuing study, he observed traffic and the queuing per lane of the Costco gas station in Sterling, Virginia, over a 15-hour period on a Friday and a Saturday. Saturday is the day of the week with the highest Costco store sales and the highest gasoline sales. Tr. 5/1/13, 67. The study observed traffic every minute over the 15-hour periods on those days, and the observation showed the amount of cars that were queued in each of the eight lanes and then cumulative inside the queuing area. The study analyzed the data to determine how many total cars were actually at the Sterling Costco station and then did a simple arithmetic calculation to arrive at the projected queuing at the special exception site, which was 86% of the total for the Sterling Costco station. Tr. 5/1/13, 68. This leads to a circumstance where there are a few 1 to 2-minute periods throughout Saturday where more than 45 cars would be projected to be in the special exception area, while 50% of the time the gas station would be open, there would only be a total of two cars "in the box." Tr. 5/1/13, 29, 68-69. Mr. Guckert testified that the amount of cars "in the box" would not exceed 50 vehicles at any point but it could potentially exceed 49 for one minute of the 15 hours. Tr. 5/1/13, 70.

Costco would follow procedures recommended by M-NCPPC Staff if queuing gets to the point where it appears that the queue could extend onto the ring road. In that circumstance, the procedure would be to not allow the car to queue on the ring road; the car would be instructed to move along the ring road until the queue dissipates. Tr. 5/1/13, 71. There are a number of crosswalks that pedestrians use on the ring road. One crosswalk will be improved (the east crosswalk that services the Stephen Knolls School) to be made more pedestrian-friendly and ADA accessible. Tr. 5/1/13, 75.

Mr. Guckert also testified that he completed an observation of garage utilization near the Costco site on Saturday, April 27, 2013, and found that the second level of the garage was occupied 60% of the time or less, while the southwest surface parking lot was heavily utilized throughout the time. Mr. Guckert observed cars pulling in and out but not circulating back out onto the ring road. Tr. 5/1/13, 77. Further, as this was soon after the initial opening of Costco, Mr. Guckert opined that traffic to and from the store will decrease over time, as Costco and other retails stores experience a surge of new customers shortly after opening. 5/1/ Tr. 79. On this same day, Mr. Guckert testified that he saw no cars parked along the south side of the ring road in the vicinity of either the Costco building itself or in the vicinity of the future special exception. Tr. 5/1/13, 80.

Costco requested a waiver to reduce the total number of spaces to 4.0 per 1,000 square feet (of gross building area), which resulted in the need for 5,999 parking spaces, including the requested special exception. 5/1/ Tr. 81. Without the waiver, 6,079 parking spaces will be required. Tr. 5/1/13, 82. Mr. Guckert believes, based on his observations, that there is an over-abundance of parking at the mall. His garage utilization observation revealed the top level of the parking deck was virtually empty, the middle level of the garage, which has direct access to the mall and Costco, ranged from 30 to 60% occupied, and the area underneath Costco was 70 to 80% vacant. The parking lot to the east of Costco and Dick's was 70 to 80% vacant. Tr. 5/1/13, 83.

Mr. Guckert testified that there is absolutely no reason that the special exception would be a traffic nuisance to the surrounding neighborhood, since there is no connection to the neighborhood; all access to the special exception is from the private road system in the mall and there is no direct connection between the mall ring road and the neighborhood. There is no vehicular connection directly from the mall parcel to the residential neighborhoods to the south or southwest. Tr. 5/1/13, 85-86. Further, Mr. Guckert testified there is no reason why the special exception would be a nuisance to the public roads since the site is located deep inside the Wheaton Plaza property. The LATR showed the site will not create a capacity problem on the public roads. Tr. 5/1/13, 88-89.

Mr. Guckert stated that approximately 70 new cars trips would be generated in the morning peak hour and the evening peak hour by the gas station. By comparison, the south side ring road where the special exception area is proposed has average daily traffic of about 3,000 cars. The average daily traffic along University and Veirs Mill is in the 20 to 25,000 car per day range. The average daily traffic along Georgia Avenue is in the 50,000 car per day range. Tr. 5/1/13, 89-90.

According to Mr. Guckert, the proposed queuing and loading area for gasoline is very regimented as compared to other gas stations which may be described as a free for all. Because of the regimentation of the proposed special exception, it is far from being a nuisance and more importantly it's compatible with the uses of the mall. The mall is an auto centric mall. There are cars and people walking and getting packages. He opined that "it's very compatible with the uses that occur there." Tr. 5/1/13, 90-91. Mr. Guckert also stated that the proposal would be in harmony with the neighborhood and would maintain the safety of vehicular and pedestrian traffic. Tr. 5/1/13, 94-95.

On cross examination, Mr. Guckert stated that the loop road intersections are not signalized, and they are all operating at level of service A, which means that there is minimal to no delay at the intersections. Tr. 5/1/13, 100-101.

Mr. Guckert admitted that to keep the gas station stocked with fuel would require anywhere from 8 to 12 fuel tankers arriving at the special exception site to fill the tanks at the gas station each day, depending on conditions and the day of the week, though he does not expect the presence of the tankers to impact the amount of gas that could be pumped. Tr. 5/1/13, 188-189. Mr. Guckert described the circulation pattern for the fuel trucks, and opined that the lack of a sidewalk along the southern ring road would not create a safety problem. Tr. 5/1/13, 191-197.

Mr. Guckert indicated that when a tanker truck was parked to fill the tanks, it would extend four feet into the drive aisle, but cars will be able to see around it without danger because such obstructions are ordinarily expected in parking lots. Tr. 5/1/13, 205-215. Mr. Guckert opined that there would not be a safety problem or conflict associated with the fuel delivery trucks in a drive aisle, pedestrians, vehicles in the drive aisles and queuing cars. He stated that it happens all the time in all parking lots where you have loading facilities for stores. Tr. 5/1/13, 219-225.

On *Day 3 of the hearing* (May 6), Mr. Guckert further testified that Level of Service A is a condition whereby there is minimal delay. It's an average delay passing through an intersection of 10 seconds or less as compared to level of service F condition, where you might experience an average of 80 to 90 seconds average delay for a vehicle passing. Tr. 5/6/13, 113-115.

He did not evaluate the intersection of Drum and University because it wasn't signalized; however, he did test the intersections to the east and west of Drum. Those intersections fall within the LATR guidelines. The County no longer uses level of service. The County only uses acceptable critical lane volume (CLV) as a standard of acceptable or unacceptable for purposes of LATR. Tr. 5/6/13, 115-117.

Referring to page 31 of his report which is the evening peak hour, the intersection of RT. 193 at Valleyview has 751 CLV, which equates to level of service A. At Newport (intersection 3) it's 819, which is also level of service A. He also stated that 90 peak hour trips would be coming in at the Valleyview entrance on the ring road (Intersection No. 16), including cars going to the gas station. Mr. Guckert indicated that was one car every 4 or 5 minutes, which he said would not cause any pedestrian conflict.[4] Tr. 5/6/13, 118.

Mr. Guckert testified that truck deliveries to the warehouse are made in the morning before the store opens. When he personally viewed the site after the warehouse opened, there were no vehicles parked on the southern side of the ring road in the parallel parking spaces. There are parallel parking spaces on the ring road marked for the entire area of the special exception. Tr. 5/6/13, 132-133.

On the *Day 4 of the hearing* (May 23), Mr. Guckert testified regarding observations of the Wheaton Mall traffic subsequent to the opening of the Costco Warehouse. They were made for eight hours on Saturday, April 27th, 10:00 a.m. to 6:00 p.m., about two weeks after the April 10th opening of the warehouse. He chose a Saturday because one, that's the peak volume of the mall; two, it's the peak volume of the store; and, three, it's the peak volume of the proposed gas station. He collected all of the summary data, including the vehicle counts, all the pedestrian movements, and all the critical lane volumes. He did critical lane volume testing at each of the locations and produced a document that summarizes that information, which was submitted on May 10, 2013, as Exhibits 128(a) and (b). Mr. Guckert explained that the exhibits show, for each intersection of the ring road, the level of service, the vehicle count movement during the peak hour of the 8-hour period and one hour peak hour pedestrian counts that corresponds with the vehicle movements. Tr. 5/23/13, 254-263.

Mr. Guckert further testified that the pedestrian data at each of the locations depicts very little pedestrian movement at any of the intersections along the mall ring road. The location that has the most amount of pedestrian activity is the ring road at the WMATA entrance (labeled No. 9). There are about 20 or 30 pedestrians in the peak one hour at the extension of Valleyview and the ring road. There is very little pedestrian activity along the south side of the ring road. He then described the pedestrian counts at each intersection, as noted on Exhibit 128. Tr. 5/23/13,

[4] The Hearing Examiner believes that Mr. Guckert misspoke because 90 cars per hour translates to 1.5 cars per minute, not one car every 4 or 5 minutes.

264-266.

Level of Service A means there's relatively little, if any, delay at the intersections caused by automobile and pedestrian traffic. In Mr. Guckert's opinion, and in looking at retail stores like this in general, one would expect higher than average conditions at a store the first 90 to 120 days. This exhibit, 128(b), shows level of service, peak hour pedestrian movement, peak hour automobile movement, 8-hour pedestrian movements at the 11 intersections, plus two pedestrian access points into the mall. In Mr. Guckert's opinion, the added trips associated with the proposed gas station will not alter his conclusions that the intersections would still be at Level of Service A condition. Tr. 5/23/13, 267-268.

Regarding the issue of nuisance, Mr. Guckert testified that many of those cars accessing the gas station will be either from the existing shoppers within the mall, and while there will be an increase in traffic, the gas station will not create a nuisance because there will be no unreasonable delays, no queuing on the ring road or the public roads, no traffic congestion as a result of the gas facility, no pedestrian conflicts, no increase in accidents, and no reduction in the safety of pedestrian or vehicular traffic. Technical Staff was in agreement with his traffic analysis. The new traffic and pedestrian counts did not vary his previously stated opinion regarding safety. Tr. 5/23/13, 268-272.

On *Day 5 of the hearing* (June 4), Mr. Guckert was further cross-examined. He testified that CLV zero to 1,000 corresponds to Level of Service A. The LATR Guidelines no longer reference levels of service, but they are set forth by State Highway Administration, Montgomery County Department of Transportation and all other government agencies in the State of Maryland. Level of Service B indicates a CLV of 1,000 to 1,150. If the CLV is somewhere between zero and 1,000, you theoretically would pass through an intersection in one signalization, or with little or no delay at a stop sign. If two intersections are at Level of Service A, the inference is that the link in between operates at Level of Service A as well. Mr. Guckert stated that 69 net new cars trips would be generated by the gas station in both the morning peak hour and the evening peak hour. Tr. 6/4/13, 40-45, 60.

4. Jim Agliata (Tr. 5/6/13, 33-111; 147-155):

On Hearing Day 3 (May 6, 2013), Jim Agliata testified that he is vice president for Westfield Corporation. His background is in architecture. His responsibility is the expansion of the redevelopment of malls in the southeast region, so that includes the ones in the Maryland and southern Florida, and also looking at the long-term vision of these malls. The Westfield Corporation is a worldwide company, with headquarters in Australia, and it operates 120 malls. In the United States, its headquarters is in Los Angeles and there are 49 malls in the United States that it owns and operates. Westfield purchased Wheaton Mall in either '97 or '98. In early 2000's, Westfield began to improve and expand it. Mr. Agliata described that. There had been a Shell station on the property when they bought the mall. In 1999, Westfield secured adequate public facilities approval for approximately 580,000 additional square feet for the mall, which raised the total to approximately 1.8 million square feet. Tr. 5/6/13, 33-36.

According to Mr. Agliata, some part of the mall is in operation from 5:00 a.m. to

midnight, and longer on the weekends. There are three drive-throughs right now on the mall – Wendy's, Wells Fargo Bank and a CVS for prescriptions. If the gas station is approved, they'll still remain approximately 160,000 square feet of development rights per the APF approval. Westfield would like to expand the mall again. It is in discussions with a theater chain right now. Westfield also found that it didn't need all the parking required, so it has asked the County for a waiver. Tr. 5/6/13, 39-41.

Westfield has a site with a Costco warehouse and gas station in Sarasota, Florida, which opened in August of last year. It's a Costco, very similar in size to the one here. The gas station is up and operating in a mall parking area. People enter it through the mall, and there are multi-townhouse residential units right around it. "It's almost an identical situation to what we have over here." Tr. 5/6/13, 42-43.

Mr. Agliata feels that impact of the Costco gas station will be to bring other customers to the mall. Westfield felt comfortable with the results of that traffic study and had no problems with it. If the subject special exception is not approved, Westfield probably will get another pad use since it has approval to put a pad there. When the Costco warehouse was being added, Westfield created a pedestrian bridge and two oversized elevators in the existing garage east of the Costco warehouse so that the Costco customers who park in that garage on the second level could walk straight across the ramp right into the mall entrance to the Costco or they could take the elevator if they parked on the third level and also on the first level. Tr. 5/6/13, 43-45.

Mr. Agliata further testified that when the new Wheaton Sector Plan was being framed, he met with Technical Staff and they worked out an understanding that only a sliver of the mall property on the eastern side would be rezoned to the CR Zone, and the rest (75%) would remain C2. Westfield's impression was the 75 percent of the mall that was existing was going to stay at the mall and it could include more development on the mall. During the sector plan discussions with Planning Board staff or counsel staff, there was a discussion about converting the private ring road to a public road and Westfield objected to that, feeling that would be very detrimental to its property and that Westfield needed to control the ring road. Tr. 5/6/13, 45-56.

Westfield had no concern that the Costco gas station would adversely affect or deter the development of either the C-2 zone mall portion, which functions as a mall or those portions of the mall that were rezoned as CR. Tr. 5/6/13, 61.

On cross-examination, Mr. Agliata indicated that although Westfield will find shopping carts all over the mall, the majority of Costco shoppers want to park closer to Costco. Tr. 5/6/13, 67. Mr. Agliata also admitted that a gas station in connection with a Costco in Sarasota, Florida was developed by right and not by special exception, and he did not know if the development standards were exactly the same as here; however, it is a similar process, except the gas station is not a special exception. If it meets the setback standards, the height standards and the other dimensional requirements of the zone and their adequate public facilities review, then the developer is allowed to move forward to a building permit. Tr. 5/6/13, 72-74.

On an average weekday, there could be anywhere from 8,000 customers to 20,000 customers a day in the Wheaton Plaza mall. On a weekend, probably 20 to 30,000 people use

the mall, but Costco could change that. On peak holidays, the average range could be 40,000 customers. Tr. 5/6/13, 78-79. According to Mr. Agliata, Westfield's leases provide that the store operators should maintain "quiet enjoyment," and if trucks are seen idling and making a lot of noise, mall security is encouraged to move them along. Tr. 5/6/13, 79-80.

A March 8, 2012 letter from Jim Agliata to Steve Silverman (not Larry Silverman of SCGS) of the County's Department of Economic Development was marked as Exhibit 122. In it, Westfield offered to modify the existing ring road and parking adjacent to the ring road to create 3-foot crossed pathway of existing asphalt. He also stated that, over the last year, Westfield has also installed additional crosswalks between Giant and Target to address pedestrian access in these areas. Tr. 5/6/13, 89-90. Mr. Agliata stated that parking space sizes vary, but some of them should be 8 1/2 to 9 feet, and Costco spaces are 10 feet wide to accommodate larger carts. Tr. 5/6/13, 102-103.

[During Mr. Agliata's cross-examination, Ms. Rosenfeld and Mr. Silverman indicated that a letter from Costco to the County establishes that Westfield -Costco had committed to providing a pedestrian path as a condition of obtaining the first $2 million to locate Costco at this site. In answer to the Hearing Examiner's question, "So I take it that the position of the Opposition in general is that you want that pedestrian path on the southern ring road?" the Opposition replied yes and that they also wanted the east-west pedestrian path where Costco suggested further north in the parking lot. Ms. Cordry also noted that, as a matter of parking lot design, it's rather unsafe to not have a pedestrian path alongside that drive access road and not to have it along the ring road. Tr. 5/6/13, 110-113.]

A letter dated April 19, 2012 from Mr. Steven Silverman to County Executive Isaac Leggett was introduced as Exhibit 123. This letter is directly related to the agreement listed as Exhibit 86(i), in which the Executive was to designate someone to make sure that Westfield, Costco Management and the residents' representatives got together to ensure the residents' views had been considered without impinging on the economic viability of retail planning and retail design in operations of Westfield, Costco, or any retail store in the mall. One sentence in the letter states, "In my opinion, Westfield Costco has attempted to address in good faith the issues of the loading dock, delivery truck dock issues, traffic flow, pedestrian access and building elevation in the zone." Based on this letter, Montgomery County released $2 million in funding. Mr. Agliata stated that Westfield met their obligations because there are pedestrian walkways throughout the center. They also added crosswalks for the Costco customers walking across the site. Westfield offered to modify the existing ring road and parking adjacent to the ring road to create a 3-foot cross-hatched pathway on the existing asphalt. Tr. 5/6/13, 147-155.

5. Wayne Tucker (Tr. 5/6/13, 156-178):

Wayne Tucker testified as an expert geo-technical engineer. He has a master's degree in civil engineering with a geo-technical emphasis. He evaluates sub-surface conditions, soil, groundwater, and lot conditions at a project site in relation to the type of structure that is being planned at a site and he provides recommendations for the support of various buildings and structures. His role on this site was predominantly to do test borings in the vicinity of the planed underground tanks down to a sufficient depth below the bottom of these tanks to determine what

type of soils are there, whether they're suitable or not suitable for support and whether there's any evidence that groundwater is present in those locations. Tr. 5/6/13, 156-161.

Mr. Tucker coordinated the test borings for the subject site. Soil test borings are necessary to evaluate what type of soils or rock will support a proposed structure. Also, the test borings determine depths to groundwater and depths to refusal, meaning where auger flights can no longer be advanced in the ground, which is often indicative of excavation difficulties during construction. SPTN values (the number of blows required to advance the split spoon sampler six inches), demonstrate penetration resistance, which gives information on the density and the compressibility of the soils that are present. Tr. 5/6/13, 162-163.

According to Mr. Tucker, water was encountered in one of the borings in the tank area at 33 1/2 feet. The only evidence of groundwater at the site was at that one boring where he encountered it on the spoon. The depth can vary. That was at location G-3, centered on the western side of the special exception site. He encountered two different soil categories, an artificial layer of fill underneath the existing asphalt in the area to a maximum depth of about seven feet and then underneath that, residual soil which resulted from the in-place weathering of the bedrock. That material is typically sandy silt and some inclusions of clay. Tr. 5/6/13, 164-165.

Mr. Tucker criticized relying on a 1964 US Geological Survey report from 1964 (Exhibit 87(k)) because much has changed since then. In his professional judgment, there is nothing, based on the geo-technical analysis, precluding the Costco gas station from being located at this site location. The proposed depth of the tanks (*i.e.*, their bottoms) would be 20 feet (*i.e.*, 13 feet above the underground water level). Tr. 5/6/13, 166-169.

6. Daniel Goalwin (Tr. 5/6/13, 179-240):

Daniel Goalwin testified that he works for Barghas Engineers, a civil engineering and architecture firm that specializes in gas station design and civil engineering in general. He is the director of architectural service, with a specialty in gas station design. He testified as an expert in architecture and gas station design.

According to Mr. Goalwin, Costco's current prototypical standard is to use three 30,000 gallon, double-wall storage tanks, eight, multi-purpose dispensers on eight islands for 16 fueling positions. The underground storage tanks and piping are secondarily contained and the dispensers have other containing systems, so everything in the entire system is secondarily contained and continuously monitored with electronic monitoring systems. There is an inner-tank and an outer-tank that contains it, and an inner-pipe and an outer-pipe that contains it, and those spaces are electronically monitored continuously. Additionally, Costco uses other monitoring systems, an in-tank gauge and a pressure line detector on the main platform, which is a pressurized line that delivers the product to the dispensers. The primary driver in locating tanks is to locate them where the fuel trucks will not be in conflict with the gasoline operations or fueling of the customers or the queuing area. He would expect that the tanks would be, worse case, 18 feet deep. He sees nothing problematic about placement of the tanks on this Wheaton

site. The ground water should not be close to where the tanks are, but even if the groundwater were to rise up, the tanks can be submerged under water without any difficulty and they would still operate just fine. Tr. 5/6/13, 189-195.

He has never experienced a leak since the advent of the double-wall tanks. If, in fact, remote as it may be, there were to be a leak in the double-wall system, the electronic monitoring system would reveal it. It's a level sensor, so a loss of brine between the walls sets off the sensor to the alarm system that notifies the attendant, the third-party and the warehouse that there's been a leak. Piping from the tanks goes to the dispensers. When the customer fills up at a gas station, recovery valves draw vapors back in and returns them to the tanks. There are other devices, such as a pressure line leak protector on the product line calibrated to sense a loss in pressure and shut the system down. Under the dispensers is a containment box. Also, there is a fire snuffer to provide extra level of fire protection at the dispenser, as well as tank sumps and in-the-vent sumps. Fiberglass tanks will be used since they are preferred to metal tanks for underground usage due to corrosion resistance. As the driver is delivering gas to the tanks, pressure vapors build up in the tank and forces vapors out through the vent. However, Costco uses the arid permeator which is a membrane system that captures those vapors and returns them back to the tank. Tr. 5/6/13, 197-210.

On cross-examination, Mr. Goalwin admitted that fires do occur at gas stations. Tr. 5/6/13, 219.

7. Gina Volpicelli (Tr. 5/6/13, 241-271):

Gina Volpicelli testified that she has a degree in architecture and that she helped prepare architectural elevations, signage and the green wall proposed in this case. She was called as a fact witness. She described the height of the canopy as 17 feet, 6 inches and the height of the kiosk as 8 feet, 1 inch. The maximum height permitted in the C-2 zone is three stories or 42 feet. There will be four signs on, one per side of the gas canopy. Each sign will be 28.5 square feet, totaling 114 square feet. Tr. 5/6/13, 241-245.

A photometric study was provided (Exhibit 6), and the resulting foot candles at the property line that is shared with the residential properties to the south and west will be zero. It varies along the ring road from .1 to 1.2. The canopy lights will be turned off at 9:30 p.m. during the week. On the weekend, the canopy lights be turned off at 7:00 p.m. The pole lights will be turned off around 10:30 p.m. at all times. Minimal security lighting will remain, as with the rest of the mall. None of the canopy lighting or other lighting will create any glare into the residential neighborhoods. Tr. 5/6/13, 245-249.

Ms. Volpicelli further described the proposed screening wall's construction. There will be posts that would be supported on two footings, so there will not be a continuous footing along the ring road, which would limit disturbance and excavation needed for the screen wall. There would be opaque panels of recast concrete that fit between those posts and on both the north and south side. The Applicant will be using a material called "green screen" that will permit greenery to grow on the panels. Tr. 5/6/13, 249-250.

On cross-examination, Ms. Volpicelli testified that there would be no gap between the wall and the ground. It would be "as flush" as Applicant can make it, given terrain variations. The posts would be seven feet, five inches apart. Footings will be drilled into the ground and then the posts will be placed in, cast in concrete. There would be a two foot disturbance for each post off of center. Four-inch posts fit within the 16-inch Sonotubes. The wall would be eight feet tall. She determined that the wooded area was thick enough and the height of the wall will be tall enough to screen any visual implications of the gas station from the south side. There are currently no breaks planned in the wall for pedestrians. It would be a concrete wall, so you wouldn't be able to see through it. There wouldn't be any seams or any pieces that are missing from the wall. It would be a solid material two to three inches thick. The proposed wall begins approximately at the southwest corner of the ring road and extends down past to the loading dock area. Tr. 5/6/13, 250-271.

At the beginning of Hearing Day 4 (May 23, 2013), the Hearing Examiner heard oral argument on KHCA's motion to suspend the proceedings, discussed it and ultimately denied the motion. Tr. 5/23/13, 7-32.

The Hearing Examiner found that Petitioner's proposed changes were material, but that does not mean that a multi-day hearing stretching over months, with many unrelated issues to cover, must be suspended, unless there is real prejudice in not doing so.

Ten days notice of a motion to amend is required by Zoning Ordinance §59-59-A-4.24; the letter of March 26, 2013, served as that motion. Notice to these parties had been given by filing the changes in the public record, sending copies to all the parties of record (according to the "cc" on Exhibit 86), then announcing them at the public hearing, as is impliedly adequate per Zoning Ordinance §59-A-4.44 (which allows a change in the hearing date to be publically announced at a hearing without further written notice) and §59-A-4.24 (which allows the Board, and derivatively the Hearing Examiner, to request Applicant to revise any aspect of the proposal at the hearing or before the record is closed). Fairness also demands that we give all parties at least 10 days to respond while the record is open. That was done. Petitioner was required to send out a notice to all those entitled to original notice regarding the proposed changes, and the record was held open at least 10 days for any response. Actually, given the length of this hearing, it was open for at least a month.

No opposition party that has thus far participated in the hearing has been prejudiced since they were sent copies of these changes back when it was filed on March 26, 2013, so they knew of them in advance of the hearing. Alternatively, Applicant has offered to return to the previous plan. Applicant was required state what plan they are now proposing, so that the Opposition would have time to prepare for cross-examination. Applicant must make available for additional cross-examination solely regarding the changed wall and pedestrian path, any relevant witness, if requested by the Opposition.

The changes must be submitted to the Planning Board for its review, but there is no requirement in the Code that these proceedings be suspended. OZAH has jurisdiction from the time the Board of Appeals sends us the file to the time OZAH issues its report and returns the

file. The Code requires only that OZAH keep the record open for 10 days for the Planning Board's response to any change. Zoning Ordinance §59-A-4.48(c).

Finally, the supplemental issue about the missing lease and authority to extend the wall can be rectified by having Applicant and Westfield file those items, and giving all parties ten days to respond.

Through Mr. Sheveiko's inspection of the file, we were informed that the items listed in our Exhibit list as Exhibits 1(c) and (d) are not in the file and we determined that they were listed in error. The file will so indicate. The equivalent of Exhibit 1(d) the letter of authorization form Wheaton Plaza is in Exhibit 3(b). Tr. 5/23/13, 45-46.

The Hearing Examiner addressed the issue of site visits: As indicated in his handout distributed on the point at the second session (Exhibit 108), he is very concerned about the potential issues raised by site visits, in light of the court opinion in the recent case of *WSG Holdings v. Larry Bowie,* 429 Md. 598, 57 A.3d 463 (2012). In the Hearing Examiner's handout, he asked the parties to brief the issue of whether a site visit would require that he publish findings regarding the visit prior to closing the record to allow commentary and possibly contrary evidence from the parties. Neither side had done that. Whether an OZAH Hearing Examiner can lawfully publish findings before its report is issued for the record is unclear. The parties have been unable even to agree on an itinerary for a site visit, nor all of the logistics. In light of those facts, the Hearing Examiner indicated he is inclined not to conduct a site visit. The possibility of using pictures of the scene or videos was discussed. Tr. 5/23/13, 47-50.

Mr. Silverman argued that internet links should be accepted as evidence, but the Hearing Examiner ruled that he cannot accept links to the Internet as an item of evidence since there is no assurance that such a link would later be available as evidence for review. A hard copy of an internet statement would solve that problem, but the submission would still be subject to objection under the applicable rules of evidence. Tr. 5/23/13, 51-56.

The Hearing Examiner addressed Applicant's list of objections (Exhibit 120) to the Opposition's exhibits. (KHCA responded in Exhibit 127(a)). Most of what Costco's counsel has characterized in Exhibit 120 as hearsay and inadmissible lay opinion is actually a combination of factual assertions, analysis and opinions. They are, in effect, advance summaries of the anticipated live testimony of the witnesses that are available for cross-examination. Statements within these submissions quoted from other people who are not available for cross examination are a different matter. Hearing Examiners routinely receive submissions in OZAH land use cases and weigh them according to the nature of the statement's source (lay or expert), the reliability of the submission and the probative value of the evidence. We also consider whether the declarant is available for cross-examination; whether the statement was available before the hearing to allow the opposing party time to review it, check factual assertions, ready a reply and prepare cross-examination; and whether portions of the document must be excluded as hearsay from an unavailable declarant. We don't necessarily refuse evidence that has limited value. Sometimes we admit it and give it the weight that it deserves in the analysis. It depends on the nature of it. Some items are so clearly prejudicial that we exclude them, but others we just address as a matter of the weight to be given to item. Tr. 5/23/13, 56-59.

8. Tim Hurlocker (Tr. 5/23/13, 63-253):

Tim Hurlocker testified that he has worked for Costco for 23 years, 16 years in the gasoline division as director of operations. There are forty Costco gas stations in Canada and 368 in the United States. He has been involved in establishing all but the first five. Tr. 5/23/13, 63-64.

The most important aspect that drives operations of a Costco gas station is safety, environmental safety, health and human safety and member service in general. The entire purpose underground is to preserve the safety of people above ground which is why petroleum handling systems are typically buried. Everything underground is double-walled and the space between the double walls continuously monitored. Prior to any product actually reaching the environment, the station actually shuts down if it senses that it has lost double containment. Tr. 5/23/13, 65-66.

At a Costco, there are three underground storage tanks, typically 30,000 gallons each. They're connected to dispensers, above ground, through underground piping. All the piping is secondarily contained, also meaning double-walled. Every tank is vented, meaning it's got a separate pipe going off to maintain vapor pressure within a tolerable range so you don't get too much vacuum or too much pressure. The pressure in the tank is regulated. In addition, Maryland requires stage two vapor recovery which entails an entirely separate set of pipes returning to the tanks to return vapor that's displaced from the car's tank as it's filled. It is routed back to the underground storage tank so it's not released to the atmosphere. These systems are monitored by a very extensive sensor system that's controlled with an above-ground control box. There's a liquid sensor in every underground containment area which is called a sump, and that's the underground enclosure that contains equipment, fittings and piping, and every one of those areas has a liquid sensor that's electronically monitored continuously. In addition, there is a pressurized line leak detector which monitors the pressure of the liquid product in the line and that also would sound an alarm if there was a sudden loss of pressure unrelated to normal operations. That's called line leak detection. There is also a variety of other sensors, particularly monitoring the secondary containment of the tanks. Tr. 5/23/13, 66-67.

Fire suppression is provided by snuffers. They're chemical fire extinguishers with an automatic sprinkler head fitting on them. If something were to explode underground in one of these containment areas, it would automatically trigger the chemical release and automatically put it out underground. Regulations do not require this device. Costco typically puts in two observation wells in the tank pad, not to monitor ground water for leaks or anything, but to easily test ground water levels. The tanks are typically buried in a large hole that's shrouded with pea gravel. Pea gravel is self-leveling, self-compacting and it provides a flexible setting for the tanks in the case of minor earth movement. Tr. 5/23/13, 67-68.

The best safety measure is the eyes, ears and good judgment of Costco's trained gas station attendants. There are a great many other features, most of them typical to other gas stations as well as Costco, such as impact valves that close the product lines automatically if the dispenser is torn physically right off the island. There are fire extinguishers, emergency shut-off

buttons, most of the things that are required at all gas stations and, of course, Costco does that also. The emergency button shuts off the dispensers and the underground turbines, which push the gas up to the dispensers, but not the ability to monitor what's going on underground, and the alarms are audible light alarms and sound alarms that are above ground. The electronic monitoring is done by a Veeder-Root system, which is very common in the industry. There is also monitoring by an outside service, 24-7, and Costco attendants are all trained in how to respond to the various alarms. The Veeder-Root system automatically, if it detects liquid accumulating (liquid includes both gas and water), will shut the product or the entire station down, depending on where the sensor is. Also, if double containment of the underground storage tanks is lost, the product is immediately shut down and that's automatically programmed in the system. Before that system can be restarted, they have to have a technician come out, identify and solve the problem and if there's any judgment involved, they actually call in and somebody from Costco's corporate office gets involved and helps evaluate the situation. Tr. 5/23/13, 69-72.

If the attendant pushes the red button, there is no audible alarm, but the power is shut off and everybody fueling at that moment is now not fueling and so everyone's head comes up and the attendant has a procedure as to how they react to that. They call for assistance inside as needed, including 9-1-1. To restart, after the issue is resolved, they have to pull the button back out. Generally, before restarting, the attendant must check with warehouse management and Costco's help desk. All the hoses and hanging hardware (the hose nozzle breakaway assembly) are inspected every single day with a checklist. Tr. 5/23/13, 72-75. There is a 9-1-1 phone that automatically calls the fire department. All attendants are equipped with a walkie-talkie and there are a hundred people inside the warehouse ready to assist as needed, so attendants can quickly call out for additional support. Tr. 5/23/13, 102.

Before any Costco employee is going to be allowed to work at a gas station, they take a course, a multimedia course on the company's computers, and at the end of that they have a 100 question test that they have to pass prior to being allowed to work at the station at all. A buddy system is used on the job until they learn the ropes. They must recertify each year with a test. One of the biggest challenges the attendants have is telling people shut their engines off while fueling, which is a long-time part of fire code. Tr. 5/23/13, 75-83.

Mr. Hurlocker explained the workings of the arid permeator. It reduces the total emissions from the underground storage tank system to less than 1 percent of the volumes of what would otherwise be escaping from the vent. The vent is the tall pipe rising out of the ground with a cap on it that releases pressure if the pressure gets too great. The permeator has a differential membrane that allows small air molecules to go out, while keeping in the large, hydrocarbon molecules, which are routed back to the underground storage tank. It's never venting other than pure air and that's the purpose of it. That's a voluntary piece of equipment that Costco puts in to make sure that the station emits virtually no hydrocarbons whatsoever from the underground storage tank system. It's over 99 percent effective. The permeator is not part of the Stage 2 controls, but it resolves a conflict between the regulations mandating vapor recovery in all cars which is called ORBR, and that took effect in 2011. New cars now collect their own refueling vapor in a carbon canister. Stage two is a station-based system in the nozzle and it's got a rubber boot to capture any displaced vapor, which is then vacuumed back to the

underground storage tanks. The problem is that when the car increasingly captures its own vapor, stage two pulls back mostly air because the car gets it first, as it should be. The air goes back into the underground storage tank through the separate piping. When air is on top of gasoline, the gasoline liquid tends to evaporate into the air, which increases tank pressure. It then vents out the vent stack unless there is an arid permeator to keep the hydrocarbons in. Thus, it resolves the conflict between the Federal regulation for cars and the state regulations for stage two vapor recovery. The Federal Government has recently ended their requirement for stage two for that reason, because of that incompatibility, and state by state they're starting to withdraw from stage two, but Maryland has not yet. Tr. 5/23/13, 84-87.

The hours of operations for the Costco station are 6:00 a.m. to 9:30 p.m., Monday through Friday, and typically 6:00 a.m. to 7:00 p.m. Saturday and Sunday. All Costco gas stations are operated in basically the same manner. There is always at least one attendant. In certain cases, Costco will have more than one and, of course, the building has a hundred people there, many of them cross-trained, and so they can rotate another person out if there's unusual traffic congestion or any other thing at the judgment of the warehouse management they think additional help needs to be out there. His preference if this were to be granted is that there be no limit on attendants. [KHCA's lawyer indicated that she did not why there should be a limit on the maximum number of attendees. Ms. Adelman agreed on behalf of the SCGC.] Tr. 5/23/13, 88-92.

Addressing fuel deliveries, Mr. Hurlocker testified 90,000 gallons is a bigger than average amount of capacity underground and that allows Costco to schedule deliveries advantageously, typically trying to bring one or two in earlier in the morning before traffic. The amount, though, is going to depend ultimately on the amount of sales and how fast the fuel is drawn down. Costco has stations that take no deliveries in a day and others that take several a day every day because they have very high volume. Six deliveries in a day would be an extreme outlier on the high side. One would also be somewhat unusual, but that would be very possible on a given day. The average is probably going to be closer to two to four deliveries per day, depending on the sales, and he would anticipate the sales of this location to be in that range. The trucks in Maryland are 8,800 gallons each. Costco takes full fuel loads to minimize the number of deliveries and the time on site. The Planning Board recommended a condition which would prohibit deliveries on a Saturday or a Sunday. Saturdays are Costco's busiest days of the week, on a gallon per hour basis. If Costco had to work around two successive days of no deliveries, the chances are it would consistently be running out of fuel and, therefore, would be an unreliable source of fuel. They try to bring trucks in before 10 a.m., when the warehouse opens. It's very common to have a truck or two in the morning before 7 o'clock. Tr. 5/23/13, 93-96.

A full tanker takes typically 30 minutes to unload into one tank. Costco has one tank for premium and two for unleaded regular. It is common for them to hook up two sets of hoses and do a simultaneous drop into both unleaded tanks because the trucks are compartmentalized, and they can empty separate compartments simultaneously. It would be in the 15 to 20 minute range typically for a divided delivery, which he estimated would occur in excess of 70 percent of the deliveries. That's between 300 and 350 gallons per minute. The first step when the truck arrives is Costco's attendant prints out what the inventory level is in all three tanks and gives that to the driver, looks at the bill of lading or the manifest from the driver, confirms the product to be

dropped from the manifest, unlocks the tanks for that product and that helps minimize the chance of a driver making an error and dropping the wrong product in the wrong tank. They bring out a fire extinguisher and then they let the professionally trained driver make the drop. The attendant makes sure that the driver does what he's supposed to – shuts the truck off, stays outside the truck in direct proximity to the connections and the valves. The attendant also keys the receiving once it's done and the automated ordering system acknowledges the increase in fuel has been received. Tr. 5/23/13, 97-100.

Costco stations are designed to get people in and out in an orderly fashion (one way), with 16 fueling positions, which allows a large volume of sales. Also, with no convenience store, nobody leaves their cars parked at the pump to shop. Tr. 5/23/13, 101-102.

The vast majority of fires at gas stations are cars themselves on fire, most often from static electricity, which can ignite gasoline vapor. That's much more common in dry, cold climates than it would be in Maryland, so it's typically a very minimal issue in the more humid east. There is virtually no chance of the station blowing up, mainly because gasoline vapor in its equilibrium state above liquid in a confined tank underground is too rich to burn. The fire cannot go back inside the gas tank of the car, and it cannot get sucked back into the gas tanks underground. All the valves and equipment designed into the system over many years by many engineers are designed to make sure that there's no way that air can be ingested back into those enclosed areas to possibly create an explosive situation. Every car is designed that way, every nozzle is designed that way and every storage tank piping system is designed that way. Tr. 5/23/13, 103-105.

Every attendant is trained to immediately address every spill. They're never allowed to lie and Costco has a very extensive process whereby they spray it with a solution (called FM-186, Fuel Mitigation 186) to immediately make it non-flammable and there is a process to clean it up. Usually the spray is in one or two garden sprayers, depending on the size of the station. It stops the gasoline from evaporating, so that takes the smell, the flammability and the safety hazard away instantly. Now it's just a clean-up problem. Some state government classify large spills by quantities typically as 10 gallons or more (which is a nozzle on full one full minute pouring on the ground); the states want to know if the community is going to be harmed or if there is a safety or an environmental harm and usually 10 gallons is that threshold. Maryland does not have a specific amount. Costco is more conservative. Any time a quart or so spills, which is quite rare, Costco calls the agency and reports it. That means Costco is reporting things that are far less than the standard reporting requirement. Costco has attendants look at the surface area of the spill. If the spill is larger than the footprint of the car, it is considered a large spill. If it escapes the drive slab and the surface area around the pumps, that's automatically a large spill of any quantity. If it escapes into landscaping or into the environment in some way, it's automatically a large spill, meaning station is shut down and more people are sent out, with 9-1-1 being called, as necessary. If a car pulls up and has a leaking gas tank, almost always that will require a fire truck response. Tr. 5/23/13, 106-111.

When power outages happen, the station is shut down. If it's an extended power outage, all Costco's new stations are equipped with transfer switches for generators. A generator big enough to run the whole fueling facility is a truck-mounted diesel, but that's a rare event. The

monitoring system remains because it's powered by an interruptible power supply for two hours or so, and usually by that time everything can be secured. In case of extreme weather, such as a tornado, all gas stations, including all of Costco's gas stations, have an impact valve, sometimes called a shear valve or an earthquake valve, that's anchored into the concrete drive slab, and that valve is where the product pipe comes up. All of the gas that's dispensed through a nozzle has to go through this valve that's held open by a spring. If that trips either because of fire or shaking or a car hitting the pump or other cause, it closes instantly and prevents the pressurized line from creating a geyser of fuel. Tr. 5/23/13, 111-115.

According to Mr. Hurlocker, in the last 15 years, there have been only three spills requiring reports to the government from other Costcos in other states throughout the country. As a result of the three instances, changes to either the design of the stations or the operations of the stations were made, including high tech caulking to make the concrete joints impermeable. In his opinion, the Costco station poses fewer risks to the public because a trained attendant at a busy station makes a safer facility. He believes Costco operates as safe or safer gas stations as anybody in the United States. Tr. 5/23/13, 116-127.

On cross-examination, Mr. Hurlocker testified that the key elements of his design review are traffic circulation, tank placement, where the truck will come in, the key issues involving successfully operating for the convenience for Costco's members. The average length of each gasoline sales transaction by the time a customer pulls up, parks, gets out of the vehicle, pays, and fills is about four minutes, but it varies greatly. The number of transactions in a very busy station would exceed 2,000 per day. Costco's staffing guidelines call for one attendant at all times and more as needed. Tr. 5/23/13, 130-146.

Mr. Hurlocker further testified that cars queued at the station usually move every two minutes, so typically members don't turn their cars off. The sixth car in line would probably wait 15-20 minutes to get to the pump. Tr. 5/23/13,150-155. Costco has other stations where fuel trucks will be partially located in drive aisles, but it is better when it is not. Tr. 5/23/13, 187-191.

[Mr. Silverman introduced a summary of fires at U. S. Service stations put out by the National Fire Protection Association (NFPA), which was marked as Exhibit 142]. It shows about 1,200 such fires each year. Mr. Hurlocker does not see a problem in the location of the gas station in relation to the warehouse. Tr. 5/23/13, 205-210. Mr. Hurlocker differentiated a fire that occurred in an Exxon station in Jacksonville, Maryland because in that case, a technician accidently drilled into a single-wall pipe, causing the leak, but Costco has double-walled pipes, and the monitors would have detected the leak immediately and shut the system down. Tr. 5/23/13, 221-223. According to Mr. Hurlocker, if a power failure lasted more than two hours and the battery of the non-interruptible power supply ran down, then the station cannot operate. When the power is off, there is no pressure on the lines and there is no power to the equipment, so there would be nothing pushing any product into the ground. Also, without the monitoring system in full effect, the station cannot reopen. If the underground tanks were completely covered with water, the station would continue to run without a problem. Tr. 5/23/13, 223-228.

On redirect, Mr. Hurlocker was asked whether Costco would obey the Maryland anti-idling law (Maryland Transportation Code, §22-402(c)(3)), and he replied that it would. [The

Hearing Examiner raised the question of whether it applied when cars only idle two minutes between movement, given that the statute prohibits idling for 5 minutes between movements and contains an exception when the vehicle is forced to remain motionless because of traffic conditions.] Tr. 5/23/13, 233-237. When asked whether he had any suggestions for modification of the plans, he suggested moving the underground tank locations about 3 feet to the east, so that refueling trucks would be further removed from the western drive aisle, and modify the landscaping island to accommodate this relocation. [The Hearing Examiner advised Applicant's counsel that if Applicant planned such a change, it would have to submit a modified plan, because it is unlikely that a change in the site plan of this kind could be effectuated by a post-hearing condition. Applicant is to decide by the June 4 hearing how it will proceed.] Tr. 5/23/13, 237-249.

At the beginning of *Hearing Day 5 (June 4, 2013)*, the Hearing Examiner announced that notice had been sent out for the agreed upon new hearing dates, and that, with everybody's consent, the morning of Wednesday, July 31, 2013, was set aside for testimony from community members who may wish to be heard individually. Tr. 6/4/13, 7-8.

He also mentioned that Board of Appeals Rule 7.1 allows a person to videotape, televise, photograph, broadcast, or record a hearing after obtaining permission from the presiding officer, as long as the activity will not disrupt the hearing. Tr. 6/4/13, 8-9

The Hearing Examiner also alerted the parties that Zoning Ordinance, Section 59-G-1.21 (a)(9)(B) casts doubt on whether the Hearing Examiner or the Board of Appeals has authority to make a formal determination of adequate public facilities for the site because Technical Staff indicated in its report (Exhibit 70, pages 8 to 10 and pages 17 to 18) that the determination of adequate public facilities for the site is currently valid; that is for the whole Wheaton Plaza; and it is sufficient to cover the impacts on public facilities anticipated from this proposed gas station. Tr. 6/4/13, 9-11.

A long discussion was held about whether Applicant was changing its plans regarding a walkway along the southern ring road, extending the proposed wall, adding bollards and moving the fuel tank refill area a few feet to the east within the site. The Hearing Examiner noted that changes in the plans often result from testimony at a hearing and that such changes are contemplated by the rules. As happened in this case, the Hearing Examiner asked Applicant whether it would consider changing the plans back to having a pedestrian walkway along the southern ring road because that is what the community wanted. The Hearing Examiner indicated that the Opposition would not be prejudiced by these changes since they had ample notice that they were in the offing, and the revised plans would be provided prior to the Opposition having to cross-examine the land planner. In fact, the revised plans were provided by the time Mr. Gang testified. Also, the Hearing Examiner required Applicant to send out notice to the community of the new plans and supply copies to Technical Staff and the Planning Board for their review. Tr. 6/4/13, 5-40.

Copies of the revised plans (11 X 17) were introduced and distributed (Exhibits 148(a) – (c)) before Applicant's land planner, Stephen Gang, took the stand. The Westfield-Costco the lease was introduced as Exhibit 149(a). The first amendment to the lease, which is Exhibit

149(b). The authorization letter from Jim Agliata, Westfield, was marked Exhibit 149(c). Tr. 6/4/13, 50-55. The full size plan copies (Exhibits 152(a) – (c)) arrived and were distributed during Mr. Gang's direct examination. In addition, Applicant provided a redline overlay showing the changes in the plans (Exhibit 153), a pedestrian circulation exhibit (Exhibit 154), a car turning exhibit (Exhibit 167) and a truck turning exhibit (Exhibit 156). Tr. 6/4/13, 166-168.

9. Stephen Gang (Tr. 6/4/13, 93-290; Tr. 6/17/13, 11-152):

Stephen Gang testified as an expert in land planning. He stated that the existing special exception parcel is located in a C-2 zone, and the proposed use is a permitted special exception in the C-2 zone. He also opined that the filling station is in complete conformance with the applicable Sector Plan's specific goals for the mall district and the general goals of the Sector Plan. Moreover, the filling station would not undermine the specific goals of the other districts within the sector plan. Fourth, the filling station would not adversely impact the opportunity for mixed-use developments within the Sector Plan area. The zoning ordinance under Section 59-G-1.21(a)(3) specifically states that the appropriateness of a special exception is determined at a particular location. The Sector Plan has specific recommendations for the Westfield District, and also has recommendations for the other districts. There are also general overall goals for the Sector Plan. Specific recommendations outweigh and trump the general in interpreting a Sector Plan, for purposes of land use planning. This Sector Plan has very specific recommendations for this parcel, and the application is still in conformance with all the general goals of the Sector Plan. Every parcel can't meet every general goal in a Plan covering 485 acres. When you are reviewing a Sector Plan, and there are both specific and general goals, the specific ones for the site control over the general ones, per the Zoning Ordinance. He feels that the Planning Board, in finding that the proposal was not supported by the Sector Plan, failed to look at the specific recommendations for this site. This proposal does not undermine any of the objectives regarding mixed-use development at the locations where it is proposed within the Sector Plan. Tr. 6/4/13, 93-104.

Mr. Gang introduced Exhibit 150, which is a highlighted version of the Wheaton CBD Sector Plan. Referring to pages 42 and 43, he noted that the Westfield District is its own individual district; there are four other districts besides the Westfield District; each of the districts has its own unique and distinct character, as is emphasized on the top of page 43; and the third line down states that the Westfield District has the potential to evolve into a mixed-use district enhancing the mall as a retail destination. Tr. 6/4/13, 107-108.

Then the specifics for the Westfield District are found on page 52 through 55. On page 52, the map on the right-hand side is the zoning that was approved by the Council in number one. Number two shows that the existing proposed filling station site is in the C-2 zone. Three, the proposed mixed-use zoning is along Veirs Mill Road as CR 6. CR means commercial residential with a floor area ratio (FAR) of 6. Along the westerly property line and the southern property line is the location of the existing green buffer, separating the mall and Kensington Heights. On page 53, in the opening paragraphs, it notes that the Westfield Mall is the eastern county's regional mall, and by definition, regional malls mean, generally, people traveling 15 to 25 miles to a mall. The second thing is that the owners have no plans to develop this property other than retail, and the C-2 zoning is not conducive of mixed-use development. Tr. 6/4/13, 108-110.

There are four relevant specific recommendations for the Westfield District (page 55):
1. The rezoning of the District to the CR component is along Veirs Mill Road and that's the area highlighted in blue;
2. The area where the filling station is, is going to be C-2 for the remainder of the site;
3. Preserve the existing buffer in its entirety, which this filling station does, and that the buffer should be maintained as a forest, as has been planned here along with additional landscaping. Explore opportunities for expansion of the buffer as future major redevelopment occurs on the mall site. Mr. Gang pointed out that this project is not a major redevelopment since the actual area of the special exception is approximately only one percent of the total mall area. The actual physical structure of the filling station itself is 128 square feet out of 1.6 million square feet in reference to the mall;
4. No structures within the buffer, which will be followed here, and building setbacks within 200 feet of the of the southern property line should be a maximum height of 45 feet. The proposed height is 17 foot 6, well underneath that. So in reference to the recommendations of this Sector Plan, this application is in complete conformance with the specifics for the Westfield District. Tr. 6/4/13, 110-112.

On page 58, the last bullet point deals with land use and zoning, and it states that existing single-family residential neighborhood should be preserved and protected from adverse impacts of nearby residential development. Mr. Gang opined that this is being done by the current zoning, with the existing buffer, thus meeting the Sector Plan recommendations. Tr. 6/4/13, 112-113.

Mr. Gang then discussed general goals of the Sector Plan. He noted that on page 9, the Sector Plan lists the fact that Wheaton has "a regional mall" as part of its role in the County. He emphasized that on page 10, the Council indicated that the major redevelopment was to occur near the CBD, not all the areas, and the relevance of this is that the filling station is nowhere near the CBD. On page 12, the recommendations of the Sector Plan are based upon four overarching principles – diversity, connectivity, design, and environment. In Mr. Gang's opinion, the filling station does not undermine any one of those principles. On the top of page 19, the Plan recognizes that the Westfield Mall is a regional draw. On pages 22 and 23, the Sector Plan has identified where a variety of mixed uses should occur, and again, the filling station is nowhere near any of those priority streets. Pages 28 and 29 discuss urban design concepts, but the location of the filling station is nowhere near where these major urban design concepts are. In Mr. Gang's opinion, the large gray arrow that flows apparently right through the site location on page 28 just means that everything from the outside points to the center. The point is that the yellow area is highlighted as the area of likely redevelopment, and it is not near the subject site. On page 30, the Westfield Mall area is highlighted in red, and the legend states that it is commercial, with parking. On page 31, the location of the proposed filling station is defined as regional shopping. Tr. 6/4/13, 113-123.

The series of graphics on pages 36 through 40 indicate where the redevelopment should occur, including densities, heights and proposed zoning, and the filling station is nowhere near any one of these mixed-use CR recommendations. For the Westfield District and specifically the location of this filling station, the C-2 Zone is retained and there are no recommendations for

mixed use within that area. Tr. 6/4/13, 123-125.

Turning to the Sector Plan's discussion of mobility on pages 59 -61, Mr. Gang noted that there is no existing or proposed pedestrian pathway along the ring road, but in his opinion, one could be added without contradicting the Sector Plan. Page 67 shows a proposed shared vehicle/bike roadway (on-road Class 3) in front of the filling station and ringing the whole mall, and the proposed plans are in compliance with that. Tr. 6/4/13, 125-128.

Mr. Gang stated that TOD (transit-oriented development) is development which encourages a mix of uses in close proximity to transit (Metro and buses). On page 70, the transit stations where Metro is and the location of bus stops are identified along the three major highways, along Veirs Mill Road, Georgia Avenue, and University Boulevard. There are also a transit stop and a few ride-on stops within the mall. In Mr. Gang's opinion, the Planning Board overstated the transit-oriented development concept in terms of its application in the Sector Plan; his interpretation of the Sector Plan is that TOD is intended for the CR zone area and the CBD Zone, but not for the C-2 zoned area, which the Sector Plan recognizes as a regional mall to attract cars, and it is not transit-oriented. If in fact the gasoline station were established as planned, in Mr. Gang's opinion, it would have no impact on transit ridership, or on the decisions by employees or residents within the sector plan area as to whether they choose to drive or whether they choose to take transit because the filling station is basically dependent upon outside users from the area. The establishment of the gas station won't impede the Sector Plan's vision of creating TOD areas within the Sector Plan. Tr. 6/4/13, 128-134.

Mr. Gang discussed environmental goals of the Sector Plan on pages 73-76 and opined that the Applicant's plans were consistent with these goals. He also noted that on page 86, the Plan provides that adequate public facilities approvals made prior to the adoption of the Sector Plan remain vested through their expiration date and are not affected by any of the rezoning. Mr. Agliata testified that, even if this filling station is not approved, Westfield plans for the addition of development within the mall to use that 150,000 square feet. [Applicant's counsel indicated that DPS confirmed on November 19, 2012, that the APFO determination does not expire until July 18th, 2017 (Exhibit 86(c)).] It can be used as a "pad site," anything which is retail-oriented that can stand on its own or with a combination of a few other uses. Tr. 6/4/13, 134-138.

Mr. Gang opined that the proposed filling station conforms to the specific land use recommendations within the Westfield District of the Sector Plan. The mixed-use component of the sector plan is recommended elsewhere, in those areas of the CR zone, which is highlighted on the plan. The approval of the filling station will have absolutely no effect on TOD and the walkable community within the Sector Plan. The proposed station is consistent with the recommendations of the sector plan, and there is no reason pursuant to the Sector Plan that the station should not be permitted at the proposed location. Tr. 6/4/13, 139-140.

Mr. Gang also introduced excerpts from Wheaton CBD Sector Plan Design Guidelines (Exhibit No. 151). He disagreed with Ms. Duckett's statement (Exhibit 82) and Ms. Savage's statement (Exhibit 80(h)), arguing that both they and the Planning Board ignored the requirement of Zoning Ordinance §59-G-1.21 that the analysis of the special exception be site specific, in this case to the Westfield District. Mr. Gang opined that the transition called for in the Design

Guidelines would be provided by the buffer zone that exists and that the proposed gas station would not adversely affect the overall TOD and mode share goals. Whether or not the special exception is granted, an auto-oriented pad use will be established on the site, so no more cars will be drawn to the area under the present plans. Mr. Gang also disagreed with the suggestion that the gasoline station would interfere with pedestrians walking to the Metro (the "ped shed") anymore than any other use that would be expected in a mall parking lot. Tr. 6/4/13, 140-150, 160.

Mr. Gang described how he arrived at his definition of the general neighborhood. He indicated from photos of the mall in Exhibit 158 that the Westfield District is very distinct in its character in relationship to the other districts in Wheaton. The mall, as a community, has a completely separate operational component to it in reference to the way it operates towards Kensington Heights. In his planning, Mr. Gang defines a district as a distinct neighborhood, so that why he thinks his definition of neighborhood is the correct definition for the filling station. Exhibit 159 shows the extended area that Technical Staff used as its neighborhood definition versus his own. Tr. 6/4/13, 175-197. Mr. Gang agreed that in land use, the general neighborhood is defined as the area which would be most affected by the special exception. He added that whichever definition of neighborhood is used, his conclusions will be the same. Tr. 6/4/13, 197-202.

Mr. Gang reviewed the Zoning Ordinance requirements for this special exception and the inherent characteristics of auto filling stations. He listed the following inherent characteristics, as compiled from other special exception cases (Tr. 6/4/13, 203-210):

1. physical presence of any structures including canopy and sales area or kiosk;
2. traffic normally associated with a gas station;
3. fumes associated with vehicles patronizing the gas station;
4. on-site queuing of vehicles for the fueling station;
5. noise from outdoor activities and deliveries;
6. lighting necessary for safety of customers and employees;
7. signage indicating name of station and product types;
8. impervious surfaces necessary for safe and efficient on-site vehicular movement;
9. underground fuel storage tanks;
10. potential environmental impact from spillage of oils and other automotive fluids;
11. fuel pumps;
12. issues associated with access to the filling station site;
13. longer hours of operation than normal retail uses or/and hours of operation.

As to the last point, Mr. Gang noted that Costco's hours are much less than a normal filling station's hours. Tr. 6/4/13, 209.

Mr. Gang recited Technical Staff's list of non-inherent characteristics of the proposed station, noting his disagreement with item 2 and opining that none of them cause any adverse effects in this case (Tr. 6/4/13, 210-211):

1) Sales to Costco members only;

2) Location along a private road, near houses;
3) Size (volume of gasoline sold, and number of pumps);
4) Queues and traffic volume along the southern ring road;
5) Type of gasoline sold (regular and unleaded, only); and
6) Payment by debit or credit card only.

According to Mr. Gang, numbers 1, 3 and 5 clearly have no adverse impacts. As to location along a private road, the location of this specific filling station is far superior than normal filling stations along public roads, according to Mr. Guckert's testimony. The reason for that is most public roads have a number of access points, usually at a corner of a street; cars come in from numerous locations; people are parked in opposite directions; there is no specific location for the filling truck, compared to this situation, in which it's very easy to go one way in, and everybody knows which way they're going. The location of this specific filling station is in the remotest point of the mall in which there is the least amount of traffic, as testified to by Mr. Guckert. As to the second point – location near houses -- the filling station itself (*i.e.*, from the structure where the pumps are located) to the southern property line of the nearest residence is 258 feet. To the west, the distance is 379 feet. There are numerous examples of single-family homes in the same general characteristic of locations related to this filling station. There are no houses within 200 feet of the pumps and only eight within 400 feet of the pumps. Tr. 6/4/13, 211-215.

The Hearing Examiner asked Mr. Gang whether the distance that is most significant in this case is the distance to the nearest residential property line from the southern site plan line (*i.e.*, 118 feet) because there are going to be cars queued all along the southern part of the site and their fumes is an issue here as a non-inherent adverse effect? Thus, it's not just the structure of the pumps that's the problem, maybe not even the main problem, given the devices that are used to collect fumes at the pump, but there is an issue claimed by the opponents here that the queued cars are going to produce a lot of fumes. Mr. Gang responded that according to Mr. Sullivan's report, there will be no adverse effect from that queuing, given the distance and the intervening buffers from the forest and the proposed wall. Moreover, the peak queues will occur for only a couple of minutes on a peak Saturday or Sunday. The vast majority of time, only one or two cars will be queued, bringing the fumes about 40 feet closer than the distance to the pumps. Also, the fact that the gas station doesn't provide any other services besides pumping gas is a vast improvement over what other filling stations have. Tr. 6/4/13, 215-223.

Mr. Gang further testified that Applicant's plans are in compliance with all of the Zoning Ordinance requirements, both general and specific, taking into account the testimony of Applicant's experts. He also noted that the site is not abutting a residential area because it's actually fully within the C-2 zone, whereas the C-2 zone itself may abut a residential area. Tr. 6/4/13, 223-236.

Mr. Gang reviewed photos of the site from nearby residential properties, and also testified that all required setbacks are being met. One is the setback if you're adjoining a residential zone and being the most conservative, abutting the R-60 zone in which there's a 25-foot setback. There's also a setback for the pumps to the nearest property line, being 10 feet. The zoning text amendment setback specifies 300 feet from those uses which are listed in that

text amendment, and Applicant exceeds that 300 feet. According to Mr. Gang, in the suburban location of Montgomery County, the number of residences within a 400-foot radius of this station is lower than most stations. Tr. 6/4/13, 237-246.

Mr. Gang referenced photos from Exhibit 86(g), comparing existing gas stations he feels are comparable to the proposed filling station in their relationship to existing residential communities. The photos were given their own exhibit number, as Exhibit 160, a comparison of proposed Costco station with other Montgomery County gas stations in terms of number of single-family residences within a 400-foot radius. He noted that many had numerous single-family houses within a 400 foot radius of the filling station; for example, Number 29 is at University Boulevard, had 17 houses within that 400 foot cone, plus an existing multifamily building. At Site 30, there are 43 homes within 400 feet. At Site 28, Montgomery Blair, there are 11 homes within the 400 foot radius of the gas station. At Site 36, off of University Boulevard, there are 19 within 400 feet, and 6 are within 200 feet. At Site 43, there are 20 within 400 feet. Sites 44 and 45 are the stations at Montgomery Mall; there are 32 houses within 400 feet. At site 47, there are 29. At sites 48 and 49, which is Veirs Mill Road, inside the Sector Plan, there are 14. At site 51, there are 18 within 400 feet, and they were built after the station was built. He concluded that many other County stations have residences within 400 feet, and many of those have more than four houses within that radius. Tr. 6/4/13, 251-264.

Mr. Gang opined that the proposed special exception will satisfy all of the applicable code requirements and will be compatible with the long-standing commercial operation of the Mall and the general neighborhood as defined by Technical Staff. In his opinion, there will be no adverse impacts. It's an incremental density to the mall itself; it's consistent with the existing zoning; and it's compatible with the by-right land uses surrounding the station. The use exceeds all the setbacks in the C-2 zone, including the separation requirements imposed by zoning text amendment. Tr. 6/4/13, 265-266.

On cross-examination, Mr. Gang admitted that his testimony did not address any of the plan revisions that had been made after his report of November 2, 2012 (Exhibit 10), but he was advised of the changes, and later he added that his testimony was based on the latest information because his testimony addressed the land use issues not affected by the plan changes. He also admitted that he has not testified as an expert regarding any other gas station located on the parking lot of a mall. Tr. 6/4/13, 266-281.

When the hearing resumed on the *Hearing Day 6*, Mr. Gang indicated that his testimony deals with Master Plan or Sector Plan conformance, not with specific site plan issues, so the existence or absence of a pedestrian path is immaterial to sector plan conformance and thus to his testimony. The same applies to the proposed 46-foot extension in the perimeter wall. Its extension or lack of extension does not affect his conclusions with respect to conformance with the Sector Plan. He modified that answer saying that he does not know how to answer that question because there is no discussion about any wall of any size in that location in the Sector Plan. With respect to the other changes that Costco has proposed, moving the fueling location for the fuel trucks eastward toward the interior of the special exception itself and the addition of the bollards and removable chains, neither proposed amendment would affect his Sector Plan analysis in any way. In sum, none of the proposed changes would affect his Sector Plan analysis.

Tr. 6/17/13, 11-15.

Mr. Gang indicated that the overall square footage of the special exception area is 37,754 square feet, less than an acre. Tr. 6/17/13, 16. The conclusions in his reports for the prior location and the present location about what was a feasible location for the proposed site were based on what the Applicant and Westfield told him about contractual limitations for mall users and not based on land use considerations. Tr. 6/17/13, 24-29.

Mr. Gang admitted that when he analyzed the proposed site plan's conformance with the Sector Plan, he did not take into account an apparent informal pedestrian path just to the southeast corner of the Costco warehouse location. Tr. 6/17/13, 38-42.

Mr. Gang stated that the conclusions in his report regarding the impact of the proposed special exception on economic value of surrounding properties and issues of objectionable noise, vibrations, fumes, odors, dust, illumination, glare, or physical activity were based on the findings of other experts hired by Applicant, not his own expertise. The same is true about possible health effects on residents, visitors, or workers in the area of the subject property and about traffic impacts and pedestrian movements. Tr. 6/17/13, 43-46.

[In an exchange between KHCA's counsel (Michele Rosenfeld) and the Hearing Examiner, KHCA's counsel pointed out that Item LB-5 of Table 3 on page 66 and the map on page 67 of the Sector Plan, indicates that a "Signed Shared Roadway or Shared Use Path" was recommended for the southern Mall Ring Road, and that could either include a bike path or it can be a pedestrian path alongside of a vehicular road. Ms. Rosenfeld also indicated that while KHCA was concerned about the safety of the proposed 3-foot-wide pedestrian path, some path is preferable to no path. A further question was raised by the Hearing Examiner as to whether the proposed wall was within the buffer or not and whether it was required under the applicable Code section if the existing forest buffer was adequate screening without it. A discussion then ensued as to whether the proposed structure was a wall or a fence. Tr. 6/17/13, 83-99.]

[Eleanor Duckett of KVCA cross-examined Mr. Gang, challenging his view that because the Sector Plan specifically approved the C-2 Zone for this commercial mall area, not every Sector Plan goal is applicable to every little portion of the sector, and the Hearing Examiner indicated he understood the distinction between Mr. Gang's view and the Opposition's concept, and perhaps the Planning Board's concept, of the Sector Plan, which is that the goals of a transit-oriented Sector Plan apply across the board to the whole of the Plan. Tr. 6/17/13, 109-127.]

On redirect, Mr. Gang testified that the special exception area does not abut a residential zone. He stated that the forest buffer that adjoins the mall parcel ranges from about 30 feet wide to 70 feet wide, and at its widest point in the southwest corner of the mall, it is approximately 190 feet wide. It ranged in vertical height from 11 to 17 feet. There currently are landscaping and trees existing within that buffer area. The topographical difference between the subject special exception area and the nearby residential area ranges between 11 and 17 feet. In Mr. Gang's view, those factors constitute an effective natural terrain feature that would screen the special exception area from the residential area. He further opined that the proposed wall is not necessary to meet the requirements of Zoning Ordinance §59-G-2.06(b)(2). There is no

requirement in the Zoning Ordinance that a gas station not be visible from a residential property. Tr. 6/17/13, 132-133.

The existing and proposed street and pedestrian connections are shown on page 61 of the Sector Plan. That map does not show the informal pedestrian path that connects with the mall from Mt. McComas Avenue. Mr. Gang also explained the designations of bike lanes: Class 1 is a bike lane, completely separated from the street. Class 2 is a dedicated bike lane within the street; Class 3 is a shared road for cars and bikes, with no separation. The one specified in the Sector Plan (p. 67) for the ring road was Class 3. Tr. 6/17/13, 135-139.

On re-cross-examination, Mr. Gang indicated that the mall was at a higher elevation than the neighborhoods to the south and west, but that depending on the time of the year one could see the mall at least from some of the townhouses further to the east. The Hearing Examiner asked whether in the present existing conditions, including foresting, can one see the features on the mall from nearby neighborhood to the south and west. Mr. Gang indicated that the gas station, if erected as proposed and if there were no wall, would not be any more visible than the Costco warehouse to these homes. He admitted that he had not been to the second floor of any of these homes in the neighborhood. Tr. 6/17/13, 145-152.

10. David Sullivan (Tr. 6/17/13, 153-283; Tr. 6/19/13, 15-302; Tr. 7/8/13, 40-154; Tr. 7/30/13, 44-165; Tr. 9/20/13, 8-206):

On *Hearing Day 6 (June 17, 2013),* David Sullivan testified as an expert in meteorology, air quality modeling and analysis, noise and odor analysis, and in determining potential exposure to toxic chemicals. He has considerable experience in air quality modeling and analysis and in assessing toxic levels of air pollutants, including as a contractor for the federal Environmental Protection Agency (EPA). The Opposition objected to his expertise regarding noise analysis, based on his lack of training in that area. The Hearing Examiner accepted him as an expert in all the listed areas, but noted that his more limited experience regarding noise analysis would go to the weight to be accorded his testimony. Tr. 6/17/13, 153-167.

Mr. Sullivan stated that his analysis showed that there were not any violations of any standards or risk thresholds to the neighboring homes associated with a gas station in this location pumping up to 12 million gallons per year. His analysis did not take into account the intervening trees, but if he had, there would have been a small reduction in concentration. Typically, the rule of thumb is that a forested area will filter out some of the particles, but it's not a large factor. It could be 10 or 15 percent. The proposed wall under certain conditions could potentially deflect the flow, especially at night, not very much in the daytime. Based upon the study he did of the meteorology at the mall, it appears unlikely the wall is going to have much of an effect on deflection. In his opinion, the wall is a neutral factor. The trees will reduce things slightly, maybe 10 or 15 percent, but his study assumed they didn't reduce things at all. If all else is equal, the more gas pumped, the more emissions you would have. His statement in his reports that the increase did not equate with more pollution was based on the fact that there are antipollution devices included by Costco, including the Arid Permeator, and the presence of an attendant to address spills. Tr. 6/17/13, 169-172.

Mr. Sullivan further testified that there is no separate federal standard for ultrafine particles as distinguished from fine particles. In his opinion, it would be patently unfair to an applicant for any air permit to apply an undefined standard. Tr. 6/17/13, 173-174.

In response the Hearing Examiner's question as to what portion of the air quality problem would be created by operation of the gas station, including pumping gas, queuing cars and truck deliveries, Mr. Sullivan stated that it won't exceed standards relating to causing a health problem in the immediate vicinity of the gas station, and will tend to reduce, to some extent, the regional emissions. The gas station operations will emit volatile organics that are associated with the gasoline pumping process and the delivery process, as will any gas station. This gas station is larger than most; so it will have somewhat more of those. The queuing of cars in 2013 or 2014 is a very tiny source because of the new pollution controls on cars, even if they're continually idling while they're waiting. The EPA has made tremendous advancements in tailpipe control technology, and the current emissions are very, very small. Even after quantifying all those emissions, the delivery of the gas trucks, the fueling, the minor spills, the more major spills, the tailpipe exhaust, the cars driving there, the comparison to the national standards shows that this project would be well within the standards. The cancer risk assessment compared to any guidelines that exist, is at de minimis or lower levels. So, there is no basis to conclude that the operation of this gas station will cause a health problem. Tr. 6/17/13, 175-178.

The Hearing Examiner posed the question, "assuming that this gas station were approved and operated fully as it is proposed, is there a way to determine what proportion of . . . dangerous air pollutants, would be caused by this gas station versus the overall area level of pollutants?" Mr. Sullivan answered that his analysis did that assessment for each criteria pollutant. Using fine particulates ($PM_{2.5}$) as an example, fine particulate modeling of this facility shows that the annual concentration at the maximum location is about .01 micrograms per cubic meter, even scaling up for the most recent mobile source emission model. The background concentration as of 2013 is approximately 10.8 micrograms per cubic meter. Costco's contribution at the most affected location is approximately one thousandth of the background. As to ultrafine particulate matter, Mr. Sullivan stated, "Where there's no standard, we can't compare our numbers, but I can say that if a facility has a maximum impact for PM 2.5 [of] . . .01 micrograms per cubic meter, you would not find any regulator in the United States at the state or federal level that would have a concern about ultrafine particles." In his opinion, the incremental contribution from the proposed Costco gas station would be "clearly trivial." He added that the indoor contribution from ultrafine particles and from fast food restaurants is much higher than you typically see near a freeway. "Inside your home, if you're frying onions and frying chicken and using incense and burning candles and, heaven forbid, smoking, you're going to have a lot higher particle counts than you're going to get in the typical ambient air." Tr. 6/17/13, 178-181.

Mr. Sullivan agreed that there could be micro-areas (a "personal cloud"), as suggested by Dr. Jison, but there's no EPA standard for air quality inside a home, and the amount of particulate matter is small. The concept is real, but in the context of this application, it really doesn't have any bearing. Generally, you would not worry about particles from a gas station; you worry about the gas phase, the volatile organic compounds (VOCs). Tr. 6/17/13, 181-184.

Mr. Sullivan also rejected the assertion made in some of the Opposition papers that he used the incorrect model (the MOBILE6 model) instead of the newer MOVES simulator. He stated that he approached the Washington Council of Governments, which would have the requirements of what input should go into a model like that, but those inputs weren't available. He tried repeatedly, as recently as a week before the hearing and was told the same thing: sometime this summer they'll get those guidelines out. Mr. Sullivan testified that if he had used MOVES, based on the literature, there would have been some higher numbers, but not much higher. Tr. 6/17/13, 184-186.

Mr. Sullivan reviewed his PowerPoint analysis, concluding that based upon standard EPA methods, air quality impacts projected from the proposed gas station are far below (*i.e.*, less than the maximum thresholds) as defined by the National Ambient Air Quality Standards, and those standards are built with a margin of safety, as required by the Clean Air Act. They are also substantially below the guidelines of the World Health Organization, even with the impact from Costco added on. Those guidelines are not binding, as the EPA standards are. The chemicals that were evaluated include fine particulates, carbon monoxide, nitrogen dioxide, and volatile organic compounds. The VOCs are generally what's emphasized at gas stations in review. Tr. 6/17/13, 187-191, 202.

Mr. Sullivan also testified that background noise levels were low in the Kensington Heights neighborhood, and that it would be "fairly rare" for there to be odors detectable beyond the ring road. Tr. 6/17/13, 192-193.

Mr. Sullivan added that he evaluated the impacts for the Costco gas station in 2013 as being low, and as time goes forward and the fleet continues to turn over, with newer cars going on the road and older cars going off the road, that evaporative losses will continue to go down and tailpipe controls will improve, so projecting to the future, the impacts will be substantially less. Even though the projected Costco Wheaton gas station is large in terms of sales, it is not that large in terms of emissions compared to stations in the past, as shown in Slide 6. In fact, a one-and-a-half-million-gallon gas station, back in the early 1990s would have similar emissions as Costco would have when it opens now. If you go to a 3-million-gallon-per-year gas station in the early 2000 time frame, emissions were a lot higher than they are today. On-board charcoal canisters on the cars starting in the 2006/2007 time frame have continued to reduce emissions from gasoline marketing. Moreover, a 12-million-gallon-a-year gas station without the Permeator would have emissions about eight times higher than your typical gas station, but the proposed station, with the Arid Permeator, reduces that to approximately five times larger in 2013, and if extended to 2025 compared to today's, it will be on the order of two to two-and-a-half times larger. There has also been a tremendous percent reduction in emissions from 1990 to 2010, due to the EPA. Tr. 6/17/13, 194-201.

According to Mr. Sullivan, even applying a scale up to the MOVES model, the modeling of Costco's particulate emissions is 30 times lower than what EPA defines as insignificant for incremental emissions. He does not agree with Dr. Cole's assessment of ultrafine particulates. Dr. Cole requested that Applicant broadly model the mall sources and maybe some of the local gas stations to get a more direct indication of their contribution to Kensington Heights and other places. That's not standard because there's no defined ending to that kind of an approach. The

normal procedure that EPA follows is to model the proposed facility and add to that a conservative representation of all other sources, using available regional-measured data, adding the highest values on to what is being modeled. In the end, he did model all the loading docks, and he built in tremendous embedded conservatism that overstated the impacts from the mall anyway. Mr. Sullivan recited the numerous factors he accounted for to increase the conservatism of his analysis. At the suggestion of Dr. Cole, he ran a model (CALPUFF) that considers the terrain, the heating and various factors, and it computes how the wind will tend to follow that terrain. He added a factor to account for major spills (a gallon or more) based on the operational history of Costco stations. He also increased the queuing assumptions from 2 to an annual average of 10 cars queued on average during the operational time, and that was confirmed during the testing done in January at Sterling -- weekend and weekday. Mr. Sullivan lowered the surface roughness assumption so that it would be similar to an airport, which increased the impacts by a factor of two by reducing dispersion. In addition, the maximum peak traffic counts were used for all averaging times from the ring road in, taking the hour of the day that has the highest number of cars and using that all the time, all year long. Thus, the ring road traffic is substantially overstated by about 84 percent to be conservative. He also discussed other factors that he, in effect over-counted (such as parking lot traffic and idling trucks), in order to be conservative. On the other hand, he also modified his model to account for the arid permeator and the beneficial effects of the charcoal canisters. Nevertheless, in his opinion, the modeling that is done now substantially overstates the impacts and is thus very conservative. Tr. 6/17/13, 206-226.

Mr. Sullivan added that when he originally started this project, the EPA standard for fine particulates was 15 micrograms per cubic meter (15 $\mu g/m^3$) average on an annual basis. He had been using a very conservative background value of 12.1 $\mu g/m^3$, but the EPA then modified the standard to 12 $\mu g/m^3$. Also, since the Washington Council of Governments is using 10.8 $\mu g/m^3$ to indicate the average annual background levels, he modified and refined his values and used 10.8 $\mu g/m^3$ at the average annual background. Tr. 6/17/13, 227-228.

According to Mr. Sullivan, the EPA does not model individual gas stations or require permits is that gas stations do not put out a high level of air pollution. Nevertheless, he has done a very extensive analysis here modeling the warehouse parking lots, modeling the ring road, modeling the cars queuing to get their gasoline, modeling where they pump their gas, where they exit the gas station, enter the gas station, Georgia Avenue, Veirs Mill, and University. That is a very extensive analysis for a gas station, very atypical. He did this using the EPA standard emission factors based upon what's called AP 42, a standard EPA reference text, following EPA procedures and running dispersion models in accordance with how EPA wants to have dispersion models run. Using the Sterling Virginia Costco as a base, he took the Friday sampling to represent Monday through Friday and the Saturday data to represent Saturday and Sunday. He added that even if one increased the queuing assumptions fourfold above these values used, it would not threaten any EPA standard because the queuing emissions are very, very small. Using the updated queuing value, the total fine particulate emissions from all sources (not just queuing) would be at 32 percent of the standard. Tr. 6/17/13, 229-237.

Mr. Sullivan used Slide 36 of his PowerPoint presentation to indicate that the gas station contribution (including all the traffic it would generate) to $PM_{2.5}$ (fine particulates) by itself is

very small, but the background level is high so the totals are high; however, they do not exceed the EPA standard of 12 $\mu g/m^3$. Although the gas station would generate a larger portion of the overall total levels of CO and NO_2 than it would for fine particulate matter, the totals for CO and NO_2 (which are also shown in slides 38 and 39) are much lower that the EPA standards overall. There are no National Ambient Air Quality Standards for VOCs. Tr. 6/17/13, 261-271.

Mr. Sullivan further testified that M-NCPPC Technical Staffer Amy Lindsey was incorrect when she stated in Attachment 8 to the Staff report that while the CO emissions are well below the NAAQS standards for the maximum one-hour standard, they will create a CO hot spot similar to those created at intersections and that the hot spot created with this gas station will not dissipate as quickly as at intersections. Mr. Sullivan said Ms. Lindsey admitted at the Planning Board session that she did not have this kind of modeling experience distinguishing between the urban and rural settings. Moreover, since the CO concentration is at only 20 percent of the standard, her statement was in conflict with the actual evidence. The same kind of error was made with regard to her comments about NO_2 concentrations. According to Mr. Sullivan, a hot spot in the context of air toxics denotes an area that has particularly high levels of concentrations, such as near a particular chemical factory, but nothing happening at this Costco gas station can be construed as any kind of a hot spot. Tr. 6/17/13, 271-275.

Mr. Sullivan then addressed the issues of noise and odors. He did noise monitoring at the Sterling gas station to get an indication of the noise levels at a very similar gas station, and he also did modeling of the noise levels. He opined that the noise levels would be below the County ordinance. The maximum modeled value, on an average day/night value, with a nighttime penalty, was 54.3 decibels. The ordinance provides, in a residential area, a limit of 65/daytime and 55/nighttime. It's below those values. For the pool, which is non-residential, it was 67 to 62 decibels, and it's below that as well. From modeling all of the incremental sources, modeling Dick's, modeling Costco's warehouse, and the gas station operations, and adding that onto background, he found values that were below the County ordinance level. The actual contribution of the gas station above background was quite small. He showed the results with and without the inclusion of the acoustic wall, which has been termed now a screening wall, but it does have acoustic properties which will reduce noise levels. The 54.3 decibel level is the highest level that his model showed. Technical Staff agreed that it was a low impact. Tr. 6/17/13, 277-279.

To measure odors, Mr. Sullivan did odor testing at the Sterling facility and did odor background sampling at Kensington Heights. The values were not all that different at approximately 200 or 300 feet from the Sterling fueling area, more in line with the distance of the homes in Kensington Heights. Sometimes at Sterling, he did smell gasoline odors, but that station did not have vent control. In his opinion, if it did have vent control, one would not have smelled any odors at the 300-foot level. In the summertime, the study did not detect odors at 70 feet. Better dispersion conditions resulted in less odors. Wheaton will have odor control which will greatly reduce the odors. Also, in the next two to three years, Maryland expects to remove what's called the incompatibility period. Right now, some of the cars have on-board canisters, some do not, and what's called Stage II, which has the vapors from the cargo back into the underground tank, there's an incompatibility penalty that is included in the calculations. In about two or three years, when they remove the Stage II and especially as time goes on, as the fleet

turns over, he would expect a 4 times reduction in odor compared to what has been measured in Sterling for two reasons. One is due to the vent control and the second is due to the predominance of on-board canisters. In summary, he expects any odors past the ring road to be rare. As the canister technology takes over, the odor control will be stronger over time. Slide 43 shows the distances with regard to odors. He used what's called the hedonic scale, which ranges from minus 10 to plus 10. Minus 10 is the worst odor you could imagine. Ten is the best perfume you can buy. Zero is neutral. Estimates were on the order of minus .2 to minus 1.2 for the gas station. It was fairly similar in Kensington Heights. Tr. 6/17/13, 279-283.

When Mr. Sullivan continued his testimony on the *Day 7 of the hearing (June 19, 2013)*, he explained the figures on Slide 25 of his PowerPoint presentation, saying that he had originally assumed there would be a maximum average of 20 cars queued during any 8 hour period, but he adjusted his figures to 32 after Mr. Guckert went to Sterling and counted the cars, and they actually counted 32 cars in the queue as the maximum average for eight hours. However, because the gas station would be a small source of carbon monoxide, the change from 29 to 32 would make a small difference in the overall situation, from 28 percent of the EPA standard to 32 percent of the standard. The 28% figure comes from Table 12-1 on page 67 of his environmental report (Exhibit 15(a)), in which he modeled 2798 $\mu g/m^3$ for the gas station effects out of an EPA standard of 10,000 $\mu g/m^3$. He added that because of the assumptions that he made that act to overstate the emissions from Costco, the modeling is substantially higher than you expect to get if you were to more accurately and less conservatively model those sources. He also made the conservative assumption that within the ring road and the parking lots, the traffic would be the peak-hour traffic flow and that that happens all the time the mall is open. Thus, he purposely overstated traffic. Similarly, he overstated the amount of time people in the parking lots would drive around looking for parking. He used five minutes, while two minutes is more likely. He also overestimated the amount of idling time for trucks unloading at the Costco warehouse. All of this results in a conservative model for likely emissions. Tr. 6/19/13, 15-37.

Mr. Sullivan noted that it's not standard practice in a modeling analysis to add on parking lots and other loading docks for incremental gas station operation. The standard procedure is to model only the source in question and other nearby sources that will create significant gradients in concentration. That's what EPA guidance calls for. He has done that plus more, following EPA's procedures but having extra conservatism built in. Tr. 6/19/13, 50.

Although the gas station will not pump diesel fuel, there will be, on average, four diesel trucks per day, delivering gasoline. These are not normal diesels, but rather will have clean diesel technology. Clean diesel technology has substantially lower particulates, ultrafines, and elemental carbon, which can be carriers of toxic chemicals. So it's nothing like a traditional diesel vehicle. However, he used the standard 2013 diesel fleet emission rates, of .1 grams per mile for all the roadway emissions for those four diesel trucks, thus substantially overstating, not understating, the diesel emissions. It's most likely to be on the order of .04 grams per mile for clean diesel trucks, about two-and-a-half times less than what he used in his model. It's certainly possible that the air coming out of the exhaust of a clean diesel truck can have fewer particulates than the air going into the engine. Tr. 6/19/13, 50-54.

Mr. Sullivan testified that the standard policy of the EPA in doing risk assessment is that,

for residential exposures, one should assume a person lives in the questioned area 24/7 for 70 years. That's a safe, conservative way to address it. However, when you have a situation like this one, where exposures at a swimming pool complex and an elementary school are being examined, it's not EPA policy to assume that people live their entire life at a swimming pool or spend their entire life at school. That's not a reasonable or plausible assumption. Thus, in his analysis of the cancer risk from VOCs (Slides 45 – 48), he shows risk assessment both ways. For the school and the pool, he shows what the risk would be if a child did stay there 24/7 for his entire life, but then he also shows the risk for a student there for the most time that anybody could reasonably expect to be at a swimming pool or a school. Assuming that the children go to school for 180 days a year, 7 hours a day for 18 years, that gives a total exposure of 22,680 hours spent at school. Dividing that value by the number of hours in a 70-year lifetime (613,200 hours) approximately 3.7 percent of their lifetime would be at school, which Mr. Sullivan believes is actually a substantial overstatement. A pool is open typically 75 days per year. Assuming children spend 8 hours a day at the pool for 18 years, they spend 10,800 hours in their lifetime, at that pool. That's 1.8 percent occupancy. When those adjustments are made, the risks at the school and the pool go down to extremely low levels, on the order of .003 in a million at both the school and the pool. Moreover, when EPA does a risk assessment, the EPA is <u>not</u> saying that a risk of six in a million, for example, means that they'd expect to have six cases of cancer per million people. In fact, the EPA very explicitly states that the risk could be a lot less than shown, and in fact, could be zero. Tr. 6/19/13, 55-60, 76.

As indicated in Slide 45, the California Air Resources Board (CARB) requires notification if the cancer risk assessment calculations indicate an incremental risk for the source in question exceeding 10 cancer cases in a million population. EPA modeling applicable for Montgomery County shows around 65 cases in a million as background risk for the specific set of pollutants modeled. The highest relative risk from the proposed Costco gas station operations is less than 1 in a million, which the EPA terms as de minimis. That's looking at primarily 2013. There's going to be steps taken over a 70-year lifetime, from that point onward, that'll further reduce the emission of volatile organics. Tr. 6/19/13, 60-65, 76.

A fast-food location, in terms of particulates, would have substantially higher emissions, about 60 times higher than the gas queue, and the fast-food location emits quite a lot of ultrafine particle, including carcinogens. In Maryland they are only controlled if visible smoke is coming out and they're violating the opacity regulations. In Mr. Sullivan's opinion, the cancer risk from particulates would be lower for the Costco gas station than for a generic fast-food restaurant. Tr. 6/19/13, 67-70.

Mr. Sullivan further testified that Slides 47 and 48 show that the cancer risks from VOCs will be further reduced by the gradual conversion of the auto fleet into cars with on-board charcoal canisters replacing the Stage II controls, and all cars built since 2006 have them. Because the diesel trucks supplying this gas station will be using clean technology diesel vehicles, the particulate risks are so small that it would not be necessary or appropriate, in his view, to do a cancer risk assessment. There isn't even a cancer potency score for the new diesel technology particulate emissions. Tr. 6/19/13, 71-73, 76-77.

Mr. Sullivan addressed comments by the Opposition regarding ultrafine particulates, risks

at the school and the pool, long-term monitoring programs for air quality/meteorology, more broadly modeling the sources in the mall area beyond what's required by the EPA standard background treatments, allegations that terrain complications could end up producing higher concentrations in Kensington Heights than the modeling is showing, and the issues of school-siting criteria guidance as produced by the California Air Resources Board and the EPA (Slides 50-69). Tr. 6/19/13, 77.

Mr. Sullivan stated that there's no question that ultrafine particles are not good for you, but it is a question of dose. According to Mr. Sullivan, the maximum annual average of fine particulates at the closest residence is 0.005 $\mu g/m^3$ (Slide 51). If the fine particulate fraction is .005, the ultrafine fraction is going to be a lot smaller than that because it is a subset of fine particulates, which include both fine and everything smaller than fine. If the background particulates, for example, in this area is 10 and Costco's increment is .005, the background of ultrafine particle levels, especially near highways or fast-food restaurants, is going to be enormously higher than what Costco will be adding. Particulates from cars in 2013 technology is so low that there's no reason to be worried about the gas station violating any standard. Even scaling up to account for the difference between the MOBILE6 model and the newer MOVES model that Dr. Coles suggested should be used still leaves the fine particulate number for the gas station at only .01 $\mu g/m^3$ (Exhibit 177). That is very small compared with the background of 10.8 $\mu g/m^3$ and the EPA standard of 12 $\mu g/m^3$. EPA defines insignificant contributions to fine particulates for this region as 0.3 $\mu g/m^3$, i.e. Costco's maximum impact is 30 times lower than EPA's defined level for insignificant contributions even if maximum Costco impacts are doubled under the MOVES model. Those figures are by weight. There is no EPA determination as to the number of ultrafine particles that should be regulated, and there is no consensus as to the health impacts regarding the number of ultrafine particles. In his opinion, there's no objective or rational basis for concern based upon ultrafine particulate concentrations from the Costco gas station. It's so far below what's defined as a significance level in terms of weight that the fraction of ultrafines would have to be so small that there's really not a reason, based upon the available facts at hand, to conclude that ultrafines at this particular gas station would cause a health concern. Tr. 6/19/13, 77-96.

Mr. Sullivan further testified that Slide 52 addresses the issue of the four-a-day, clean diesel fuel trucks supplying the Costco gas station. To put that in context, Veirs Mill and Georgia Avenue see on the order of 100,000 vehicles a day. In the fleet mix for this area, about 1.25 percent of those vehicles are diesels. That would mean that 1250 diesel vehicles per day are traveling in this area. The Costco station will have four, and they will all be clean diesel vehicles. According to a peer-reviewed article by Dr. McClellan, who used to be the chair of the Clean Air Act Science Advisory Committee (CASAC), the emissions of particulate mass in new technology diesel engines (NTDE), clean diesels, are substantially less than one percent of those from 1998 engines. Around 2006/2007, these major changes kicked in. The ultrafine particles produced by these new technology diesel engines are well below typical urban ambient air concentrations. Most importantly, the new diesel technology emissions are virtually free of elemental carbon particles. Those are the carriers for toxic air pollutants that can get into the lungs. The toxic constituents that basically absorb onto those particles are the primary cause of concern. Those have been substantially reduced in the new technology. [Mr. Brann noted that use of the new technology diesel engines (NTDE), otherwise known as clean diesel engines, is

actually a State of Maryland requirement, and that Applicant wouldn't object to a proposed condition that all the fuel trucks supplying the Costco station have this clean technology.] Mr. Sullivan concluded that the diesel emissions from the trucks supplying the Costco gas station will not be significant. Tr. 6/19/13, 97-101.

Mr. Sullivan pointed to Slide 53 showing that activities in the home such as burning a candle, using a hair dryer or smoking are a much greater source of ultrafine particles than heavy traffic. Tr. 6/19/13, 101-105. Using Slide 55 and Exhibit 125(a), Mr. Sullivan compared fine particulate emissions ($PM_{2.5}$) from griddling or charbroiling a hamburger in a fast food restaurant with $PM_{2.5}$ emissions from an average annual auto queue of idling cars and pollution from cars added to the ring road and four diesel fuel delivery trucks. Even with emissions controlled to reduce particulates by 85%, the griddle produces 60 times more fine particulates than the queuing cars. There are about 56 fast food restaurants in the mall area. Tr. 6/19/13, 106-118.

Mr. Sullivan further testified that there's no rational basis for concerns about cancer from the .01 micrograms per cubic meter of fine particulates that Costco will produce. The total exposure will be less than the EPA standard of 12 $\mu g/m^3$ that was designed to be protective, and therefore, he concluded that it's acceptable based upon EPA criteria. He disagrees with Dr. Cole's suggestion that Costco should have done long-term air quality monitoring to more specifically evaluate the background concentrations at this location in Wheaton and that because of some terrain complications -- that is, a hill close-by to the gas station that goes downhill towards the community -- that micrometeorological assessment should have been done at the location to bolster and support dispersion modeling. According to Mr. Sullivan, setting up a meteorological station to support air quality permits is not done unless it's an extremely complicated case. The practice is you use regional data, unless it is an extremely unusual situation, such as in a valley somewhere with no data. Mr. Sullivan also included other loading docks in the mall in his estimates and unrealistically assumed the same parking rates throughout the mall as at Costco, thereby overstating the pollution, and he found these additions made only a small difference (Slide 61). Tr. 6/19/13, 119-129.

Mr. Sullivan then addressed terrain flow (Exhibit 125(b) and Slides 62-64) and Dr. Cole's assertion that EPA's AERMOD dispersion model is limited and doesn't do justice to the fact that there's a terrain complication here that could act to increase concentrations in the neighborhood, with the model thus understating pollution for some locations, possibly for the school and the homes in Kensington Heights. Therefore, Mr. Sullivan ran another model called CALPUFF, which is a more refined EPA dispersion model that can define complex wind fields. The results turned out very similar. In Mr. Sullivan's opinion, the conditions necessary for this terrain flow into the neighborhoods could occur only about four percent of the time. The ring road has an increase in terrain before it goes downhill to the neighborhood, so the pollutants would have to go up and over to go down the hillside towards the community. There is also a heavily vegetated, wooded barrier between the gas station and Kensington Heights. Taking all these factors into account, even though there's a four percent potential for these things to occur, the basic terrain, hours of the day, and the vegetation situation and the land use situation doesn't support the hypothesis that increased concentrations will occur in the neighborhood. Tr. 6/19/13, 130-138.

Mr. Sullivan noted that CARB and EPA's siting guidance does not indicate that schools shouldn't be built within so many feet, 300 feet or 1,000 feet, from a gas station. Rather, CARB suggests that if the gas station will be within 300 feet of a school, a site-specific analysis can be considered as an option to refine the analysis. In this particular procedure that was used by CARB and the EPA, they assume a hypothetical location with a really light wind that produces a limited dilution of the atmosphere; they assume a limited dispersion characteristic, which is called E stability, and although it is found at night, they assumed it happens day and night; they assumed that children are in the school 100 percent of the time for a lifetime; the fact that Costco has a 99.7 percent vent control system is not considered in the analysis. Tr. 6/19/13, 139-142.

Mr. Sullivan disagreed with the Opposition's characterization of the proposed gas station (Slides 67 and 68). Costco's operation is not a federal action, and EPA's conformity rule does not apply. It's not a major project in terms of EPA's designations. Section 93.121 applies to such projects if they are regionally significant, which building a gas station is not. The National Environmental Policy Act (NEPA) does not apply to building a gas station; and the Prevention of Significant Deterioration (PSD) does not apply to a gas station because it is not a major source per PSD's definition. Mr. Silverman referred to it as a gas depot, resembling emissions from a small factory, and also as a regional gasoline distribution center, which would be more like a bulk terminal that processes huge amounts of gasoline. The proposed gas station is not either. Finally, Mr. Sullivan opined that, on the county level, the proposed Costco gas operations would be beneficial to the community from an environmental perspective – there'll be more combined trips which would tend to reduce travel, reduce emissions; reduced driving emissions through centralization of shopping; reduced driving for Costco members that now drive outside of Montgomery County to purchase gasoline; and greater controls in place at Costco as compared to most other gas stations, including an Arid Permeator to reduce gasoline marketing emissions by about 40 percent and an attendant always on duty to respond to spills and to help customers. In sum, a gallon of gasoline sold at Costco will tend to be a cleaner gallon, so the build scenario with Costco in place on a county-level analysis would be an environmental plus (Slide 69). Tr. 6/19/13, 142-144.

On cross-examination, Mr. Sullivan indicated that the November 2012 report (Exhibit 15(a)) is his main report. The January 16, 2013 supplementary report (Exhibit 56(a)) replaced the December 2012 report (Exhibit 54(b)). Tr. 6/19/13, 153-154. Mr. Sullivan admitted that EPA takes the position that the type of modeling done in this case may have an uncertainty factor ranging from 50% up to two. Tr. 6/19/13, 158.

Mr. Sullivan stated that there is no NAAQS standard for benzene, but it's possible to do a cancer risk assessment even absent a standard. It is not possible to do a risk assessment for ultrafine particulates because not only is there no standard, but also neither the EPA nor other agencies have a position on what's a safe threshold for that. He did a risk assessment for all organic pollutants emitted by gasoline marketing operations and tailpipe exhaust, all those species of VOCs that had a cancer potency score in EPA's IRIS database. Tr. 6/19/13, 159-170. The EPA regulates gasoline through engineering controls such as Stage I and Stage II requirements, not permits for individual stations. Tr. 6/19/13, 177-178.

Mr. Sullivan further testified that Stage II controls are being phased out since new cars are equipped with charcoal canisters. He does not believe that will affect the performance of the Arid Permeator. Tr. 6/19/13, 181.

Mr. Sullivan stated that in doing his analyses, he followed EPA procedures – you look at the three-kilometer radius of your source and you look at the land use within that three-kilometer radius. The EPA defines certain types of land use as urban or rural, and you determine which one has the preponderance of the land use, and use that for your general modeling. It ends up being rural for this area, in the big picture, and so he used rural standards for the plots he did. On the other hand, the key points of review in this case are the closest home, the Stephen Knolls School and the swimming pool, all of which are adjacent to the mall. The plume that's traveling from the gas station, the queuing and the fueling area and so forth, is going predominantly over mall property, asphalt, concrete. Clearly, the land use is applicable to an urban setting, and in that setting you do not get the restricted dilution you get in a rural setting. When interpreting the data for any results adjacent to the mall, he therefore used the most applicable urban dispersion characteristics for the mall. Moving significantly further away from the mall, where most of the flow is over rural conditions, he used the rural standard, and which he used for all of his maps beyond those three mall-adjacent places. Tr. 6/19/13, 190-193.

According to Mr. Sullivan, on March 2, 2013, the EPA officially transferred from the MOBILE6.2 Model to MOVES, which is approximately four months after his report was completed. He made some test runs to try the model, but he has not received from the Metropolitan Council of Governments sufficient input on the options and switches and inputs of that model to make a run that would supersede MOBILE6.2. He approached the Council of Governments multiple times in an effort to get the recommended inputs so he could run it for this project, and they said sometime this summer they'll be available. He agreed with Dr. Cole that the MOVES is going to produce higher emissions for particulates and lower for VOCs and for CO. For PM 2.5, he scaled up his modeling accordingly, in more of a qualitative basis, trying to be consistent with where MOVES is going. In his opinion, the dispersion modeling that he conducted for this project, using peak emissions all the time within the ring road, overstating the loading docks, overstating the parking lots, and so on, overstated the actual concentrations for all pollutants. Tr. 6/19/13, 193-197.

Mr. Sullivan indicated that no government agency that had staff with experience in air quality modeling have reviewed his analysis. The only government agency that opined was Parks and Planning, and during the Planning Board hearing, Ms. Lindsey indicated that she was not experienced in these matters. The Department of Health indicated it wasn't qualified to review the analysis, but the agency that has primary authority in Maryland regulating gasoline is the Maryland Department of the Environment, and it has very specific regulations in place. A permit is issued for a gas station based upon engineering controls. They do not require air quality modeling-related permit work to get a gas station permit to operate. Tr. 6/19/13, 208-211.

A July 10, 2012 letter from Angelo Bianca, deputy director of the Air and Radiation Management Administration of the Maryland Department of the Environment (Exhibit 90(b), p. 12), was read and it contained the following paragraph:

> There are a number of petroleum-based toxic air pollutants that are emitted from gasoline stations that pose some level of risk to public health from the delivery and dispensing of fuel and the idling of vehicles. The difficulties are quantifying that risk, especially the incremental risk beyond existing levels, and determining what risk level is acceptable. A further complication is that available tools do not capture very well the cumulative effects of multiple toxic air pollutants or the incremental effect a single pollutant from multiple sources may have on public health. Given these issues and those mentioned later, the more distance that can be placed between a source and residence and at community gathering places is certainly beneficial to minimizing risk.

Mr. Sullivan indicated that he didn't disagree with the fundamental point of the letter, that the more distance between a ground-level source like this and the point of receptor will decrease concentration, but the critical question is whether the levels safe with the site-specific conditions here, and if they are safe at those conditions, what benefit is there from the additional distance? He spoke to Mr. Bianca as well as his supervisor, Tad Aburn, the director. They've seen the modeling that he did, and they had no concerns about it. Tr. 6/19/13, 219-221.

EPA school-siting guidelines have a screening procedure that allows a jurisdiction to make a determination if a more site-specific analysis is needed or they should go to a different site, but nowhere does EPA say you shouldn't build a gas station within 300 feet of a school. It has cost Costco $370,000 though the end of May to do the site-specific analysis. Tr. 6/19/13, 222-224.

EPA has certain rules, even when a source doesn't violate standards, where they're concerned that a particular source will bring the air pollution levels higher and use up that margin between the current conditions and a violation of standards, but that applies only to what they define a major source. This particular facility is not a major source. The terms PSD (prevention of significant deterioration) and SIL (significant incremental levels) are used by the EPA with regard to major sources. [Ms. Cordry argued that the gas station would cause a significant increase in some pollutants.] Mr. Sullivan did not recall seeing any concentrations that were above the standards at any location. Tr. 6/19/13, 226-242.

Mr. Sullivan does not expect the proposed wall will significantly deflect pollution from the Kensington Heights neighborhood. It could happen under certain conditions, but he is not convinced those conditions will happen. He also noted that he did not conclude that fast-food restaurants on the mall are causing a health risk. Mr. Sullivan stated that he has done modeling of the air quality parameters and has taken noise measurements and odor measurements in the neighborhood, but he has not taken specific measurements of air quality parameters. He admitted that pollution from Georgia Avenue and fast food restaurants adds to the local pollution. Tr. 6/19/13, 249-257.

Mr. Sullivan further testified that he did not expect that inversion conditions would be a common phenomenon at the mall because it's too high. The retained heat by the concrete is creating temperatures that are warm relative to the surroundings, and the potential of having

substantial inversion in that condition is very unlikely. He ran both CALPUFF and AERMOD models, and in his opinion, the proposed wall would make little if any difference in the result. Furthermore, extending the wall 46 feet to the east would also not have any effect on the modeling results. Tr. 6/19/13, 268-277.

Mr. Sullivan explained where his temperature monitors were set up and the reading he made for his terrain flow analysis (Exhibit 125(b)). He then responded to a question from Ms. Sheveiko, a citizen in the audience who lives in the closest home to the mall (10812 Melvin Grove Court), stating that he would consider it a safe place to live for her children in terms of air pollution. It meets the National Ambient Air Quality Standards, and the risks are not high in terms of cancer risk assessment. The EPA calls for a 1,000 foot screening level (*i.e.*, if you're beyond 1,000 feet, you don't have to do any analysis, but if you're within 1,000 feet, EPA is not saying it's not safe; they suggested doing a site-specific analysis, and to model it and to see if it is acceptable). He has done a refined analysis, and it shows the air quality at her home is safe. Tr. 6/19/13, 281-296.

[*On Hearing Day 8 (July 8, 2013)*, the Hearing Examiner discussed the various filings made since the last hearing, including additional air pollution studies of particulate matter done elsewhere (Exhibits 189(c) and (d)), as well as supplemental data regarding Mr. Sullivan's testimony (Exhibit 189(b)). The Haring Examiner asked for further testimony explaining Exhibit 189(b), and for a clarification of the size of the proposed underground tanks (60,000 gallons in the Duke report (Exhibit 13) and 90,000 gallons in the Hurlocker testimony). Tr. 7/8/13, 5-14. There was also a discussion regarding the proposed pedestrian path along the southern ring road, with the Hearing Examiner encouraging the parties to try to reach some accord as to an appropriate configuration of the proposed pedestrian path should the special exception be granted because, in his opinion, neither the Hearing Examiner nor the BOA has the authority to compel a non-applicant (Westfield Wheaton Plaza) to construct a pedestrian path outside of the special exception site. Tr. 7/8/13, 20-26. Mr. Silverman also discussed his view of the manner in which the Hearing Examiner should ascertain the standards to be applied in this case, and the Hearing Examiner mentioned that the case Mr. Silverman had cited (*Sierra Club v. EPA*, 705 F.3d 458 (D.C. Cir, 2013), was interpreting a regulation that applied only to major producers of pollution; Mr. Silverman conceded that the proposed gas station does not fall into that category. Tr. 7/8/13, 27-34.]

Mr. Sullivan resumed his testimony to explain the new Exhibit 189(b)(i), which substituted clarifying pages in Exhibit 189(b). He explained that his scientific notation meant that there was a cancer risk to someone in the nearby homes living there 24/7 for 70 years of only .7 in a million. He also clarified that his figures for level of pollutants was in micrograms per cubic meter on the chart, and at the request of the Hearing Examiner, he would submit a further clarification (Exhibit 189(b)(ii)), showing the units used, as well as language showing the number of people at risk per million. Mr. Sullivan also commented on the use of the urban model rather than the rural model for spots adjacent to the mall, saying that the close-in locations to the gas station -- the closest home, the school and the pool -- are very close to the mall property, and while he agrees that EPA's three-kilometer radius circle says it's rural for that area, and he has modeled accordingly for the general area, for these close-in locations he doesn't agree that the rural numbers are representative and that's why he used the urban values for the close-in

three receptors. Tr. 7/8/13, 40-59.

Mr. Sullivan also explained his use of the term significant impact levels as mentioned in the *Sierra* case to provide a point of reference. If EPA is taking the position that 0.3 micrograms per cubic meter or fine particulates is the threshold for significance versus non-significance and if the gas station is 30 times under that standard, that guideline then provides the finder of fact with a reference point of the significance versus non-significance of the impacts. Tr. 7/8/13, 63-64.

Cross-examination of Mr. Sullivan resumed with regard to noise monitoring. He indicated that in doing noise monitoring, he placed a monitor over four different days and collected noise measurements for the Sterling, Virginia Costco gas station operation. He understood the standards to be 65 decibels in the day and 55 at night in residential areas. Tr. 7/8/13, 68-74.

[Ms. Rosenfeld placed into the record portions of the county noise law, Chapter 31B (Exhibit 195(a)); State noise Law, Title 3 of the Maryland Environmental Code (Exhibit 195(b); and State regulations, COMAR 26.02.03.01 (Exhibit 195(c)). She noted that under state law, noise from vehicles is not exempted from the governing standards. Tr. 7/8/13, 75-80.]

Mr. Sullivan was questioned about the assumptions underlying his noise modeling, reported in Exhibit 15(a), p. 107, entitled "TNN Model Results Without Background" and in Table 1-22. The noise readings from Sterling in the summer and the winter were not used in the model; rather, the model used data from the Wheaton location only. The noise data used was background from Kensington Heights. The noise data he used was not collected from the points that are marked as "Noise Receivers." The terms "Noise Receivers" are the modeling points for where the model assumed the noise would be received. He took background measurements at locations that, in his judgment, were representative of background noise levels in the community. Background needs to be added to the specific noise from the source that he modeled but you would not need to have background at every one of those locations. The noise values allocated to the queue source came from the traffic noise modeling. The contribution from the queue sources, that blue triangle, onto these receptors, which are called noise receivers, was based upon the TNM model. Also, the noise values associated with the ring road came from the traffic noise model, based on the incremental increase in vehicles. The same thing for the parking lots. The sources for the background noise measured were the mall itself, ring road traffic, the 639 or so cars traveling the ring road per hour; the general traffic noise from Georgia Avenue and the other sources of noise in the community prior to the construction of the Costco warehouse or gas station. The modeling is to capture what the gas station, the parking lot, the queue, and the ring road would add on to the background that was actually measured. The parking lot numbers are based on peak hours and the queue assumes 40 cars as a worst case scenario to be conservative; however, the modeling was done before the Costco warehouse opened, so their delivery vehicles would not be included. Tr. 7/8/13, 81-117.

[There was a discussion among Ms. Rosenfeld, Ms. Cordry and the Hearing Examiner as to what would be the appropriate noise standard to apply to this analysis. Tr. 7/8/13, 118-123.]

According to Mr. Sullivan, the readings at Sterling could not be correlated to the closest residential line at Wheaton because tree coverage is different between the two and there's a break in the line of sight in Wheaton that does not exist in Sterling. All the Sterling data is showing is an operational unit of Costco that sells 30 percent more gasoline than the Wheaton station will, and what kind of noise levels are seen within the parking lot area itself. It gives you a point of reference. Tr. 7/8/13, 134-137.

[Ms. Rosenfeld suggested that some of the noise readings were made on the day after Labor Day and therefore are not reliable, based on the fact that traffic counts should not be taken on the day after a holiday (Exhibit 197).] Mr. Sullican noted that there were breaks durng the readings due to "precipitation events." Tr. 7/8/13, 145-150.

[The Hearing Examiner summarized his understanding of Ms. Rosenfeld's point regarding noise: So I take it from hearing your cross-examination that your point is that the noise measurements made of background are not fully indicative of the actual situation now since they didn't measure the situation following the establishment of the Costco warehouse operation in the neighborhood or the impacts of that on the neighborhood, and that the measuring was done on a day when traffic would logically be lower (the day after a holiday) and the number of data points was too low to be reliable? Ms. Rosenfeld responded, "That's a fair summary." She also mentioned that the noise readings were not made at the property line. Tr. 7/8/13, 153-154.]

[Mr. Silverman and Ms. Cordry complained that repeated changes to the Applicant's data has challenged the Opposition's resources. The Hearing Examiner indicated that he understood their point, but was reluctant to cut off a party when the number of days in the hearing and the amount of time left for cross-examination eliminates much of the prejudice from any changes. Tr. 7/8/13, 155-158.]

[The hearing on Day 8 concluded early due to the illness of counsel for KHCA. KHCA's president, Danila Sheveiko, understandably objected to proceeding in her absence. Tr. 7/8/13, 159-167. Although the hearing had been scheduled to resume on July 11, 2013, the continued illness of KHCA's counsel resulted in a postponement until the next scheduled date, July 30, 2013.]

On Day 9 of the hearing (July 30, 2013), the cross-examination of Mr. Sullivan continued. Prior to that, the Hearing Examiner reviewed e-mail filings since the last hearing. Mr. Brann also clarified that the original engineering report had a typographical error regarding the amount of underground fuel storage. He stated that there would be four underground tanks. Two would each hold 30,000-gallons of regular unleaded; one would hold 30,000-gallons of premium fuel; and one would hold 1500-gallons of a detergent additive when allowed by the State of Maryland. Tr. 7/30/13, 14-15.

The Hearing Examiner also raised the question of whether or not noise must be measured at the property line, or can be at the property line or beyond. In addition, he asked for clarification as to whether the appropriate noise measurement is incremental noise or overall noise. Does one subtract out the background noise in measuring the permitted noise? Tr. 7/30/13, 18.

Dr. Adelman raised a question of how many parking spaces are allocated to Costco in the parking lot. Mr. Brann responded that Costco does not have a contractual agreement with Westfield for a certain number of parking spaces. The only contractual obligation would be that on the lease there is what is known as "a preferred area," which is an area that Costco maintains, but it is not a contractual number of parking spaces. He will report back the number of parking spaces that are in Costco's preferred area. Tr. 7/30/13, 20-23.

Ms. Harris then raised the question of whether Mr. Echave of Blue Lagoon, which is video-recording the proceedings, would provide an unedited copy of Mr. Sullivan's testimony to him. The Hearing Examiner requested that Mr. Echave respond to Mr. Sullivan's request by the August 2, 2013 hearing. Tr. 7/30/13, 28-35. Mr. Goecke indicated that Mr. Sullivan has taken additional noise measurements and would be submitting a supplemental report. The Opposition protested that these additional submissions were too time-consuming for them. The Hearing Examiner noted that he must balance any burdens from these late filings against the need to get a factually complete record. He indicated that he would rule on any objections if and when the additional information was proffered. Tr. 7/30/13, 36-43.

On cross-examination by Mr. Silverman, Mr. Sullivan testified that the EPA decides whether a region is in attainment with the national air quality standards, and right now that this region is in non-attainment with regard to PM 2.5. The trend line for PM 2.5 is quite a ways below the standard, so it's being reviewed at this point in time. Based upon that trend line, it would seem likely it'll be changed to attainment. Mr. Sullivan indicated that was his opinion of what EPA will do based upon the current trend and current levels of PM 2.5 in the metropolitan region. He believers that the June 28, 2013, COG Study of Air Quality Maintenance Plan (Exhibit 193) is an effort by the regional governments to change the designation of noncompliance with the 15 micrograms per cubic meter standard. Tr. 7/30/13, 44-47.

[Mr. Silverman introduced an April 16, 2013, memorandum from Gina McCarthy, assistant administrator of the EPA to regional administrators of Regions 1 through 10 -- regarding Initial Area Designations for the 2012 Revised Primary Annual Fine Particle National Ambient Air Quality Standard. Exhibit No. 209. He explained that the EPA has to determine on a region-wide basis whether that region -- in this case, the region is the Washington metropolitan area --is in compliance or noncompliance, attainment or non-attainment with air quality standards, and when there's not attainment, there are very severe consequences. All state and local governments seek to be in attainment because there are funding and other consequences, which are very serious, of being in non-attainment. So they set up a group of regional monitors to determine whether the region as a whole is in attainment or non-attainment, and in fact, Mr. Sullivan relied on some of those numbers in his modeling. Mr. Sullivan agreed with this description. Mr. Silverman then went on to state that the question is whether this data is reliable and truly reflect the conditions and the latest science so that we know whether the level of fine particulates is above 12 or below 12 micrograms per cubic meter. Mr. Silverman then concluded, "So these measurements are very important, and what this document says is that maybe the way we're measuring is not always the best way and we need to change the monitoring system." Mr. Silverman stated that he is challenging the suggestion by Mr. Sullivan that the background for fine particulates is 10.8 micrograms per cubic meter. He noted that the

EPA's 2013 memo calls for new monitors, and Mr. Sullivan conceded that they are not yet in place. Tr. 7/30/13, 49-59.]

Mr. Sullivan further testified that this region is in attainment for carbon monoxide, and that model readings next to Georgia Avenue of 40,000 micrograms per cubic meter on a one-hour standard result from a conservative overstatement using EPA modeling techniques. In his opinion, if he put a CO monitor next to Georgia Avenue, he would not expect to see an exceedance. He does not accept the premise that the current monitoring network is insufficient for the objectives of this project, and he did not use a technique called saturation monitoring. Tr. 7/30/13, 59-64.

Mr. Sullivan's position is that within the mall area itself and those locations adjacent to the mall, that would be an urban-type characterization per EPA land-use classification. Mr. Sullivan also disagreed with characterizing the proposed station as a fuel depot or a fuel distribution center because a fuel distribution center generally processes billions of gallons of gasoline. In terms of environmental impacts, the proposed station will produce negligible impacts to the community. Tr. 7/30/13, 65-68.

The National Environmental Policy Act (NEPA), applies only to some federal projects, those which may have significant impacts on the environment. EPA's School-Siting Guidelines (Exhibit 211), page 57, call for screening in certain cases, such as for placement of a large gas station, and further analysis in certain situations. That further analysis was done in this case. Tr. 7/30/13, 68-81.

Mr. Sullivan further testified that the EPA distinguishes between urban and rural settings for air pollution modeling, and the urban model generally disperses air pollution more quickly. This is particularly an issue during nighttime conditions when nocturnal inversions can greatly reduce the ability of the atmosphere to dilute pollution. He stated that the "A-U-E-R technique" is used, which identifies various types of land use and distinguishes between urban and rural land uses. Per 40 CFR, Code of Federal Regulations, Part 51, page 68238 through 68254 (Exhibit 212), under EPA's procedure, is to draw a three-kilometer-radius circle around the source, and then EPA gives very specific guidance in this methodology in terms of land use -- which land use would be classified as urban and which land use is classified as rural. The land use that predominates is used for the general classification. His conclusion was, in terms of the general modeling within the three-kilometer overall area, that the rural designation matched EPA's criteria, as reflected in his November 2012 report on page 26 (Section 1.4). However, he noted that it's very different for locations close to this mall area compared to the general domain. That's why he did both a rural and an urban model for the area. In the context of the Stephen Knolls School, the closest home, and the swimming pool that are adjacent to the mall property, Mr. Sullivan opined that in his expert judgment, the rural dispersion coefficients are way too conservative for those domains. For those close-in receptors, most of the dispersion is going across parking lots and hot surfaces that do not have inversion conditions on a regular basis and have much greater dispersion than the grass and the other areas that comprise most of that three-kilometer-radius circle. He added that "It certainly is within [his] prerogative as a professional air quality analyst to say that those locations close to the mall have different dispersion characteristics, and . . . in [his] judgment, the urban characteristics are much more accurate for

those sources." Tr. 7/30/13, 86-94.

Table 1-13 on p. 68 of Mr. Sullivan's November 2012 report shows his figures for urban and rural NOx one-hour background levels, which he listed as 28 micrograms per cubic meter (28 $\mu g/m^3$). For NOx, the MOVES is more conservative than MOBILE6.2 for idling vehicles by about a factor of 2. With regard to $PM_{2.5}$, it is about a factor of 10. On the other hand, for some of the pollutants, such as CO and VOC, MOBILE6 has significantly higher emission projections than MOVES does. So, it does go both ways. Mr. Sullivan felt that even if the projections for NOx were doubled, the proposed gas station would still be far under the applicable standards. He didn't feel that any correction was needed for the MOVES factor or the increase in holiday traffic because his estimates had been extremely conservative, by assuming the peak-hour traffic occurs all the time. Tr. 7/30/13, 98-106.

The NAAQS one-hour standard for NO_2 is 100 parts per billion (PPB), which translates to 190 $\mu g/m^3$ (*i.e.*, roughly doubling the ppb figure). Mr. Sullivan noted that the actual control standard by the EPA was for NO_2 which is a part of NOx, but to be conservative he assumed that all the NOx is coming out as NO_2 . Using Exhibit 213, which showed the values for EPA monitoring sites of NO_2 for 2009 to 2012, Ms. Rosenfeld questioned how Mr. Sullivan converted NO_2 background readings in his Figure 1-16 from 52 ppb to 28 $\mu g/m^3$, when it should have been multiplied by 1.88 to get a figure of 98 $\mu g/m^3$ for NO_2 background, not the 28 he had erroneously calculated. After checking his figures, Mr. Sullivan admitted that he had erred by dividing instead of multiplying in converting ppb to $\mu g/m^3$. Ms. Rosenfeld argued that applying the corrected math to the one-hour NO_2 readings yielded an exceedance of the NAAQS standards near the mall when applying the rural dispersion rates. Mr. Sullivan conceded that applying the rural dispersion rates would yield exceedances at some spots in and near the mall, but he maintained that near the mall, the urban rates should apply, which would yield no exceedance. Tr. 7/30/13, 113-140.

[Ms. Rosenfeld indicated that she was about to file a motion for summary disposition with the Board of Appeals (Exhibit 216), based on the results of the corrected math described above, and a motion asking the Hearing Examiner to suspend the hearing pending the outcome of the Board's action on her motion before that body (Exhibit 215). There was then a discussion of the procedural aspects of such motions filed in the middle of the hearing, and the Hearing Examiner explained that he lacked authority to dispose of this type of case, his authority being limited to conducting a hearing, finding facts and making a report and recommendation. He then denied the motion to suspend the hearing, noting that this is a "fact-bound" case, not one that would be recommended for summary disposition even if such a motion could be filed at this juncture. Tr. 7/30/13, 140-165.]

On *Day 14 of the hearing (September 20, 2013)*, Mr. Sullivan returned to the stand for redirect and re-cross-examination. Tr. 9/20/13, 8-206. Mr. Sullivan testified that in modeling you gather information regarding the facility, its operations and the land around that facility, and the modeling approach is codified in a protocol. That protocol is reviewed by the participating parties and presumably accepted, and then you proceed with implementing that protocol. The EPA guideline and air quality models are generally considered the standard of care as a starting point, and then you look at the particulars of the project at hand. The goal is to do a conservative

analysis. It generally allows the process to proceed more smoothly and helps achieve consensus. The approach of the EPA guidelines is to try to standardize, to the extent that they can, to promote consistency, but the guidelines also say the ultimate objective is to achieve an accurate answer. In some cases, of course, judgment is required on a site-specific basis. A facility such as this gas station is not usually modeled, but for a small industrial facility at the location of where the Costco site is, the Guidelines would call for use of an air model. The EPA guideline is called the Guideline on Air Quality Models (40 CFR, Part 51, Appendix W), which was marked as Exhibit 285. Mr. Sullivan summarized the "basic philosophy" of the EPA Guidelines as "want[ing] to promote consistency, but not at the expense of accuracy." Thus, some judgment is required to implement this on a case-by-case basis. Tr. 9/20/13, 8-11.

Mr. Sullivan testified that a good example applying this principle is modeling in the immediate vicinity of the loading docks, which is urban and a much more concentrated source than modeling over a 3 kilometer radius. In the situation here, where you're going to be modeling right at the loading dock and identifying the concentrations there, one can't use simplified assumptions which would be perfectly acceptable for the more general studies. That's the reason why in the August report he had to refine the analysis to accommodate that scale of review which is very atypical. In an initial assessment, he used a very conservative treatment of the loading dock, which in terms of the fine particulate matter, allowed him to compensate for differences between MOVES and MOBILE6. It was conservative for $PM_{2.5}$. For NO_2 and CO, it was extremely conservative. In the August 16th report, he focused on where the trucks are parked, and refined that treatment. The maximum is occurring right in the middle of the warehouse loading dock. In terms of the focus on the queue source, for the general analysis he simplified by assuming there's going to be 40 cars in queue the entire 15 hours the station is operating, even though he knew that's not the case. The transactional data from Sterling, for example, shows that's not the case. When focused on receptors inside of a queue, he'd refine the hour-by-hour queues to show how it varies throughout the day. That avoids positive bias in the modeling. Thus, if you change the focus, you have to change the modeling to respond to that change in focus. When first modeling this project, he modeled the entire mall area with 8,116 model receptors. Tr. 9/20/13, 13-18.

Mr. Sullivan further described the process. The first step is that you model conservatively. If you don't meet the standards, then you consider making refinements to the model. If you don't pass again, you see what other refinement is available and make those refinements. If you don't pass at that point, the process doesn't stop, you then go into mitigation – the most cost-effective ways of getting the facility into compliance. Then you test with the model, adding various control technologies to the point where you either economically viably pass or you conclude you can't build this facility or continue to operate. Tr. 9/20/13, 19-22.

Mr. Sullivan indicated that for the August 16, 2013 report (Exhibit 255(a)), he used refined assumptions over a three-year average of data (2010-2012) to get to a background of 90 micrograms per cubic meter of NO_2. When he did the earlier November 2012 report, he did not have background data for 2012. Mr. Sullivan modified four assumptions, one with regard to the loading dock, two with regard to the car queues and then one with regard to the background levels. He stated that he made those four changes because his focus changed to a very atypical situation, evaluating a concentration at a loading dock itself in the center of a big gas queue;

thus, the conservative assumptions that would have been reasonable for a more typical analysis would not be refined enough for that scale of review. He admitted that if one used a rural dispersion coefficients with receptors on the roadway at the loading dock, his original more conservative model would have driven the values over the National Ambient Air Quality Standards. Moreover, even if the urban model is used, but one doesn't do any other steps which are available to refine for that fine level of detail of trucks at the loading dock, it will show a violation regarding NO_2. However, those figures are based on the assumption of having 27 heavy-duty trucks at that loading dock, at 10 minutes every hour for 18 hours a day, which will not be the case. In addition, the original assumptions had scaled up both NO_2 and $PM_{2.5}$ for idling vehicles by a factor of 10 to allow for the difference between the MOBILE6 model and the new MOVES model, but while appropriate for $PM_{2.5}$, it unduly exaggerates the difference with regard to CO and NO_2, for which the MOVES model should only increase the projection twofold. While this has less impact over a broader area, it skews the results over a small area. He therefore needed to refine his assumptions to more accurately predict the results. Tr. 9/20/13, 25-29.

Mr. Sullivan further testified that it was his understanding that the community's concerns were impacts on the school, the pool and some of the nearest residences, not impacts at the Costco warehouse loading dock. He met with Dr. Cole in an effort to reach consensus on the model parameters, and although they agreed on a number of things, they did not reach consensus on everything. Mr. Sullivan modified his model to account for a number of Dr. Cole's points. At Dr. Cole's suggestion, he used a feature of air modeling called air minute; he evaluated the effects of major spills; and he evaluated gravity flow situations with "Cal Puff" modeling. His objective was to be conservative and to avoid any future questions to the extent that he could. Tr. 9/20/13, 31-36.

Mr. Sullivan described the mathematical error he had made in his projections which had been revealed at the 7/30/13 hearing. For NO_2, the measured background data is presented in parts per billion. His analysis is reported in micrograms per cubic meter. To convert from parts per billion to micrograms per cubic meter, he should have multiplied by 1.88, but when that conversion was done, he incorrectly divided by 1.88, leading to significantly understated background figures for NO_2. According to Mr. Sullivan, even his relaxed assumptions with regard to trucks at the docks and cars in the queue are still conservative. "Those numbers . . . in the August 16th report are still highly conservative." For example, the actual tailpipe emission of NOx is composed of NO and NO_2, and the percentage of NO_2 in NOx is somewhere between five and 25 percent at the tailpipe. There is no EPA ambient standard for NO. Nevertheless, when he gave his NO_2 figures, he assumed that NOx and NO_2 were, in effect, the same. This overstated the level of NO_2 emissions by a factor of four at the loading dock and at the queue. He also mentioned other refinements that could have been made that would have reduced projected levels. If modeling reveals exceedances in the standards, then EPA allows mitigation to avoid those exceedances. Tr. 9/20/13, 36-44.

According to Mr. Sullivan, only 0.024 micrograms of that 277 micrograms per cubic meter of NO_2 calculated by Dr. Cole at the loading dock under the original assumptions would come from the proposed Costco gas station. That is only .008 percent. It's nearly all coming from the warehouse loading dock itself, due to the conservative assumptions for NO_2 and

because the measurement is right where the trucks park in the middle of the loading dock. So it's not the gas station, it's the loading dock that is causing these high figures. The EPA has defined levels they consider insignificant. And if the level is insignificant, they will not stop that source from being built, but rather will deal with the reason that it occurred. The level of 0.024 micrograms per cubic meter is effectively nothing. The significant impact level (SIL) for one hour of NO_2 is 7.5 micrograms per cubic meter. So a level of 0.024 micrograms per cubic meter is hundreds of times below what EPA says is insignificant. If a facility that had a contribution of .008 percent of NO_2, it would be a non-issue to the EPA, even if the 0.008 percent bumped emissions over the EPA National Ambient Air Quality Standards. Where there is non-attainment, as it is in this area for ozone, they don't prohibit all new facilities. EPA's logical way of dealing with and balancing these issues is deciding on significant impact levels. Tr. 9/20/13, 45-49.

Mr. Sullivan further testified, as indicated in his August 16, 2013 report, once these four steps were taken to refine the analysis for the micro-scale effects, there were no violations and that there wasn't even close to being a violation of any standard. He did not change the methodology to get the result he wanted because he does work for all sides and has a reputation. Moreover, his methodology complies with EPA guidelines. When an area is in non-attainment, the EPA process involves a statement implementation plan, called the SIP. And the SIP looks broadly at the metropolitan area in the case of ozone, not just traffic-related, and they determine what has to be done to get in compliance. They focus on major facilities and on roadways as source categories. They'll run photo-chemical models to see what combination of changes have to be made in order to achieve the standard. It's more of a metropolitan-wide effort. He doesn't recall any situation where EPA would have dictated no further growth in any particular area. If one is higher than the SIL, more detail analysis is needed to get a permit. Tr. 9/20/13, 49-53.

Mr. Sullivan also submitted a revised noise study (Exhibit 249(e)) to get additional information by going out to the mall area on a heavy day for mall usage and a Saturday when the nighttime restriction for noise extended to 9 o'clock, looking for kind of a worse case situation. He went out there and gathered noise samples at two different locations. He found that noise levels were far below the standards, with data for the daytime and nighttime allocated and identified. The levels are essentially background noise levels. Adding in the projected noise from the gas station, he concluded that there will not be noise violations when the gas station is built. Tr. 9/20/13, 56-58.

Mr. Sullivan does not feel it would be appropriate in this situation to require Costco to conduct air monitoring after the gas station were to open because the Costco gas station will have quite small impacts and the pollutant concentrations will all be below the standard. It would also be expensive, depending on how many monitors you have and what you're monitoring for. There must be protocols, and you have to have periodic maintenance and calibration. Cost depends how many years you do, and if you did a lot of pollutants, it could be well over $100,000 just for equipment. If you're doing one pollutant, it's going to be a lot less than that. If one year of monitoring were required in this case of volatile organic compounds; particulate matter$_{2.5}$ and lower; carbon monoxide, NO_2 and so on, a ballpark number would be at least in the order of $50,000 to $100,000 a year, possibly more. In some cases, when EPA does require a post-construction monitoring, they do in some cases ask for a year of data for

confirmatory purposes. In order to know the specific background at the mall site, for example, you would need three years of data. Tr. 9/20/13, 60-63.

Mr. Sullivan cited to pages of EPA Guidelines-Appendix W (Exhibit 285) to support his assertion that the Guidelines try to seek consistency, but the ultimate objective is to achieve an accurate answer. Section 1(d) of Appendix W (p. 5) provides essentially that the model that most accurately estimates concentrations in the area of interest is always sought, however, it also expresses a need for consistency. Section 2.3 also basically makes the same point, at the very end of page 6 and on to page 7. Section 3(d), says:

> It should not be construed that the preferred models identified here are to be permanently used to the exclusion of all others or that they are the only models available for relating emissions to air quality. The model that most accurately estimates concentrations in the area of interest is always sought, however, designation of specific models as needed to promote consistency in model selection and application. Tr. 9/20/13, 64-68.

Finally, on redirect, Mr. Sullivan testified that NO_2 background levels are trending downward in the D.C. area and nationally because the controls in the automobiles and trucks are reducing NO_2 emissions, and as the fleet turns over from year to year, you get more newer vehicles and older vehicles off the road. The downward trend should be expected to continue. Tr. 9/20/13, 71.

On re-cross-examination, Mr. Sullivan was asked by Mr. Silverman why he stated that NO_2 was only 25% of NOx, when EPA Guidelines Appendix W (p. 15) calls for an NO_2 assumption of 100% of NOx on Tier 1 analysis (as Sullivan did in his first report) and 75% on Tier 2. Mr. Sullivan indicated that Tier 3 analysis allows source specific ratios, which in this case maxes out at 25%. This makes sense because the impacts are being estimated on a spot that is very close to the tailpipes of the trucks. The amount of conversion of NO to NO_2 within 10 to 20 meters is essentially zero. Tr. 9/20/13, 71-77.

Mr. Sullivan stated that a PSD (Prevention of Significant Deterioration) source is defined by how many tons a year are emitted by different source category sizes. The lowest threshold is 100 tons per year. There's no category for a gasoline station in that list, and they don't even come close to reaching that level. The SILs concept, in the context of PSDs, applys only to major facilities as defined by EPA, not to just any facility. He used SIL terminology as a point of reference, but conceded that the rule is that one shouldn't violate the NAAQS standards. If one is seeking to construct a major source or a PSD permit, EPA has review authority. The decision is then made by the state regulatory agency that has delegated that responsibility. That does not apply to the construction of a gas station, which is handled as a general source category by the EPA. Tr. 9/20/13, 77-83.

Mr. Sullivan indicated that the traffic and queuing numbers in his various reports were updated based on data collected, and he based the queuing information on the best information available at the time of each report. For the gas filling, the spillage and so forth, he estimated the approximate time the gas station will be open, while the underground tank emissions can release

all the time. When asked whether there are times when the gas station is operational that it would exceed the National Air Quality Standards, Mr. Sullivan answered that he could not foresee that happening. He followed the EPA Guideline instructions that modeled emissions should not be averaged across non-operating time periods. Tr. 9/20/13, 90-94.

Mr. Silverman quoted various sections from Appendix W of the EPA Guidelines (Exhibit 285, Section 9.1.) to the effect that the model should be discussed with the reviewing authorities and that there are uncertainties built into the modeling technique. Mr. Sullivan agreed that they are better at indicating effects over longer time periods and larger areas. Models are more reliable for estimating longer time average concentrations than for estimating short-term concentrations at specific locations, and they are reasonably reliable to estimate the magnitude of highest concentrations occurring sometime, somewhere within an area. Mr. Sullivan testified that he had not done an uncertainty analysis, but that is not standard procedure for permitting work. In his experience, generally the models do a pretty good job of identifying the distribution. They do a better job finding the high values than accurately predicting in space and time for particular receptors; however, if you want to get a distribution with high to low concentrations for that area, they'll do a pretty good job. That's what the EPA is basically saying in this document. Tr. 9/20/13, 95-102.

Mr. Sullivan stated that he took measurements in Wheaton of noise and odor. He took measurements at Sterling for noise, CO and some organic chemicals, some odor. That was just data to partially confirm modeling, but it didn't drive the modeling and he did not plug the measured quantities of VOCs or carbon monoxide or other things measured at Sterling into the model. The model is based upon EPA emission factors, not anecdotal measurements from Sterling. These measurements were taken just as a point of reference. Tr. 9/20/13, 104-105.

When asked why the EPA calls for calculations on the basis of a radius of three kilometers in making the urban and rural distinction, Mr. Sullivan replied that most facilities that are getting a permit have elevated stacks and the maximum impacts can occur well out to one, two, three or more kilometers. In that context, if you're modeling a broad area, they want you to use whatever area predominates, whether it be urban or rural, and they have a procedure they've identified for that purpose. The EPA does not have guideline that says that you should use a one kilometer if it's a small stack; they use the 3 kilometer scale in general. But the real controlling point is that you are always supposed to seek the most accurate estimate of concentrations in the area of interest. So in this context, if you know that the focus is on the gas queue, for example, or the loading dock, those are on urban ground and their receptors are inside of them. Your whole domain is classified urban. It would not make sense to go out three kilometers and see if there's grass out there and use that analysis for this estimate. The idea of the guidance is to get the most accurate answer, and if it's all urban, you don't have to do go out 3 kilometers because you already know the answer. He made two judgments. The first followed EPA's guidance in terms of a broader modeling. He did the three kilometer radius circle, discussed it with Dr. Cole, and it was mostly rural. But for the specialized modeling in the August 16 report, of the queue and the loading dock, these are asphalt surfaces in a mall, which are all urban. It would not make sense to blindly go out three kilometers in an effort to follow a formula when he knows that the entire area in question is on urban ground. For background levels, he used the Arlington monitor, which is fairly urbanized. Tr. 9/20/13, 108-114.

In response to questions from Ms. Rosenfeld, Mr. Sullivan stated that he charges $195 an hour for his services and he estimates his charge for the August 9 and 16 reports as $15,000. Tr. 9/20/13, 117.

Mr. Sullivan testified that EPA's defines ambient air as being not inside a structure. Ambient model exposures are exposures to receptors in ambient air (*i.e.*, not inside a building or structure). He did not evaluate indoor air. Knowing what the ambient air is around the warehouse and knowing that air exchanges between the outside and inside air, he could make some judgments regarding what the likely air quality is inside the warehouse, but he has not attempted to make indoor air quality estimates as part of this analysis. Tr. 9/20/13, 123-125.

When asked what the NO_2 levels would be in the area surrounding the south office building on the mall parcel (the location of the asthma and allergy center), Mr. Sullivan indicated that the values would be somewhat less than 110 micrograms per cubic meter per one hour average, and likely lower than that. This estimate is using the assumptions that were based in the November 2012 report, but corrected for the math error (Exhibit 255(a), page 11, Figure 1, 98th percentile, one hour NO_2 concentrations). If the background were updated to 90 micrograms per cubic meter (instead of 98), the projected figure would be 8 micrograms lower. Tr. 9/20/13, 125-132.

When asked whether Arlington had the highest background value of the monitoring sites in the D.C. area, Mr. Sullivan testified that his objective is not to identify the highest, but the most representative monitoring site. Arlington is considered a neighborhood scale site. Mr. Sullivan stated that he drew his meteorological data from DCA Reagan National Airport all the way through this project. He hasn't changed any meteorological data, except for the surface roughness consideration which resulted in less dispersion and higher projected concentrations of pollutants. He made these changes voluntarily after meeting with Dr. Cole because he felt it was the right thing to do. It is more consistent with EPA guidance to use the lower roughness length in this case, so he did. Tr. 9/20/13, 133-138.

Ms. Rosenfeld noted that in various charts in Mr. Sullivan's reports (November 2012 Report, Table 1-12 regarding one-hour CO predictions; November 2012 Report, p. 69, regarding 24 hour $PM_{2.5}$ predictions; August 16, 2013 Report, p. 8, Table 2, regarding NO_2 predictions) the figures in the column do not add up to the bottom line. Mr. Sullivan explained that these figures were based on "sub-runs" on different days to give examples of the relative sizes of some individual source contributions, so they are not expected to total up to the bottom line figures, but the totals listed are accurately reported directly from the model. Tr. 9/20/13, 138-144.

In determining background values for his November 2012 and January 2013 reports, Mr. Sullivan stated that he did not look at all the monitors in the area, including those in downtown Washington, D.C., and pick the highest one he could find; rather, he used the three most representative monitoring sites by triangulation – Arlington, Rockville and Beltsville – per EPA guidance, and then picked the highest of those three. Tr. 9/20/13, 148-154.

Mr. Sullivan indicated that using the corrected math regarding background numbers, but

applying the old assumptions (*i.e.*, prior to the refinements in his August 16, 2013 report), the NO_2 one hour rates based upon rural dispersion coefficients are 388 micrograms per cubic meter at the loading dock and approximately 200 in the center of the queuing area for the special exception. Applying urban dispersion coefficients at the loading dock, it would be approximately 414 micrograms, prior to his refinements (*i.e.*, a number higher than Dr. Cole's estimate). Mr. Sullivan explained that the urban number of 414 at the loading dock point source is higher than the rural number of 388 because the urban dispersion for a location right next to a source brings the pollutants down very quickly to that location at a highly concentrated rate, more so than the rural would. That's the reason why Dr. Cole's extrapolation didn't work, because urban and rural don't scale the same. Applying the refinements in his August 16th, Exhibit 255(a) report, Mr. Sullivan testified that the plots in Figures (i) and (ii) on pages 5 and 6 are a better estimate of one-hour NO_2 levels. The supposed peak near the loading dock is not there because it's not a real peak. The most realistic assessment would have included also adjustment for NO_2 ratio [*i.e.*, 25% by his earlier testimony] and an adjusted background by hour of day. Thus, he feels that even his August 16 numbers are still to some extent conservative, though he admitted they were not adjusted for not having used the MOVES model. Tr. 9/20/13, 155-168.

Mr. Sullivan testified that his studies assumed peak hour traffic, 18 hours a day, seven days a week, which would tend to compensate for any small differences between the peak on a holiday versus the peak in Mr. Guckert's analysis, even if the mall were open 24 hours during the holidays. He concluded that his analysis in that regard is extremely conservative. He agreed that if the trucks at the Costco loading dock were to idle more than 10 minutes at a time, in violation of Maryland law and Costco policy, there would be more emissions, mostly localized to the loading dock area. Tr. 9/20/13, 169-175.

When asked how many vehicles Mr. Sullivan assumed to be in the queue in his August 16, 2013 report, he indicated that it was assumed to be 40 at noontime, and lesser amounts at other times, as indicated in Appendix B. His effort is to accurately describe the time period that people in the queue could be exposed. Cars don't park in a queue; they move through. Based upon the transactional history, and input from Mr. Guckert, it's clear the maximum timing queue is typically 16 minutes with the 40 cars. It's almost always less than that. EPA model receptors are placed on the side of a road, not in the middle of the road. Analogously, people move through a road. When you're in a queue, you've got to move on through. You enter the queue, you wait and get gas, you exit the queue. There is no feasible scenario in which a person would hang out at that one spot for an hour. Therefore, he refined his model to consider length of occupancy. Although attendants will be there for the entire time, this was not an occupational assessment. EPA has a one-hour standard for ambient air quality, but OSHA has an eight-hour standard. Tr. 9/20/13, 185-193.

Although Mr. Sullivan did not model indoor air quality in the mall, he indicated that, in general, he would expect indoor levels of particulates to be less than outdoors. For the gases such as NO_2 or CO, depending upon the air exchange, he thought levels would be "sort of comparable" to the outdoor air. In terms of modeling, Mr. Sullivan stated that under EPA guidance, you model your source, in this case the gas station, and the entrance and exits to the gas station delivery trucks and then you would model other sources that would create significant

gradients at your source area. One might argue the ring road may create a significant gradient, but he wouldn't expect that Georgia Avenue, Veirs Mill and the other roads would create it. The parking lots definitely would not create significant gradients based upon his analysis, so he feels that he had double-counted because he including all those things in his model – the parking garage, the west parking lot, Georgia Avenue, Veirs Mill and University – even though they are not required. So when you add that to a generic background value as he did, then you would tend to overstate the pollution levels to some extent. How much, he's not sure, but there would be some double-counting in there. On the other hand, in calculating background, he relied on the reported readings of the relevant state monitors. Tr. 9/20/13, 202-205.

11. Thomas Flynn (Tr. 7/30/13, 166-238; Tr. 7/31/13, 176-294):

On Hearing Day 9 (July 30, 2013), Thomas Flynn testified as an expert in market analysis and related planning. He began by explaining his methodology for evaluating need for a gas station, as required by the Zoning Ordinance. First, he attempted to define the general neighborhood for this purpose, which he did in terms of a seven minute drive time from the site. Using a program known as Nielsen Claritas, which described a geographic area mostly following the Beltway. The Board of Appeals has accepted their data in the past. Then he looked at the population and the workforce and the travel patterns and all of the aspects of this general neighborhood, and estimated, using the same data provided, how much gasoline was likely to be required by the people who are in this neighborhood -- passing through it and residents of it – to determine the demand within the general neighborhood. Tr. 7/30/13, 166-182, 209.

Mr. Flynn then looked at the gas stations that already existed in that neighborhood. When Mr. Flynn first started this work several years ago, there were 27 stations. He went to each station, walked around, and looked at the prices and at the condition of the stations. In some cases, he talked with station managers as a mystery shopper, not trying to interrogate them, simply seeing their attitudes and the way that they ran the station, just his observations. He went to every station and used Claritas to estimate the amount of gasoline that these stations sold. He then compared the demand, that is, the amount that the population within the area would require under normal assumptions, with the supply, that is, the amount that's actually being sold, and he found that there was a very significant difference. Mr. Flynn concluded that that difference was in fact the need that Costco could address in this area. Tr. 7/30/13, 182-183.

In Mr. Flynn's opinion, based on this evaluation, there was a need that met the requirements of the Zoning Ordinance. He has done this analysis three times, beginning about three years ago, and each time the conclusions were more or less the same. The need seemed to grow somewhat. The number of stations has declined from 27 to 25, he believes because of road construction and because one was an old station that had only four pumps and was not well maintained. At the beginning there was a significant gap. It grew somewhat. Not only did the number of stations decline in this period of time, but the population and the income and therefore the demand for gasoline had increased. In his November 2012 report (Exhibit 14), he estimated the demand gap at $71 million, which represented a potential sale of about 13 million gallons of gasoline a year. Tr. 7/30/13, 183-186.

Mr. Flynn did another analysis based on a request from Costco that he look, not at the

larger general neighborhood, but at a more specific area, what he called the limited neighborhood. That limited neighborhood is basically Wheaton Plaza and a small part of the neighborhood that borders it, the area defined by the staff of the Maryland-National Capital Park and Planning Commission. Mr. Flynn found that there were four parts to the demand within this limited area. The first one was the traffic going by, people stopping in. This is how gasoline is very often sold. It's the pass-by traffic. Recognizing that all these people have to be customers and members of Costco, he estimated that the sale to pass-by traffic -- from Georgia Avenue, University Boulevard, and Veirs Mill Road -- would be about 4.4 million gallons a year, a very significant number because the station would be very convenient to people passing by. The second source in this limited neighborhood was of people working on the site. The mall itself and the buildings around it, which are not technically part of the mall, but rather outparcels, individually operated by health clubs and by Giant and by other entities that use land of the mall. The demand from the workers at the site, assuming that a portion of those workers would buy gas as members of Costco, since they would already be at the site, this is their workplace, this is a very easy, a safe, convenient, an economical way for them to purchase gas. He estimated that the sale to these workers would be 246,000 gallons a year. This is a relatively small number, but it's still important. The third source of demand would be to the people who are shopping on the site, and this place generates a lot of shopping, and a big source of potential demand. This includes the people shopping not only at Costco -- also the shoppers, including people who go to the mall, the other parts of the mall, and the people who go to the health club and the people who go to the cinemas. This was a very significant source of demand, and these sources (shoppers already in this neighborhood), he estimated would buy 6.4 million gallons per year. Finally, some of the people who live in this area are going to be Costco members and are going to buy gas at Costco since it's so close. That's a very small number (29,025 gallons per year) but it should be included. Summing all this up indicates that in this limited neighborhood he estimated a potential need for 11.1 million gallons of gasoline per year selling to Costco members (about 25% of the residents). There are no gas stations in the limited neighborhood. This analysis is contained in Mr. Flynn's report of July 1, 2013 (Exhibit 198). Tr. 7/30/13, 186-190.

According to Mr. Flynn, each time he visited the gas stations in the larger defined neighborhood, the Costco price at the nearest Costco station was lower than any of the prices at any of the other stations in this entire area. He stated that he had visited the subject site numerous times and also used other sources, including national energy use figures to understand trends out to 2035, and online sources about Costco prices and gas prices in general. The other sources seemed to confirm what he concluded here. Mr. Flynn also informally surveyed users of the Costco gas station in Greenbelt, and he reported that convenience and cost were the predominant reasons for shopping there. He concluded that price, convenience and safety are three most important factors in determining need. Mr. Flynn discounted the impact of gas saving programs at Safeway and Giant, saying they are not marketed effectively. Costco has the lowest prices, and the average household can save about $300 a year buying gas there. Tr. 7/30/13, 191-204.

Mr. Flynn further testified that from a market perspective, Costco draws from 15 to 20 minutes away. People will come from outside that seven-minute drive, no matter which neighborhood definition you use, whether it's the limited or the general. In his opinion, need can be established whichever definition is used, but it is likely that additional gas will be sold to people

outside either the limited neighborhood or the general neighborhood. Tr. 7/30/13, 204-208.

Mr. Flynn found that the gas station would be reasonably convenient for four types of people – the pass-by travelers, they need gas, they're on their way to work, they're driving half an hour to work; the people who work at the mall, there's several thousand of them who work in these different places there, and they are at work and they need gas; the people who are shopping, not only the Costco shoppers, who are huge consumers of this, but the other shoppers, the Giant and the Target and the other, and the movies; and, finally, the residents, there's a small number in the limited neighborhood and then the much larger number in the general neighborhood. He took into account that 24 percent of households and 92 percent of businesses would be Costco members. He also noted that Costco stations are different than any of the other stations in the general neighborhood. There is no other station that has the kind of safety features that it offers. The physical safety, the environmental safety, the attendance, the convenience are features which no other station offers. There is a difference between capacity and need. The existing stations have capacity, but people go where they want to go. Mr. Flynn opined that the 7-minute drive is the area where people feel it is more like the Wheaton neighborhood in that it is convenient to them. It is an area of about 15 square miles, with a radius of about two and a half miles (Exhibit 217). Tr. 7/30/13, 213-220.

[At the end of *Hearing Day 9* (*July 30, 2013)*, the Hearing Examiner responded to objections the Opposition had made to repeated changes in Applicant's plans and data collection by stating that August 9, 2013, would be "the final date for any final plans, data, anything else . . .. No further changes will be accepted . . .absent a darn good show[ing of] . . . good cause . . . ." Ms. Harris responded, " I think that's, that's fine." The Hearing Examiner then asked, "Is that fair all the way around?" Ms. Harris responded, "Absolutely," and Ms. Rosenfeld responded, "Yes, thank you." Tr. 7/30/13, 224-225.]

[The morning of the *Hearing Day 10 (July 31, 2013)* was set aside for members of the public who wished to be heard on this matter. The summarized testimony of those individuals supporting the petition is set forth after the summary of Petitioner's case-in-chief. The summarized testimony of individuals who oppose the petition is set forth just after the summarized testimony of groups opposing the petition, followed by the summarized testimony of one individual who advocated neither position.]

On the afternoon of *Hearing Day 10 (July 31, 2013)*, the cross examination of Mr. Flynn resumed. Tr. 7/31/13, 176-294. Mr. Flynn asked to make some corrections to his earlier testimony. He stated that people living in the larger general neighborhood travel an average of 37 minutes to work (not 30 as previously stated). Also, he noted, based on his reading of Giant's website, that Giant's gas bonus program doesn't allow bonus points for the sale of medicines in the pharmacy, milk, lottery tickets and cigarettes, and there are no gas stations in the larger general neighborhood participating in the program. [The Opposition objected, and the Hearing Examiner excluded the website testimony as unreliable hearsay.] Tr. 7/31/13, 176-179.

Mr. Flynn was questioned about ostensible inconsistencies in how he calculated the number of existing gas stations in the general neighborhood (*i.e.*, within the 7-minute driving radius). Tr. 7/31/13, 180-196. He admitted that there is no shortage of gasoline in the general

neighborhood. He indicated that the need is not determined by capacity or shortage. He indicated that three things created need – price, convenience and safety, with price being the most important. Mr. Flynn admitted that when he calculated the price savings that a household would garner from purchasing gas from Costco, he did not subtract out the annual membership fee from that cost, but he also noted that the membership fee is applied to other goods purchased from Costco as well. Tr. 7/31/13, 197-211, 230. The Opposition introduced excerpts from the U.S. Energy Administration's Annual Energy Outlook for 2013 with projections to 2040 (Exhibit 227) for the statement that with more efficient light-duty vehicles, motor gasoline consumption declines in the future. Mr. Flynn suggested that this excerpt from a complicated document does not reflect an actual projection, and that projections beyond five years are speculative. Tr. 7/31/13, 231-236.

Mr. Flynn agreed that about 35 to 40 percent of the current gas sales at the Costco Beltsville will shift to Wheaton if the gas station is permitted. Tr. 7/31/13, 263. He indicated that just because a station closes doesn't mean it becomes a brown field, especially in Montgomery County, which has very rigorous regulations. Tr. 7/31/13, 275. Mr. Flynn distinguished between markets and needs. When there is a need, a market is created. Thus, sometimes a market can reflect a need. There are also some apparent markets that are frivolous and don't reflect need, such as a market for a fur coat. Gas is needed and there is a market for it. Tr. 7/31/13, 276.

[At the beginning of *Hearing Day 11 (August 2, 2013)*, the Hearing Examiner noted that Exhibit 240 is a letter from Blue Lagoon declining Mr. Sullivan's request for a copy of the videotape of his testimony. The Hearing Examiner indicated that he has no authority to order copies turned over, and although he may have the authority to prohibit videotaping, he would not do so because it has not been disruptive and because both Board rules and County policy encourage public access. Tr. 8/2/13, 11-13.]

12. Joseph Cronyn (Tr. 8/2/13, 26-86, 222-286):

On Hearing Day 11 (August 2, 2013), Joseph Cronyn testified that he is with Lipman, Frizzell & Mitchell, which is a major real estate appraisal and consulting firm in the Baltimore-Washington area. However, he admitted that he is not a licensed real estate appraiser in any state, nor a real estate broker. The last time he listed a residential property for sale as an agent was about 30 years ago, and he has never had formal education in valuing residential real estate. Nevertheless, as part of his job, he does market and feasibility analyses for a residential development, and has done so recently. Mr. Cronyn stated that over 35 years of real estate development, finance, and market analysis has prepared him to opine on the likely effects of the proposed gas station on the use, peaceful enjoyment, economic value, and development of surrounding properties and the general neighborhood. He has testified on need as an expert, but he doesn't recall if he has been qualified as an expert on market analysis in a Board of Appeals special exception case. Based on this background, Ms. Rosenfeld and Dr. Adelman objected to Mr. Cronyn's qualification as an expert. The Hearing Examiner found that the Opposition had ample notice of Mr. Cronyn's proposed testimony and that their other objections go to the weight to be given his testimony. He's certainly qualified as an expert in real estate market analysis, which is the area in which he has been proffered as an expert. To the extent that his evidence

wanders along the peripheries of that and to the extent that cross-examination brought out what might be characterized as limitations in his knowledge, these factors will be considered as part of the weight to be given to his testimony. Thus, Mr. Cronyn testified as an expert in the field of real estate market analysis. Tr. 8/2/13, 26-44.

Mr. Cronyn testified that he looked at the Costco property in its context within the shopping mall, and he looked at the neighborhood context in Kensington Heights. He also looked at what might be analogous situations against which someone could judge whether gas stations have an impact on values. He also examined real estate transactions -- arm's-length transactions -- over a period of time, trying to understand trends in values and trends in pricing over that period of time for homes adjacent to the shopping mall and to other similar situations in the Connecticut Avenue corridor against which he could compare them. In his professional opinion, the proposed filling station will not adversely affect the local property values. He feels that there would be no negative externalities to adjoining residential properties. Noise, hazards, odors, nuisance behavior, traffic, and visual impacts will be as close to zero as possible, and in many cases, because of the green wall that's being put up between the gas facility and residential properties, in his opinion, many of those properties will actually be improved because their views of the mall will be reduced even further than they are right now. He noted that in most cases, the views today are actually relatively low just because of grade differential between the residential properties and the mall, intervening trees and forest area and also the distances between the residential properties and the mall itself. Tr. 8/2/13, 44-47.

Mr. Cronyn further testified that he looked for data in similar situations to support his analysis. He tried to use paired sales -- the same home, selling at an earlier period and at a current period -- to minimize the subjectivity in a judgment. In looking for paired sales, one of the difficulties is that the number of properties in proximity to the mall is relatively finite. He found 66 arm's-length sales, but the number of instances of the same property selling over time was relatively limited. He then looked at general trends in the market, trying to track sales over a period of time, from 1994 to 2011, on an average basis. He then compared it to what he felt would be a reasonably analogous situation to the Costco gas station. Since there are no other Costco gas stations in Montgomery County, he felt a reasonable analogy was the situation at intersections close to Connecticut and Plyers Mill, in the area and just south of the site. He found six gas stations that were at intersections along Connecticut Avenue and just off of Connecticut Avenue. He looked at the sales of residential properties within a 400-foot radius of those intersections to determine the value trends in those properties. He found a total of 82 arm's-length sales over that same period of time. Averaging those sales, he found that the price trends were not, in any major respect, different from what was happening on the blocks adjacent to the mall. Indeed, the sales trends rose through the top of the housing bubble, they declined through the housing recession, and then started to come back up again in 2010 and 2011. That is reasonably supportive of the conclusion that the proximity to the gasoline station was not a factor in prices increasing or decreasing. Indeed, the economy seemed to be the biggest factor, and overall prices were pretty much the same in terms of dollar amounts and in terms of trends. Tr. 8/2/13, 50-54.

He noted that there is no through traffic into the mall through Kensington Heights, and these particular blocks are separated by a significant topography. There's no way that drivers can

get into the residential properties from the mall property and from the Costco gas station. So proximity doesn't mean that there's going to be any negative effect on property values at all. There also should be no stigma to locating a house in proximity to a gas station if you are part of a separated residential neighborhood. Mr. Cronyn does not believe that there's any negatives associated with being in the block next to the mall versus being a block further away, and that Kensington Heights as a residential neighborhood enjoys a good reputation. People understand, when they're buying into Kensington Heights, that they're buying next to the shopping center, and the people who buy in think that that's wonderful. If somebody wants rural living, they're not going to buy in Kensington Heights; if somebody's more urban-oriented, then Kensington Heights is a terrific deal. Adding the Costco gas station to the equation and placing it on the mall site does not change this situation, whether or not the green screen wall were constructed or whether its height is 8 or 14 feet, because of the existing buffer. Tr. 8/2/13, 54-57.

On cross-examination, Mr. Cronyn testified even if you could see the gas station that is proposed here from the second floor of the neighboring houses, the extent of the impact would depend on how serious any visibility is; however, given the distances involved and the type of operation, in his opinion, any visual negatives would be minimal, if there were any. He noted that he had looked at the cross sections and, as far as he could tell, there wasn't any visibility. People who bought homes on those blocks adjacent to the mall would be very much aware of the mall. The mall has been there for 50 years. Various circumstances allow people in Kensington Heights to reside in close proximity to the mall without it having direct impact upon them -- the forest buffer; the road network; the lack of connecting streets; the grade differential; and the topography difference are all elements in the isolation of the neighborhood in certain ways from the mall. Mr. Cronyn admitted that his conclusions are dependent on reports of the experts with regard to noise, hazards, odors, traffic or other nuisances. While people may disagree about anything, his evaluation, as somebody who knows a lot about real estate, is that the green wall will be a positive and will complement what's out there right now, which is already pretty substantial and basically blocks views from the residential properties to the mall and ultimately to the gasoline station operation. Tr. 8/2/13, 225-234.

Mr. Cronyn's concluded that since the proximity to gasoline stations did not seem to have negatively affected appreciation rates in the homes proximate to Connecticut Avenue, he can't conceive that the proposed Costco station would have any negative impact on the appreciation of the properties that are in the Kensington Heights proximate blocks. Although the Costco station will have larger capacity than the individual Connecticut Avenue stations, that is why he chose six stations in proximity to each other, because they have would have, in his opinion, an even more negative impact together than the Costco station, which would be a much better managed operation overall than the six properties nearby. The Costco station, in terms of scale, is probably comparable to the six stations together and their impact on a fairly tight neighborhood. He found no evidence that anyone is going to have a problem selling their house in Kensington Heights or getting a reasonable value for their house based on general market conditions. Tr. 8/2/13, 239-242.

Mr. Cronyn indicated that the existence of the Montgomery Ward auto service station on the mall from 1960 to 2002 did not affect his conclusions. He could not rule out the announcement of the proposed Costco gas station as having an impact on the differential in

house price increases along Connecticut Avenue compared with sales prices in the Kensington Heights neighborhood since 2010; however, the differential could be due to just a couple of sales. Moreover, the drama over the Costco dispute could have had an impact. He did not try to make any valuation analysis of residential properties adjoining a similarly sized Costco gas station to determine if there was an effect on adjoining properties because he tried to keep things to Montgomery County. There were not enough pared sales in the area to make a comparison in that fashion. Tr. 8/2/13, 250-272.

Mr. Cronyn further testified that he did not do a market analysis of the Kensington View neighborhood because it is not adjoining the proposed gas station site. In his opinion, there is nothing about the location of Kensington View or the other neighborhoods that would make them more susceptible to being affected by this proposed gas station than the Kensington Heights neighborhood. They're more remote from the special exception, and traffic and other kinds of impacts seem to be relatively slight. Tr. 8/2/13, 276-277.

[An aerial photo of the neighborhood was marked as Exhibit 244 and landscape Master Plan, sections and elevations were marked as Exhibits 245(a), (b) and (c). Tr. 8/2/13, 286-288.]

[At the beginning of *Hearing Day 12 (September 9, 2013)*, the Hearing Examiner addressed a number of procedural matters and granted the Opposition's motion to postpone Dr. Chase's testimony until after he supplies an updated report on his intended testimony based on the revised assumptions in Mr. Sullivan's August 16, 2013 report. Dr. Chase's testimony was rescheduled to September 16, 2013, and Mr. Sullivan's return to the witness stand until September 20, 2013. Tr. 9/9/13, 4-28. The Hearing Examiner also posed a question for the parties regarding how to apply the EPA regulations in his analysis, similar to one that he previously asked the parties to address regarding the noise regulations, essentially whether his focus should be on the likely incremental increase in pollutants from the proposed gas station or on the resulting totals. So would the EPA air quality standards and methodologies prohibit a project which produces a small incremental increase in particulate matter or in volatile organic compounds but one which drives the overall previously borderline level of that substance above the air quality standard? Tr. 9/9/13, 29-30. There was a further discussion among the parties as to what parking is required by DPS in the mall. Mr. Brann indicated that the DPS parking waiver included in Exhibit 90(c) requires the overall parking for the mall to be 5,998 parking spaces, based on at 4.0 spaces per thousand square feet. According to Westfield, there are 6,072 parking spaces provided for the mall, which is 4.01 per thousand square feet. Tr. 9/9/13, 43-59.]

13. Mark Willard (Tr. 9/9/13, 60-105):

On Hearing Day 12 (September 9, 2013), Mark Willard testified as an expert in landscape architecture. He worked on two projects, the planting of the special exception area, which is shown here in the southwest quadrant of the Costco parking lot, and the landscaping with respect to the area west of the special exception area, which he did for Wheaton Westfield. Exhibit 265(d) is the landscape master plan. Tr. 9/9/13,60-63.

Mr. Willard described the existing southwest buffer as comprised of primarily deciduous canopy, some regenerating understory and some quite large evergreen trees. The majority of the

vegetation on the southern border is deciduous, some larger trees, and a lot of small trees of fair quality. Within the special exception area, there are some parking lot trees to the north side of the special exception area, and there are two bioretention basins on the south side of the special exception area. There are some more trees, as well, inside the special exception area. The bioretention areas have landscaping within them designed to filter water as part of the stormwater management system. The recent changes to the plans were very minor and did not require any change to the types of plantings. He also proposes to plant a mix of evergreen, some deciduous, but mostly evergreen native trees along the top edge of east side of the existing green buffer and the west side of the green buffer. In the very southeast corner of the green buffer, there's a stream buffer, where there was some previous disturbance created by some work that was done by Wheaton Mall. He was directed by Parks and Planning to focus his planting for that area in this location. He also proposed to heavy up the green buffer with larger evergreen trees and flowering trees and try and keep some visual screening and soften the view of the wall as you look at it from the south. He reduced the sizes of some of the planned trees at the direction of Parks and Planning because the amount of grading that would be required to plant a smaller tree on a slope would create less disturbance. Tr. 9/9/13, 64-69.

The zoning ordinance does not require additional planting or buffering in connection with the special exception because the special exception area doesn't abut the residential properties; however, he tried to address where the viewsheds from houses were and to buffer that view of the gas station canopy structure located within the special exception area as efficiently as possible. The screen wall will be eight feet high, starting due west of the gas station canopy, right behind the curb line, and continue parallel immediately adjacent to the curb, slightly behind it, as it goes along the southern part of the ring road and south of the loading dock area of the Costco store. He suggested using green-screen material on the wall, covering it with vines, and Park and Planning provided a list of native vines that are non-invasive that would be acceptable to them. He proposed an American Bittersweet to be grown on the front and back of the wall. In Mr. Willard's opinion, the special exception application will further the Sector Plan goal of preserving the green buffer and will comply with Sector Plan guidelines. Tr. 9/9/13, 70-73.

On cross-examination, Mr. Willard testified that on the southeast corner of the property, there is a storm drain outfall located within the green buffer and apparently a path that was created to do some work there. Park and Planning asked that the only planting within the stream buffer zone occur in that disturbed area, not outside it. Trees would be hand-carried in without the use of mechanical equipment in that area. The trees might be heavy enough to require more than one person to carry them. Tr. 9/9/13, 75-85.

On Exhibit 265(d), the green dashed line is a conceptual sort of location, general location of the proposed wall, and the black lines represent where the physical wall will be placed. No trees will be removed. He is not aware of any trees that will require removal because of the construction of the wall. Mr. Willard indicated that a bioretention basin wouldn't work as well if the plants die. [Mr. Brann indicated that Costco would have no objection to a special exception condition that the plantings and the stormwater management facility be maintained.] He also stated that the planting plan that is shown on Exhibit 265(d) reflects the same plants that are shown on a planting plan that he did for DPS's stormwater management approval in conjunction with the civil engineer. In his opinion, no root zones will be disturbed by either the construction

of the wall or the pedestrian path. The blue lines on Exhibit 265(d) show the view sheds, but do not indicate that things can be seen from beyond the wall. The wall, he determined, blocks the view from those viewsheds. People will be able to look over the wall and see sky, but not the special exception structures, even from the second floor of a neighboring residence. Mr. Willard would not recommend burning to control weeds in the vicinity of a gas station. Tr. 9/9/13, 86-105.

[At the beginning of *Hearing Day 13 (September 16, 2013)*, the Hearing Examiner asked the parties what the Board of Appeals had done with the motions for summary disposition pending before them. The parties disagreed as to precisely what the Board agreed to at its work session, and the Hearing Examiner indicated that he would await the Board's resolution. Also, Petitioner filed its opposition (Exhibit 272) to the Opposition's motion "in limine," and the Hearing Examiner indicated that he hoped to rule on the motion within two days (*i.e.*, by September 18, 2013). Mr. Silverman filed an individual memo addressing the question of how to evaluate small increments in pollution that drive the overall levels above a standard (Exhibit 273). The Hearing Examiner reminded Ms. Harris that she is required to forward a copy of Mr. Sullivan's August 16, 2013 supplemental report to Technical Staff. Tr. 9/16/13, 6-22.]

14. Dr. Kenneth Chase (Tr. 9/16/13, 22-203; Tr. 9/20/13, 206-241):

On *Hearing Day 13 (September 16, 2013),* Dr. Kenneth Chase testified, over objection, as an expert in occupational, environmental and internal medicine. His qualifications include being a practicing physician, Board-certified in internal medicine and in occupational and environmental medicine. He is the founder and the president of the Washington Occupational Health Associates, and the lion's share of what he does deals with work-related issues, as well as environmental issues, including air, ground water, surface water, et cetera. He has done work for the Army Corps of Engineers on a worldwide basis; the FBI on a worldwide basis at times; Fannie Mae; the U.S. Capitol (in particular the architect of the Capitol); GSA and others. He has a Bachelor's of mathematics with honors from UCLA and a medical degree from UCLA. He did his internship and first year residency at University of Michigan. He then spent two years at NIH and completed his third year medical residency at Georgetown University, following which he joined the full-time faculty at George Washington University. He has testified as an expert witness all over the country, mostly as an expert in occupational and environmental medicine. He admitted that he is not board-certified in any of the following sub-specialties: allergy and immunology, geriatric medicine, adolescent medicine, cardiovascular disease and pulmonary disease, maternal or fetal medicine[5] or pediatric cardiology, but he noted that most are part of the practice of general internal medicine. He also obtains continuing medical education in a number of areas, most often in occupational, environmental and preventative medicine. He was further questioned about whether he had recently treated adults and children for a variety of disorders. The Opposition objected to having Dr. Chase accepted as an expert witness in the various areas of medicine that are relevant to this case and contend that he lacks experience in treating patients for the variety of conditions which are of concern to the Opposition as being in principle caused by automotive exhaust fumes. Ms. Rosenfeld, on behalf of KHCA, also asserted that Dr. Chase was not sufficiently identified as an expert in Petitioner's pre-hearing filings, although she

[5] The court reporter incorrectly listed the subspecialty "maternal or fetal medicine" as "internal and feral medicine." Tr. 9/16/13, 30, 31.

admitted that she knew he would be proffered as an expert. The Hearing Examiner found that Dr. Chase was amply demonstrated as an expert in the fields that were proffered, occupational, environmental and internal medicine, and that the procedural point was not well founded. Tr. 9/16/13, 22-43.

Dr. Chase testified that he reviewed reports from David Sullivan, Dr. Jison, Dr. Breysse, and extensively reviewed the medical and scientific literature that applies to the questions on this case, both domestic and otherwise. He also reviewed selected relevant sections of the Federal Register and regulatory documents, mostly EPA, occasionally a few others. Based on his review, Dr. Chase stated that in his professional opinion, the proposed gas station will not adversely affect the health or general welfare of the residents, neighbors, visitors, workers in the area, students attending schools in the area or people attending the local swimming pool. He bases his opinion on the evidence that none of the criteria pollutants that are regulated by EPA that have been discussed in this case will be exceeded by the proposed Costco gas station. The criteria pollutants are carbon monoxide, lead, nitrogen dioxide and $PM_{2.5}$, which is an abbreviation for airborne particulate matter of 2.5 microns or less in diameter. His opinion is also based on based on CASAC's (Council Advisory Scientific Air Quality Committee) standards and comparing CASAC standards to the modeling done by the Sullivan Group and the measurements taken at a relatively similar station in Sterling, Virginia. Tr. 9/16/13,44-51.

According to Dr. Chase, the National Ambient Air Quality Standards (NAAQS) are the only standards that apply to air quality in Montgomery County or Maryland. They are intended to protect the public health and welfare and they are based on a CASAC recommendation. CASAC is a group of 22 experts from all over the country in a variety of relevant disciplines, not just medicine, but medicine, industrial hygiene, toxicology, epidemiology, and the like. They update the standards every five years, and they were updated late last year. They are designed with a wide margin of safety for the general population, wide enough to protect vulnerable populations, including the elderly, children, persons with emphysema, COPD (chronic constructive pulmonary disease) or asthma. In Dr. Chase's opinion, any emissions that may be generated as a result of the Costco gas station, including cars that are queued in line, cars that are at the pumps, action at the pumps, trucks that are delivering gasoline, or cars that are on the ring roads attending it, will not cause more children or local residents to develop asthma. Tr. 9/16/13, 51-54.

Dr. Chase further testified that the changes in the Sullivan report of August 16, 2013, did not change his opinions on the subject because his August 16th supplement or revision clarifies his previous mathematical error and gives more accurate estimates of background NO_2 levels. Dr. Chase relies on Sullivan's estimates of what the likely concentration levels of the criteria pollutants were likely to be as a result of building and operating the Costco gas station. The calculated Costco related emissions are so much lower than background. For example, for $PM_{2.5}$, it's known that the background levels are around 10.8 micrograms per cubic meter. The Costco gas station would contribute about 1/10,000 of that amount to background. And the other pollutants are typically 100th of background. The amount of emissions is important because it is the "dose [that] makes the poison." Virtually any substance at a high enough dose can be harmful and, conversely, if the dose is low enough, it's not going to make any difference. He added that there's no way that anybody would be able to measure the health impacts of the

Costco gas station because the emissions are going to be so low. Tr. 9/16/13, 55-58.

Dr. Chase noted that the proposed Costco station meets both NAAQS and CARB (California Air Research Board) standards, but only the NAAQS standards apply in Maryland. In his opinion, World Health Organization (WHO) guidelines should not be applied because they are only guidelines, although CASAC or the EPA considered the WHO guidelines when forming the national ambient air quality standards. Tr. 9/16/13, 58-60.

Dr. Chase explained that the EPA's Integrated Risk Information System, known as IRIS, identified particular chemicals and assigned risk factors to them, typically cancer risk factors. These mostly involve chemicals that are considered to have carcinogenic potential for humans, such as volatile organic compounds. Based on Mr. Sullivan's conclusions about VOC levels, Dr. Chase concluded that the potential health effect to the residents, visitors, workers, schools attendees and recreation users in the area of the proposed Costco gas station site and the surrounding neighborhood would be negligible because levels would be so low. He also noted the use of "clean diesel" engines for the fuel delivery trucks as significantly reducing pollution. Dr. Chase does not consider himself biased in this case. Tr. 9/16/13, 60-68.

Dr. Chase further testified that even applying Mr. Sullivan's original assumptions, but with the corrected math resulting in higher NO_2 levels and possible exceedances of the National Air Ambient Air Quality Standards for NO_2, there would be no clinical health impacts for the residents, workers, visitors and so on in the area because a wide margin of safety was employed by the CASAC Committee in coming up with their numbers and because an exceedance does not amount to a clinical health effect. Tr. 9/16/13, 68-72.

On cross-examination by Dr. Adelman,[6] Dr. Chase was asked why almost every article he listed in his reference list had to do with diesel fuel and the possibility that exposure to diesel fumes will cause cancer even though diesel fuel will not be dispensed at this gas station. He indicated that he had been focusing on trying to get a better understanding of the relevance of change to the new technology diesel exhaust (NTDE). He also agreed that reaching the final numbers in the standard can be a lengthy and disputatious process. Tr. 9/16/13, 74-79.

Dr. Chase defines the term "negligible" to mean "clinically insignificant" or producing "no lasting damage." He indicated that none of his previous projects were identical to the present scenario. He mentioned work on emissions from power plants. He also stated that his fee from Costco was not contingent on the outcome of the case. Tr. 9/16/13, 80-94. Dr. Chase further testified that in addition to scientific literature regarding diesel emissions, he also reviewed literature regarding normal automobile emissions, including all of the citations by Dr. Jison and Dr. Breysse. He was not able to recall the names of articles about non-diesel emissions he reviewed prior to the reports of Dr. Jison and Dr. Breysse. In December of 2012, the EPA lowered its standard for $PM_{2.5}$ down to 12 micrograms per cubic meter on an annual basis, while leaving the 24-hour standard unchanged at 35. Nevertheless, Dr. Chase's opinion as reflected in his September 10, 2013 letter (Exhibit 269(a)) remained unchanged from his opinion in his

[6] The Hearing Examiner had to repeatedly restate cross-examination questions for the cross-examination by Dr. Adelman because the questioner had a paralyzed vocal cord and the witness was hard of hearing, thereby making it difficult for him to hear the questions clearly.

November 2012 letter (Exhibit 15(b)) because when he wrote his November 2012 letter, he knew the change was imminent and so he took it into account. Even if Sullivan's numbers were slightly above 12 micrograms per cubic meter, that would not represent a health hazard because a wide margin of safety is built into those numbers. He has testified in some cases that pollution sources were so high as to create a health hazard. Tr. 9/16/13, 98-109.

Dr. Chase stated that there are chemicals in addition to benzene that are emitted from auto tailpipes that can be harmful in high enough doses, such as carbon monoxide and nitrogen dioxide, but he does not feel that the air around the automobiles constitutes a potential health risk. Tr. 9/16/13, 118-124. He further testified that he is not in disagreement with all these experts and scientists all over the world who have reported on the hazards of fossil fuels, gasoline and diesel included. But too much of the literature out there is so dated that you can't apply it to the present and you can't apply it to the proposed Costco gas station. He doesn't think there's going to be any health impacts from this gas station and if it goes forward, there's no one in the world who would be able to design a study that would be able to show that there's been any incremental contribution to adverse health in the Wheaton community or the neighborhood, however you define it. It's just not possible. You can take measurements of the various pollutants and then, if the station were in operation, take measurements over some period of time thereafter to see if there is an increase, but in Dr. Chase's opinion, it would be a waste of time and money because it won't be able to demonstrate an incremental health impact. [The Hearing Examiner asked the parties to consider a potential condition, if the Board of Appeals were to approve a special exception here, requiring monitoring to see if there are any increases in various pollutant levels over some period of time.] Tr. 9/16/13, 135-142.

Cross-examination of Dr. Chase by Ms. Rosenfeld began with questions about his understanding of what air samples were taken by Mr. Sullivan at a similar Costco gas station Sterling, Virginia, and included in Mr. Sullivan's report from November 2012. His initial understanding was that they included carbon monoxide, lead, sulfur dioxide, nitrogen oxides, $PM_{2.5,}$ and ozone, but upon looking at Section 2.1 of the report, he concluded that a number of these chemicals were not actually sampled. Tr. 9/16/13, 144-150.

Dr. Chase indicated that he is not an expert in reading isoplats, and the Hearing Examiner would not allow him to offer an opinion regarding meteorological dispersion in fairness to the other side since he is listed as an expert in health effects, not in meteorology and dispersion. He then discussed the NAAQS standards for some of the six criteria air pollutants that are tracked by the EPA – $PM_{2.5}$; lead; carbon monoxide; nitrogen oxides, or NOx for short; sulfur oxides, or SOX for short; and ozone, or O_3. The NAAQS standards of 12/14/12 are outlined in Exhibit 277. The $PM_{2.5}$ standard dropped from 15 to 12 in April 2013. Exhibit 276 is an EPA 2011, February 2011 air quality guide for nitrogen dioxide. He noted that relatively short-term exposure to nitrogen dioxide can precipitate an asthma attack in children, and it could affect others with respiratory disorders as well. The one hour standard will protect public health by limiting people's exposure to short-term, peak concentrations of NO_2 which primarily occur near major roads. Areas more distant from roads would generally have lower exposures. He quoted the EPA guide, "Those individuals who spend time on or near major roads can experience NO_2 exposures considerably higher than occur away from roads. These exposures are of particular concern for sensitive groups such as people with lung disease, including asthma, children and

older adults." The short-term limit was established because EPA recognized that people can suffer health effects over a much shorter period of time. Tr. 9/16/13, 151-165.

Dr. Chase stated that the revised assumptions in Mr. Sullivan's August 16, 2013 report were more realistic assumptions rather than substantive changes. He characterized the initial assumptions as "absurdly conservative," but was unable to detail what the assumptions were. Tr. 9/16/13, 173-175.

Dr. Chase was asked, if he assumed that Dr. Cole was correct in paragraph No. 13 of his affidavit (Exhibit 262(b)) and that applying Sullivan's original assumptions and correcting the mathematical error, the NO_2 concentration will be 277 micrograms per cubic meter within the mall parcel, which would exceed the EPA's maximum 1-hour, NO_2 standard of 190 micrograms per cubic meter, would that represent a health hazard to the people in the mall or in that immediate environment? He sated that without the other information that is shown in Exhibit 277, he can't make a determination as to whether the conclusion in paragraph 13 of Dr. Cole's affidavit represents a health hazard. Assuming that Mr. Sullivan used a 3-hour average and concluded that the 1-hour level of NOx was 277 micrograms per cubic meter, he opined that it would represent an exceedance of the new EPA standard of 100 parts per billion, and if the margin of safety is not wide enough, he would expect respiratory symptoms. Dr. Chase stated that he does not know what the margin of safety is, but his recollection is that the OSHA permissible exposure limit for NO_2 is 50 times higher than the EPA's 100 parts per billion. Tr. 9/16/13, 176-188.

[The Hearing Examiner asked the parties to opine on whether the EPA's NAAQS standards apply to workers at the gas station or the OSHA standards. Tr. 9/16/13, 189-195.]

When asked how much over the NAAQS standards would represent a health hazard, Dr. Chase said that would depend on the agent involved. For $PM_{2.5}$, the margin is about three micrograms per meter cubed. In other words, if you took the current 12 micrograms per meter cubed and added three, then it would be back at 15, which is what it was up until very recently. The appropriate margin of safety for CO is in the neighborhood of 10 or 15 parts per million above the EPA standard. For sulfur dioxide, Dr. Chase did not have a margin of safety estimate. The appropriate margin of safety for lead in his opinion is about .5 micrograms per meter cubed. For ozone it is ten times the EPA number of .075. Dr. Chase agreed that the NOx standard is a health-based standard, as are the standards for CO, $PM_{2.5}$, and the VOCs. He also agreed that the EPA would have reduced the NOx, and the 1-hour $PM_{2.5}$ from 15 to 12 based on health-based analysis. Tr. 9/16/13, 196-202.

[*Day 14 of the Hearing (September 20, 2013)* began with the resumption of Mr. Sullivan's testimony (Tr. 9/20/13, 8-206), which is included under *Hearing Day 9*. The hearing then proceeded to the completion of Dr. Chase's testimony.]

On *Hearing Day 14*, the cross-examination of Dr. Chase resumed (Tr. 9/20/13, 206-241). He testified as to the OSHA standards for the six of EPA criteria pollutants – carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur oxides. The OSHA standards are considerably higher (*i.e.*, allow a lot more exposure) than the EPA standards. The OSHA regulations regarding ambient air quality for workers are contained in Exhibit 287. Dr. Chase

agreed that the impact of gasoline stations on the health of workers is an area that has not been well-studied. Tr. 9/20/13, 206-220.

Dr. Chase stated that some of the chemicals, when in the air, interact with each other. Although it's theoretically possible for a combination of NO, NO_2 , ozone and $PM_{2.5}$ to exacerbate health effects, it would not happen at the levels discussed here. You would need much higher levels than the standards that EPA had set, which are, in turn, much lower than OSHA standards and ACGIH (Amereican Council of Governmental Industrial Hygienists) recommended standards. He noted that the National Institute for Occupational Safety and Health (NIOSH) doesn't have enforcement authority, but NIOSH does a lot of relevant research in the fields of occupational safety and health and makes recommendations which are often more restrictive than what OSHA already has in place. Their recommendations (Exhibit 288) for NO_2 are .2 parts per million for an eight hour time weighted average, not for a ceiling or a short-term exposure limit. OSHA still doesn't have an eight hour standard for NO_2. The EPA's one-hour standard is 100 parts per billion, which compares to the OSHA standard of 5,000 parts per billion (a 50-fold difference), but the time-frames are not identical. Tr. 9/20/13, 221-228.

Dr. Chase indicated that the OSHA numbers are standards. NIOSH is not a standard. It's a recommendation. ACGIH is not a standard. And the status of CAL OSHA he thinks is a standard because states are permitted to adopt stricter exposure limits than OSHA. The same is true with regard to the EPA. When asked what health effects he would expect if a person was exposed to one-hour levels of NO_2 measuring 388 micrograms per cubic meter, Dr. Chase replied none, in that he has been practicing occupational medicine for 35 years both in a full-time academic setting and in an active private practice and he has never seen a single patient with such an exposure scenario who was symptomatic. His understanding is that the EPA's one-hour standard was based on relatively recent recognition that asthmatic children are unusually sensitive to relatively short-term exposure to NO_2. Prior to 2010, EPA did not have a one hour standard for NO_2. Dr. Chase assumes that it could apply to adults with chronic bronchitis or emphysema as well. He considers it very unlikely that an individual would suffer adverse health effects at something lower than the EPA one-hour standard. When asked whether OSHA considers its current pollution levels to be safe, Dr. Chase answered, not across the board. The answer is complex because it would vary substance by substance. [Ms. Rosenfeld introduced Exhibit No. 289, a publication from the United States Department of Labor, dated October 15, 2010, an excerpt from which indicated that significant dangers exist at lower exposure levels than was thought almost half a century ago when OSHA levels were set.] Tr. 9/20/13, 231-241.

[Ms. Harris stated that Dr. Chase was Petitioner's last witness in its case-in-chief. Tr. 9/20/13, 242.]

Testimony of Individuals Supporting the Petition

The morning of the *tenth day of the hearing (July 31, 2013)* was set aside for members of the public who wished to be heard on this matter, as set forth below. The Hearing Examiner explained the nature of the proceeding to the assembled witnesses. At the end of the day, Petitioner's attorney offered revised special exception plans and cross-sections (Exhibits 229 through 238) and an updated civil engineering report (Exhibit 239). In response to questions

from Dr. Adelman, Ms. Harris and Mr. Brann clarified that the proposed pedestrian path is now going to be elevated and 5-feet wide. It will begin at the Valleyview extension, which acts as the ring road, and continue around the south and the west, ending at the Torrance Court crosswalk. Tr. 7/31/13, 282-293.

1. Charles Rich (Tr. 7/31/13, 12-14):

Charles Rich testified that he lives at 902 North Belgrade Road, Silver Spring, Maryland 20902, close to the proposed Costco gas station in Wheaton. He is a strong supporter of the proposed Wheaton Costco gas station. He has been using a wheelchair since 1964. He is unable to find affordable gasoline close to home. The low-priced gas and go stations are also low-staffed. It's not practical or safe for him to get his wheelchair out of his van and pump his own gas there. In order to get lower priced gasoline and someone to pump it for him, he currently has to leave the County and drive to the Costco in Beltsville or the Costco stations in Lanham, Columbia or Arundel Mills. As a disabled person who also has some breathing issues, he disputes the suggestion that the station poses some sort of new threat to the Stephen Knolls special education students. That school, like the swimming pool and other neighbors of the mall, have already been located for decades near a busy shopping center. It's a large parking lot and substantial car traffic on that lot and the adjoining major roads and intersections. There's also a new apartment building coming up practically next door to Stephen Knolls School. Adding a Costco gas station would help disabled people and the environment more than hurt them. It doesn't do any good to drive nine miles or more one way to a Costco to get gas at a reasonable price. A Costco Wheaton gas station will be a significant benefit to the community as it directly and positively affects his ability and the ability of others to get to a gas station that's affordable. The proposed new gas station in Wheaton will not be replacing a park or a library; the proposed site for the Costco station is in the parking lot of a busy regional shopping mall that's been around for more than 50 years at a major intersection. Mr. Rich feels that the community needs access to this type of gas station.

2. Toni Ward (Tr. 7/31/13, 15-18):

Toni Ward testified that she is the owner of a house in Kensington Heights located a few blocks from the proposed gas station, and she has lives in the incorporated district of Kensington for approximately seven to eight years. She feels it's the opportune time to provide a quality, affordable gas station for the community. For several years she has planned trips to Frederick when she needed gas so she could shop at Costco and especially purchase gas. Now that Costco Wheaton is open, she is frustrated at not being able to purchase gas when she shops at Costco. Ms. Ward feels it makes sense to offer the affordability and the convenience of a Costco gas station. Costco gas stations are operated efficiently and their business practices are superior to many other retail businesses. In her opinion, a Costco gas station will bring value to Kensington/ Wheaton and will be a significant factor in the revitalization of the community. On cross-examination, she indicated she has some health problems.

3. Janet MacNab (Tr. 7/31/13, 18-20):

Janet MacNab testified that she lives at 12435 Meadow Wood Drive, in Silver Spring. She

has lived in Montgomery County for over 40 years and is a strong supporter of the proposed Wheaton Costco gas station. In her opinion, the Costco store has had a positive impact on the revitalization of the Wheaton Mall by bringing in a larger customer base. When she shops at Costco, she frequently visits stores throughout the mall. She drives there since she would have too many packages to carry home. Even though it may be in the Master Plan to have a walking community, she personally does not find it conducive nor practical for the larger community to walk to the mall. Costco offers gas that is affordable, of good quality and convenient for her. This is important to her and to other retired folks living in the Wheaton area who are required to live on a fixed income. On cross-examination, she indicated she has no respiratory health problems.

4. Licia Cardinale (Tr. 7/31/13, 20-23):

Licia Cardinale testified that she lives at 3333 University Boulevard West, in Kensington. She is a Kensington Heights resident and a strong supporter of Costco's proposed Wheaton gas station. In her opinion, it is a much needed, safe gas station for the Westfield, Montgomery property. Ms. Cardinale would like to have an opportunity to purchase needed gasoline at a cheaper rate without having to expend energy and gasoline going to Greenbelt to purchase it. While it is true that there are other gas stations in the area, none of them offer quality discount gas in a clean, well-run location in the same fashion as Costco. She cannot afford a newer car which gets 30 miles per gallon and must make do with her 26-year-old vehicle which is not as thrifty on gasoline as the newer models. She is confident that the Costco gas station will be an excellent and much needed addition to the community. On cross-examination, she indicated she has no respiratory health problems.

5. Katja Bullock (Tr. 7/31/13, 24-26):

Katja Bullock testified that she lives at 3333 University Boulevard West, in Kensington. She has been a Kensington resident for the past 40 years and has lived in Kensington Heights since 2000. Over the past two years, she has participated in many of the Costco hearings and has followed this process very closely. In her observation, there are a lot of local residents who, like her, support Costco's proposed gas station. She stated that some are actually concerned about speaking out due to fear of reprisals from a very small, but very aggressive group of opponents right in the neighborhood. She lives less than a mile from the proposed gas station, and urges its approval. At least twice every month, Ms. Bullock drives about 10 miles to purchase gas in Prince George's County. That takes revenue out of the County, puts more miles on her car than necessary and, therefore, uses more gas than it should. However, the Beltsville Costco station is clean, the gas is significantly cheaper and there's always an attendant on site should she need anything. The thought of having the Costco gas station in her backyard is very appealing, and she looks forward to the day when she can do her shopping at the Costco store and fill up at the same time. She feels that Costco has bent over backwards for the community and to the County in answering all their questions. On cross-examination, she indicated she has no respiratory health problems since she stopped smoking.

6. James McNerney (Tr. 7/31/13, 27-28):

James McNerney testified that he lives at 1401 Blair Mill Road, in Silver Spring. His car

has a large gas tank and is a good customer of any gas station. He drives a lot, so he is very cognizant of the cost of filling up a gas tank. He has a problem with people who have concerns about this gas station and the store being in the mall when, in fact, they've lived next door to the mall for all this time. The Kensington/Wheaton Master Plan has good concepts, such as a more walkable environment; however, he observed that it is "aspirational," and unless significant money is spent to change people's concepts, the automobile center economy will remain. So gas stations are still needed. Gas stations have to compete and that would be a benefit for everybody whether they have a Costco membership or not. He is not testifying on behalf of anybody, except himself, but he would support a finding that the special exception should be granted. On cross-examination, Mr McNearey indicated he has no respiratory health problems; that he currently shops at the Beltsville gas station; and that he does not work for Costco.

7. Boris Lander (Tr. 7/31/13, 29-30):

Boris Lander testified that his address is 3640 Martin's Dairy Circle, in Olney. He testified in his role as chief operating officer of Luis Group, a Montgomery County small business that owns and operates a number of Dunkin Donuts, including the store located on Georgia Avenue in Wheaton, less than one mile from the proposed gas station. He is also a Montgomery County resident living in Olney. He supports Costco's special exception application to build a new gas station adjacent to their new store. In his opinion, the proposed gas station is compatible with the area, particularly given the fact that the station will be located well within the confines of Westfield Wheaton. The station's location on mall property makes perfect sense given the regional nature of Westfield Wheaton. There are a number of benefits to the proposed gas station. It will bring more shoppers to Wheaton as many Costco members currently travel outside of the County to purchase quality discount gas. Since there's no other similar option for discount gas in Wheaton, keeping those shoppers in the County will benefit local stores and hopefully employ local workers. More shoppers will help to revitalize Westfield Wheaton and the surrounding merchants who would all benefit from increased retail activity.

8. Gary Spizler (Tr. 7/31/13, 74-76):

Gary Spizler testified that he lives at 1714 Republic Road, in Silver Spring. He has lived in the Wheaton area for 35 years and resides within walking distance of the proposed Costco gas station, which he supports. He feels that the gas station is very needed in the community. He has been traveling out to Beltsville for years because the Costco there has a gas station. When he goes to that gas station and there's a line, he shuts off his engine until it's time to move up so he's not burning more fossil fuels. He would rather not have to travel outside the County to access quality discounted gasoline. Now that Costco has opened in Wheaton, he has been going to that location more often, but finds it inconvenient that there is no gas station at the Wheaton Costco. In his opinion, a quality, discounted gas station such as Costco's proposal is a great opportunity for the community. While people visit Costco to shop and to get their household items or groceries, they can also get quality, discounted gasoline as well. These days everyone is trying to save and this gas station will have a positive impact on the community, allowing people to have the option to buy their affordable gas if they would like without having to travel further distances, burning more fossil fuels in the process. He feels that the community needs

responsible businesses like Costco, and a gas station there will serve the community well. On cross-examination, he indicated that he has no respiratory health problems.

9. Ralph Marsingill (Tr. 7/31/13, 77-79):

Ralph Marsingill testified that he lives at 2017 Glenallen Avenue in the Wheaton, Glenmont area. He was excited to hear that a Costco gas station is proposed at the new warehouse in Wheaton. He lives just a few miles away from Costco and has already shopped at the new Costco warehouse several times, so this would be very beneficial to him. Costco will be a good community partner in Wheaton. Shopping at Costco is ideal for his family and dime. Any chance to save on groceries, household goods or gas is a huge bonus for his family, especially being able to do it so close to home. He strongly urges that a new gas station be approved for the Costco in Wheaton. There are many gas stations in the area, but none of them compare to a quality gas station like Costco. As a resident who lives close, it would serve as a convenience to be able to shop in the neighborhood Costco and fill up his tank at the gas station. Despite the vocal opposition to the gas station, many community members like him do support this gas station. On cross-examination, he indicated that he has no respiratory health problems.

10. Kenneth Horowitz (Tr. 7/31/13, 102-104):

Kenneth Horowitz testified that he lives at 11500 Daffodil Lane, in Silver Spring. He expressed his support for the Costco gas station in Wheaton. He has been a Costco supporter since the beginning of the process for several reasons. First, he finds it difficult to understand the Planning Board reasoning that a gas station would not fit in with the transit-oriented plans for development in Wheaton. There is a new, 18-story Safeway apartment building about to be completed just a few blocks away from the mall with a built-in garage. Also, the Westfield Wheaton Mall has always been a regional shopping destination for this area. While some people may take Metro and public transportation, the mall is a driving destination. People who shop at Costco, for example, would have trouble walking home with large bags, would most likely need to drive there. To say that there can't be a gas station at the mall in order to encourage people to use public transportation ignores the inherent nature of the mall and, frankly, all the cars that will fill the surrounding parking lot. Also, he believes the gas station will be of great benefit to the community and the County in general. He's been a Costco member for many years, and it would make more sense to keep Montgomery County shoppers in the County. The presence of more shoppers benefits the local economy, brings more business to other local merchants and provides a much needed use to Wheaton. He agrees that it's not worth it to drive to Beltsville just to get gas. The idea is to go to Beltsville to shop at the Costco and get gas at the same time. He found the prices to be about 20 cents cheaper, and even when the lines at the Beltsville Costco were extremely long, stretching almost out of the parking lot, he has never waited more than five or 10 minutes. It's been very efficient there.

11. Linda Johnston (Tr. 7/31/13, 123-127):

Linda Johnston testified that she lives at 2717 Arcola Avenue, in Wheaton. She mentioned that there is a sign that says more Costco parking is available in the garage, and that she supports Costco's application to open a gas station at Wheaton Mall. She is not an

environmental person or a zoning expert, but as a senior citizen and someone who is living off a fixed income and Social Security benefits, she testified that she speaks from personal experience in indicating that there is definitely a need for affordable gas in this community. She has to drive a lot for doctor's appointments and job interviews, and she needs to make sure that she's not spending too much money on gas. Ms. Johnston finds it offensive when people say, well, you'll only save a dollar. For someone on fixed income or Social Security, a dollar means a great deal. It could mean whether or not you get your medication, whether or not you can pay a bill and so forth. So it means a great deal. She has shopped at the new Costco warehouse in Wheaton, but still travels to Beltsville Costco to fill up her tank. It's too expensive elsewhere. She'd save a lot of time and money if she had access to a Costco gas station that's less than two miles from her home. Ms. Johnston also believes the Costco's gas station fits in well with the mall and the surrounding community. Wheaton is a busy and bustling area surrounded by lots of businesses, including other gas stations. And, in the last two or three years Wheaton has been growing significantly. According to her, the entire east side of Georgia Avenue is now high-rise apartment buildings. Adding one more gas station will not hurt the community or the mall. In fact, it will probably help. She noted that people trying to pull into the Shell station on Georgia Avenue to get gas block traffic both on Blue Ridge and on Georgia Avenue. Like her, many people drive to the mall already to shop at Costco or to visit other stores. In her opinion, after filling the cars with groceries and other things, it just makes sense to be able to fill up with gas there at the mall. For her, it would be a real blessing if the special exception were granted. On cross-examination, she indicated she does have some respiratory health problems. She has not had any problems with the traffic in the parking lot as she walked from a non-handicapped space to the store.

12. Barry Levy (Tr. 7/31/13, 127-136):

Barry Levy testified that he lives at 3800 Wexford Drive, in Kensington. He is a trained economist and is currently working as a realtor. He is a senior citizen, and has to do a lot of driving because he is a realtor. He goes to the Beltsville Costco, shops and buys gas there. The lines are short and the parking is plentiful. He observed that near Costco you can actually find competing stations with lower regular prices, but for the high-test gas, Costco is significantly lower. In Mr. Levy's opinion, competition makes this country great. Stations that are near Costco do have to lower their prices. He supports the Costco gas station, with caveats. It would be a convenience for him and it would be a benefit to the County to have the gas station there and to encourage people to shop at that Costco rather than the Beltsville Costco because that would be more tax revenue to the County. However, there is insufficient parking in the lot near the Costco, and parking is a problem there already without the gas station. If you have to park past the third row, which is almost always, you've got a real problem getting your shopping cart to your car. On cross-examination, Mr. Levy indicated that he had not tried to use the garage because he was unaware of it. He also indicated that somebody from Costco had called him to remind him to be at the hearing at 9:30 this morning. In response to a question from the Hearing Examiner, Mr. Levy testified that no benefit was offered to him, except the benefit of having a gas station.

13. Ellen Levy (Tr. 7/31/13, 136-138):

Ellen Levy testified that she lives at 3800 Wexford Drive, in Kensington. She shops at

the Costco in Beltsville and has gotten gas there. Going to and from that store she has passed a number of open, viable, functioning gas stations all around it. Where she lives, which is quite near where Connecticut and University split off, there are probably four or five gas stations that are open, functioning and presumably competing with one another. She goes to the cheapest one, but she doesn't see the advent of another competitor as being instantaneous death to the competing vendors in that community. She does see some benefits to the community, as well as to herself. When she fills her gas guzzler with high-test gas, the lower price makes a $5 or $6 difference. As seniors, that money does matter and she is in favor of healthy competition. She also wants healthy air quality, but advances in technology may bring that in the future, so one has to be careful about assumptions. On cross-examination, she indicated she does not have any respiratory health problems.

14. Steven Morrison (Tr. 11/14/13, 24-36):

Steven Morrison testified that he lives at 13816 Vintage Lane, in Silver Spring. He is the immediate past president of the Layhill Civic Association and was recently a member of both the Midcounty Citizens Advisory Board and the Permitting Services Advisory Board, but he is testifying as an individual. Mr. Morrison favors approval of the application, but suggests two conditions – that 16 pumps be the minimum required to avoid queuing backups and that a garage be constructed in the parking lot west of the Costco warehouse to handle the increased parking needs. He feels that traffic congestion and a shortage of parking are the two problems with the proposal, not pollution. He visited that Gateway Overlook Shopping Center in Columbia where there is a 12-pump gas within 300 feet of a strip mall. The managers of Trader Joes and Mama Lucia's Italian Restaurant told him that pollution was not a problem for them, being 300 feet from the gas pumps, but parking was because of the number of cars backed up, waiting for the pumps. He therefore criticized the parking waiver reducing the number of parking spaces required on Wheaton Plaza, and noted that there is now congestion during business hours at almost all times in the parking area adjacent to the proposed gas station site. Tr. 11/14/13, 24-36.

Testimony of Groups Opposing the Petition

1. Karen Cordry, on behalf of KHCA (Tr. 9/23/13, 8-177, 207-285; Tr. 10/17/13, 12-112, 149-221; Tr. 10/21/13, 239-267; Tr. 10/23/13, 149-204; Tr. 11/19/13, 49-275; Tr. 11/21/13, 85-176; Tr. 1/10/14, 128-193):

On Day 15 of the Hearing (September 23, 2013), Karen Cordry testified that she has lived at 10705 Torrance Drive, in Silver Spring since 2001. Her house is on the south side of McComas Avenue, a couple hundred feet outside of the area that was defined as the general neighborhood by the Technical Staff. She shops at the mall, and is familiar with the gas stations around the mall. To go downtown, it takes her eight to ten minutes to walk up the staircase, across the parking lot and to the Metro station. Ms. Cordry is testifying on her own behalf and that of KHCA. She is the treasurer for the Kensington Heights Civic Association throughout this period and has been heavily involved with this case. Although not testifying as an expert, she described her background. Ms. Cordry graduated with a bachelor's in science in biochemistry

from Michigan State University in December 1973, Phi Beta Kappa with high honors. She obtained a J.D., with highest honors from Wayne State University in 1977, and an LLM from George Washington University in labor law in 1987, again, with highest honors. After graduating from law school, she worked for the National Labor Relations Board from 1977 until 1992, and has been employed by Attorneys General since 1992. She is a member of the Wheaton Redevelopment Advisory Committee and chaired that group in 2008 and 2009. Tr. 9/23/13, 8-15.

Ms. Cordry testified that an absolute prerequisite for a special exception request for a gas station in Montgomery County is that there be a need for such a station to serve the population in the general neighborhood considering the present availability of identical or similar uses to that neighborhood. Section 59-G-1.24(1). There have been two kinds of analyses used with respect to that issue. In her view, the station cannot be justified under either one. The starting point is that need is a counterbalance to burden; the need requirement in the statute only really makes sense when it's analyzed as being a trade-off to the inherent adverse effects of the station. The more a station is needed, the more appropriate it is to allow the burdens to be imposed on the community and vice versa. If the neighborhood has all of the stations it possibly can use in terms of supply and availability, then why put a new station in one of the most congested and space-limited sections of the mall that would make it much more difficult to do some of the things that the sector plan envisioned, such as the multi-modal pedestrian path around the mall. The proposed path would be a huge improvement, but it is nothing like multi-modal paths that could be done and she believes were envisioned by the Sector Plan. If the station is added, the location will be one of the most constricted areas in the mall, especially now that the warehouse has been built all the way out to the ring road. All of the additional traffic from the station will make it very difficult to do multi-model pedestrian path. Similarly, if a station isn't needed, why incur any health risks? Not only to the homes in the areas that are there, but there are additional homes well along in the planning process to be placed on Mount McComas. Ms. Cordry also suggested that the possibilities of later rezoning of the mall parcel should be considered, but the Hearing Examiner indicated he would not second guess what the Council might or might not do on rezoning the area in the future. Tr. 9/23/13, 17-26.[7]

[The Hearing Examiner also questioned Ms. Cordry's approach to balancing need against community burdens as part of the analysis of need because the balancing takes place later when all the other factors are evaluated, not when determining analytically whether there is a need. Tr. 9/23/13, 29-31.]

Ms. Cordry suggested that two ways of looking at the need standard have been some form of necessity v. some form of simple usefulness – a broader, more amorphous standard used in some of the case law invoking words to that effect of expedient, reasonably convenient and useful to the public. Noting that the current language in the statute has changed somewhat since the *Lucky Stores* case invoked the broader standard, she argued that the proposed station cannot satisfy either the necessity or the broader definition for several reasons. First, it will only serve about 25 percent of the neighborhood. The remaining 75 percent will not benefit from or use the station. So, when you talk about the general neighborhood, you're already only talking about a

[7] The first two paragraphs of the transcript on page 17 were erroneously attributed by the court reporter to the Hearing Examiner; in fact those statements were made by Ms. Cordry.

maximum possibility of 25 percent receiving any value. Second, the station will provide nothing that is not already available in great abundance from other stations, with 27 to 30 stations within the market area as defined by Mr. Flynn. It does not sell diesel or kerosene or E-85 ethanol type gasoline or any other unique product. It does not provide electrical charging services. It does not provide air or water or cleaning solutions for your windshield. It does not provide restrooms, and it will not have a convenience store nor sell any convenience items. The store is expected to pump about 12 million gallons a year, that's four to eight times the size of a typical gas station of 1.5 million gallons. The range in this County, for most stations, is about one to 2.5 million gallons, as indicated in a 7/20/12 memorandum from Jeff Zyontz, containing the legislative history of ZTA 12-07 (Exhibit 290). A few stations, such as the Freestate on Veirs Mill, pump about 3.4 million gallons per year. This station is well beyond those. Tr. 9/23/13, 31-40.

According to Ms. Cordry, the Federal Information Agency predicts that gasoline sales have peaked and that they will continue to decline for the next several decades up to 2040. Thus, any sales obtained by any new station going forward can be expected to be cannibalizing sales from existing stations. New stations are going to take sales from old stations. According to data from the National Association of Convenience Stores, gas stations are now operating on one of their lowest percentage profit margins in many years; thus, any loss of sales would erode a very narrow profit base for existing stations. She cited the testimony of Kamran Youssefieh (Tr. 7/31/13, 79-100), the operator of a nearby gas station, who pointed out the strong likelihood of sales declining and stations closing if the special exception were granted. Ms. Cordry made the point that, in terms of overall benefit to the general neighborhood, if stations close that the local population does use, and 75 percent of the population is not going to use the Costco station, then that 75 percent is going to suffer a net loss of benefits and net loss of capacity. Thus, this area is not going to benefit from the Costco station. Moreover, the very real potential for loss of overall uses in this area would affect not only the 75 percent, but it would also affect the Costco members for all of the time period when Costco stations are not open, and they operate much more limited hours than many other gas stations, providing no services apart from gas. To the extent that the Costco station results in closure of any of these stations, there is a net loss to everyone in this community – in effect a reduction in convenience. Tr. 9/23/13, 41-46.

Ms. Cordry further testified that the only true quantitative base of Costco's need analysis was based on calculations by the Claritas Company, but of the number that it calculated for retail gap, the vast majority of the amount that it calculated was for a gas station with a convenience store and that is not what Costco is going to provide. The Costco warehouse is not a convenience store, nor will this be a gas station with a convenience store. The Claritas calculations were done on a very specific kind of an operation. Many stations are close to other businesses. It's often convenient to stop in a gas station and go somewhere else. That does not make that a gas station with a convenience store. That is a defined category under Claritas. According to Ms. Cordry, when limited to a gas station without convenience stores, the Claritas analysis shows that there's less than a 2 million gallon need, not the 13.1 million gallons gap that Mr. Flynn came up with. The need for the kind of gas station that is being proposed here (*i.e.*, one without a convenience store) is about a sixth or less of what is shown of the total gas station need. The County may be underserved by gas stations with convenience stores, but that's not what is proposed here. Tr. 9/23/13, 46-53.

Ms. Cordry further testified that the claim that the low-cost of Costco gas will provide the benefit of downward pressure on surrounding prices is greatly overstated in Mr. Flynn's needs report. Any purported savings are likely to be far smaller than asserted, and there is ample reason to believe that Costco essentially prices to the surrounding market rather than establishing any independent, automatic, lower Costco price. There's certainly no guarantee that the Beltsville prices to which Mr. Flynn compared the local area will be seen over here. Also, there are other similar kinds of gas saving discount programs through many other retailer programs now that provide far more flexible opportunities for users to save money. Tr. 9/23/13, 53-54.

Ms. Cordry contrasted special exceptions that require a finding of County need (Zoning Ordinance §59-G-1.25) with those that require a finding of only neighborhood need (Zoning Ordinance §59-G-1.24), such as a gas station. She suggested that filling stations are not expected to be large-scale operations drawing from all over the County. They're not a destination spot, and gasoline stations are expected to serve a small neighborhood need. Tr. 9/23/13, 56-58.

[The Hearing Examiner noted that there is an issue as to whether or not the appropriate area to look at in terms of need (*i.e.*, the demand area as distinguished from the supply area) in this section of the zoning ordinance is the general neighborhood as defined for land use purposes or some broader market area (*i.e.*, a 7 minute drive time area) despite the fact that prior gas station cases have looked at a market area. Ms. Cordry indicated that KHCA accepts the larger market area approach, although KVCA may not. Tr. 9/23/13, 62-66.]

Ms. Cordry referenced two court decisions, *Lucky Stores*, 270 MD. 531(1973) and *Amoco*, 270 MD. 301, 310 A.2d 796 (1973) for the standard that an Applicant must show, for the public convenience and service *a need exists* for the proposed automobile filling station for service to the *present population* in the general neighborhood considering the present availability of such uses to that neighborhood. She argued that *Lucky Stores* was a very close match to the present case. The court noted in that case there were 25 other stations within 3.8 miles from the station. In this case, there are 27 to 30 other stations within 2.5 miles or less. The court noted that the restricted nature of Memco's contemplated sales of gasoline to its own customers who have the membership card is hardly a reason to move the Board to find that Memco had established a need for the proposed use for service to the population in the general community. There was also affirmative evidence of the lack of need for another station in view of the rather extraordinary number of existing filling stations and marked decline in gasoline sales, noted those stations could readily supply the population. It also noted that to the extent that Memco relied on discount gas operations, there were other low-cost operations available. Memco failed to provide evidence of need regarding the number of residents, automobiles per households, gasoline gallons used and the like. Ms. Cordry pointed out that the court was clearly looking at questions of actual capacity and actual supply, not just generalized benefit. She concluded that both of approaches to determining need (*i.e.*, need as necessity and need as usefulness) are at play in this analysis. Tr. 9/23/13, 68-72.

Ms. Cordry launched into a detailed evaluation of Mr. Flynn's analysis, including a calculation of the pumping capacity of the exiting gas stations in the market area (Exhibits 291 and 292). She concluded that the overall pumping capacity of these stations is about 235.5 million gallons per year. She noted that gasoline sales at these stations average about one to two

million gallons per year, with the largest one selling less than three and a half million gallons. The sales totaled about 47 million gallons a year, well below pumping capacity. She noted that there is nothing in Mr. Flynn's report that gives any indication of what is being supplied by the existing stations. She quoted his testimony (Tr. 7/31/13, 198-199) for the statement that the need that he was looking at was not determined by capacity or shortage. She concluded that Mr. Flynn was not making any assertion there's any lack of applicable capacity. There is also no evidence that people are backed up waiting for gas at the existing stations. Her point is that the existing stations have a significant amount of additional capacity for pumping beyond what they are pumping and, therefore, there's less demonstration of a need for the Costco station. The fact that Costco stations have a buildup of cars queued is the result of a design decision to cut costs, which makes economic sense for a company and allows cheaper gas, but it does so by putting a burden on the neighborhood through idling and queuing. Tr. 9/23/13, 74-90.

Ms. Cordry also criticized the demand calculations in Mr. Flynn's report, which she says are wholly based on simply the Claritas figures. She noted that Mr. Flynn stated that there are 37,382 households in the study area and that each family uses an average of 1,012 gallons per year. That multiplies out to a demand of 37.8 million gallons a year for the neighborhood defined in the same seven-minute drive area. That amounts to about one sixth of the pumping capacity of 235.5 million gallons per year from the existing stations. Even if one assumed that all the residents bought their gas locally and you added on another 50 percent for local businesses, passing traffic, people living nearby but coming into the area to shop, that would bring you up to 56.7 million gallons of demand per year, still only one fourth of the 235 million gallon pumping capacity of the existing stations. Ms. Cordry argued that the fact that Costco stations have idling cars does not necessarily prove need; it simply proves Costco hasn't designed the station to handle demand at that station. Tr. 9/23/13, 90-95.

Ms. Cordry argued that, if by need, you simply mean not what an existing area lacks in available capacity, and not what they're going to buy, but what kind of a regional draw a station can create by lowering prices a few cents, then you can always show need, because anybody can lower their prices, especially a station like the proposed one. If that's the only thing you look at and say that creates need, then you make the distinction between neighborhood need and County need meaningless because this need for whatever they are supplying is not coming from the neighborhood, it is coming from far beyond the neighborhood in general. The proposed station would create a regional need. To characterize that as a neighborhood need eliminates the distinction between these two. Tr. 9/23/13, 95-99.

Ms. Cordry pointed to the fact that two gas stations apparently went out of business once a WaWa opened nearby, within a mile of a Costco. She argued that a single new entrant (such as the currently proposed Costco) can easily draw other stores' business away and can drive them out of business. She noted that the proposed Costco will not be open to the public. This is a store that will put a burden on 100 percent of the neighborhood and only benefit 25 percent of the neighborhood. Other full service stations open to everyone may be driven out of business by a Costco serving on 25% and with fewer services. Tr. 9/23/13, 101-110.

Ms. Cordry introduced excerpts from National Association of Convenience Stores (NACS), regarding petroleum industry stats (Exhibit 293) to show that gasoline stations are

operating on very narrow profit margins now. In 2012, it was only 5.1 percent of the price of the fuel, which ties the lowest in 2007, and those two are less than half of what it used to be in 1999. She argued that the lower the margin, the more likely a station is to close. The *Lucky Stores* case specifically points to declining gasoline sales as a factor that could be looked at in terms of whether there's already a proliferation of stations and whether it serves the market. Tr. 9/23/13, 112-117.

Ms. Cordry also argued that Costco's business model attempts to draw and does draw from a large area, creating a regional need and concentrating it into one area, which doesn't meet the neighborhood need standard. [The Hearing Examiner noted that the Costco warehouse is already part of the regional mall which is part of the defined neighborhood, so the fact that Costco may draw from the region does not cut against a finding of need.] She also introduced a listing of the zip codes of people who wrote postcards of support (Exhibit 294) to demonstrate that potential buyers are from far away from Wheaton, which would be against smart growth by encouraging driving to the new gas station. Ms. Cordry also disputed Mr. Flynn's claim that some existing stations may not be as clean and safe as the proposed station. Tr. 9/23/13, 118-134.

Ms. Cordry addressed Mr. Flynn's supplemental report. She noted that initially his report does not correlate his population growth figures or other observations about the area to any increase in demand for or the supply of gasoline. The report indicates that most residents still drive alone, but agrees that one out of four residents, which is five times the national average, take public transit. The Wheaton Sector Plan says that of the people in this general area in Wheaton, actually 52 percent use public transit to leave Wheaton. Tr. 9/23/13, 139-147.

Ms. Cordry analyzed Mr. Flynn's price comparisons between Costco gas stations and others. She concluded that a customer would be saving 12 cents a gallon at Costco and not 28 cents a gallon, so the annual savings are down to $121 rather than $283, for someone who buys all of their gas at Costco. Moreover, gas prices vary daily, so she produced a chart comparing gasoline prices for a month and a half (Exhibit 295). She found that the overall difference between the Beltsville Costco and the station near it in 2012 was 6.3 cents. However, she challenged the suggestion that Costco inevitably drives prices down around it or that it's much cheaper than stations around it. She noted that various Costcos have very different approaches, and that it is not necessarily cheaper than other stations. Elkridge is a good example – last year over a six week period, the average difference between the Elkridge Costco and the next cheapest station was less than a penny. Between Wheaton and Beltsville in 2012, the difference was only about 2.8 cents. Between Wheaton and the Costco in Elkridge, it was a minus 2.3 cents. It was actually cheaper in Wheaton than to go to Costco in Elkridge. She also referenced other discount gas programs (*e.g.*, Giant and Safeway) to indicate that the Costco will not necessarily bring a price benefit to the community. [The Hearing Examiner noted that if the prices actually aren't cheaper, then the Costco station should not be able to drive others out of business with price competition. He also asked whether he wasn't obliged to consider the felt need of those who testified that they needed the gas station to save money and for their convenience, as well as Ms. Cordry's more objective analysis negativing the allegation of a cost benefit. Finally, he suggested that he could not ignore a need just because only 25% of the community would benefit since, for example, only a certain portion of a community are drivers,

and that cannot automatically eliminate all gas station applications.] Ms. Cordry conceded that community swimming pools can establish need even though only a portion of the community are members; however, she noted that membership is drawn from the community, while the Costco station would draw from all over the region. Tr. 9/23/13, 148-175.

Ms. Cordry reiterated her comment that the Flynn Reports do not attempt to quantify where Costco expects the sales to come from for this 12 million gallons and the only thing that's in this report is the statement that he expects about 4.2 to 4.8 million gallons of sales at Beltsville would transfer to here. You can't tell anything from this report about the remaining seven to eight million gallons of sales, whether they would be coming from far outside this area, in which case you would be bringing sales into this area but not meeting the local need gap [*i.e.*, excess of local demand over local supply], or whether they would be coming from other stations that are already here, in which case you would not be closing the need gap, but rather just moving sales around. Tr. 9/23/13, 207-210.

Ms. Cordry turned to Section 4 of Mr. Flynn's report, in which he applies the figures generated by the Neilson Claritas software to determine market conditions (*i.e.*, an actionable portrait of sales opportunity so marketers can maximize gross strategies by accurately targeting the sales gaps that exist in the marketplace). Technical Staff confirmed the Claritas results and thus also found a market gap. Ms. Cordry stated that her testimony will demonstrate what those numbers actually mean from what Claritas itself says. The retail gap they describe as an opportunity for sales. If the number is positive, i.e., the potential sales are higher than actual sales, this is a marketing opportunity. If negative, it represents that sales are being drawn into the area from outside the local area, and they are selling more in a particular area than that area itself would consume as 100 percent of its needs. In the present case, these numbers showed a positive figure, i.e., this market gap of $71 million for the seven minute drive area. That was reduced by approximately a third to take into account the fact that that the non-gasoline sales at gasoline stations are roughly about a third of the overall value, so the gas sales are estimated at approximately two-thirds of that dollar number. Then he divided that number by the price of gasoline at the time when he did this request, which was $3.55/gallon, and that translated into a 13.1 million gallon retail gap. Tr. 9/23/13, 211-215.

Another term that's often used is "capture rate" which is the flipside of the retail gap. If everyone in the neighborhood bought 100 percent of their goods in this area, it would be a 100 percent capture rate. If they only buy 70 percent of their goods here, then there's a 70 percent capture rate and there's a 30 percent retail gap. Ms. Cordry introduced a portion of the Montgomery County snapshot showing capture rates (Exhibit No. 297). She argued that just because Claritas figures show an excess of demand over supply does not mean that the entire demand figure would be captured in the local area. People buy gas wherever they are. The Claritas number of 13.1 million gallons of retail gap is only a starting point. She also noted that qualified experts in other gas stations special exception cases (S-2743, *Henderson Corner* - - Exhibit 298; S-2631 – Exhibit 300; S-2299-Exhibit 301; and S-2699-Exhibit 302) estimated a demand capture rate ranging from 60% to 85%, with an average of 67% to 70%. That capture rate is applied to total demand in the area, not just from families living in the area. Ms. Cordry argued that Mr. Flynn failed to provide an estimate for total demand in the area, so she could not properly apply a capture rate to his figures. Tr. 9/23/13, 215-242.

Ms. Cordry argued that the Costco warehouse is not analogous to a convenience store because the proposed gas station would be open much less than most gas stations and the warehouse is open much less than the gas station, unlike the case with gas station convenience stores. Moreover, the warehouse does not carry the same types of goods for quick purchase that the convenience store does. She argued that only about one eighth of the 13 million gallon gap between gasoline supply and demand that Mr. Flynn suggested was for gas stations without convenience stores, and thus the gap calculation should be correspondingly reduced. According to Ms. Cordry, the gap between supply and demand does not translate out into 13.1 million gallons; it translates into less than two and they are proposing to a build a station that is six times the size of that. [The Hearing Examiner noted that he did not accept her logic in suggesting that the difference between stations with and without convenience stores proportionately reduced the demand for gas so as to reduce the gap.] The County Snapshot indicates that the County captures only a small percentage of the demand for gas stations with convenience stores, probably because of the dearth of places like WAWA in the County, but other County gas stations capture about 70 percent of the demand. In her opinion, to use market demand for gasoline stations with convenience stores, which is what the County is short of and the Wheaton district is short of, to support a claim of a need for a gasoline station without a convenience store is a misuse of the need figures and the data. She also argued that Costco may sell the 12 million gallons a year, but the people will come from outside the neighborhood, establishing a County need or regional need, versus a neighborhood need. Tr. 9/23/13, 242-261.

Ms. Cordry introduced a 2004 publication from the Bureau of Labor and Statistics still showing the breakdown under the North American Industry Classification System (NAICS), which is what Claritas works off of, for gasoline stations with convenience stores and other gasoline stations, so these categories are updated as of at least January 2004. Exhibit 303. Tr. 9/23/13, 262-270.

Ms. Cordry discussed other items which she feels were weaknesses in Mr. Flynn's report. She challenged his figures for growth of population in the area and the expected growth in demand of 147,000 gallons as a result. She introduced a letter from Mr. Flynn (Exhibit 304) quoting figures from the U.S. Energy Information Administration's Short-Term Energy Outlook of January 2012, which suggested that energy consumption by light-duty vehicles, cars and light trucks will decline over the next 12 to 13 years and then increase from 2026 to 2035. Exhibit 305. Overall, the Administration had projected that gasoline consumption will grow by a total of 100,000 barrels per day during the entire period from 2008 to 2035. That reference case does not include any projected changes in regulations or statutes. Ms. Cordry indicated that she would show that the doubling of fuel economy in this country is going to result in a dramatic decrease in necessary gasoline usage, even considering population increases. Tr. 9/23/13, 271-285.

On Hearing Day 16 (October 17, 2013), Ms. Cordry returned to the stand to continue her testimony regarding neighborhood need. She introduced Exhibit 324, a Court of Special Appeals unpublished decision No. 1693, *Safeway, Inc. v. Montgomery County, Maryland*, dated 12/13/05, affirming a Board of Appeals ruling in S-2476, but with no ruling by the court one way or the other on, on the need issue. Ms. Cordry noted that generally needs analysis has included some

discussion about future job growth and population growth, and the suggestion that, therefore, there will be continued additional need for gasoline which will create additional demand for a station to be able to fill. She contends that no longer appears to be the case and that the demand is going in a different direction, as supported by her exhibits. Mr. Flynn had relied on the 2012 energy outlook (Exhibit 305). At that point, it looked to have somewhat of a decline for about a dozen years or more and then a small increase out to 2035, resulting in a very minimal change over the next 23 years. However, at that time, the CAFE standards (Corporate Average Fuel Economy standards), had been proposed but had not yet come into effect. They did become effective in the fall of 2012 and have included a fairly dramatic rise in what is required of car mileage in the future. The Annual Energy Outlook 2013 (Exhibit 325) indicates that with more efficient light duty vehicle use, motor gasoline consumption declines through 2036, then levels off until 2039. Thus, Mr. Flynn's assumption is no longer valid. Ms. Cordry introduced additional press releases supporting her assertion that gasoline consumption will decline (Exhibit 326). Tr. 10/17/13, 12-38.

Applicant's counsel agreed to stipulate that the projections in the federal Annual Energy Outlook of 2013, as reflected in Exhibit 325, are a reasonable projection of the future, and they indicate that there will be a decrease in demand for gasoline. Tr. 10/17/13, 39. The Hearing Examiner indicated that he would rely on those federal projections, not on the projections of others who feel that gasoline consumption might decline even more. Nevertheless, Ms. Cordry was allowed to add to the record a variety of additional documents (Exhibits 326-337) indicating the likelihood of even greater declines. She concluded that Applicant cannot rely on growth of gasoline sales to satisfy the volume that it's going to use and that this is a very significant factor in terms of determining whether there is any need for a station, especially one can only make gasoline sales by taking them away from other existing stations. Tr. 10/17/13, 40-67.

Ms. Cordry introduced two documents (Exhibits 338 and 339) to demonstrate that the Kensington area tends to capture more gasoline sales than the county as a whole, indicating that this area is over-served compared to the county as a whole. Tr. 10/17/13, 68-77.

Ms. Cordry next addressed Mr. Flynn's supplemental report which assumes that the demand area is the more limited neighborhood as defined by Technical Staff. She contends that it's really just the same regional or county need analysis wrapped up in a different packaging. She also asserted that the report confuses the data that it takes from Mr. Guckert's report and other sources and has at least one clearly incorrect calculation. She concluded that the supplemental report does not show a need for a station of this size in this location. According to Ms. Cordry, Mr. Guckert's figures were not intended to be used as an estimator of gas consumption, and Mr. Flynn's application of them leads to an overstatement of likely consumption. For example, he assumed a 30 percent capture rate of shoppers at the Costco warehouse (*i.e.*, one third or so of warehouse shoppers would buy gas). She argued that he has it backwards. According to Ms. Cordry, the figure that is used in the traffic report does not say that 30 percent of shoppers buy gas; it says that the 30 percent of people buying gas go to the store. [Ms. Harris disagreed, arguing that Mr. Flynn accurately interpreted Mr. Guckert's statement.] In Ms. Cordry's opinion, the actual figures based on all the analysis could lead to a potential demand of anywhere from zero to two million gallons of gas per year, and if she had to choose, she would estimate zero. His conclusion is that the county as a whole, and certainly this

neighborhood, is well-served with a variety of gasoline stations. The Proposed station would create a whole slew of problems that do not now exist and that do not need to exist because the area is already being well-served. Tr. 10/17/13, 80-110.

On cross-examination, Ms. Cordry agreed that under the *Lucky Stores* case, a finding of absolute necessity is not required to show need, but there must be a showing of quantity (*i.e.*, insufficiency of supply) and quality (*i.e.*, net benefit to the community). Ms. Cordry accepted the 7-minute drive-time definition of neighborhood (going out to Four Corners, going up roughly to Glenmont, going over to Kensington and going down roughly to the Beltway and the Seminary Road area there to the south). It includes the mall and those coming to shop there. She has no reason to doubt Mr. Agliata's figure indicating that about 4,100 people a day shop at the Costco warehouse. Ms. Cordry disputed the assertion that just because Costco may be able to sell 12 million gallons of gas a year that there is a need for it because it does not show that the neighborhood itself actually needs it or could not otherwise supply it or that there is a benefit from it. [The Hearing Examiner questioned whether the benefit/burden balance belongs in the needs analysis or as a separate consideration.] Tr. 10/17/13, 149-164.

Ms. Cordry indicated that she had no reason to dispute Costco's claim that about 25 percent of the neighborhood (or 23 to 27 percent) are Costco members. She does not agree that having the gas station would make it more convenient for them to get gas because of the lines and congestion in the area, but understands that some will buy gas there because of a perceived price differential. She agreed that needs analysis must factor in demand from transient shoppers, but not necessarily those drawn from all over the region, even beyond the 7 minute drive time. She feels that the Costco gas station is of no value to the roughly 75 percent that are not Costco members and is only of partial use to even the ones that are Costco members because they need to depend on other stations to actually supply portions of their gasoline station needs at the times when Costco is not available or for services that Costco does not supply. She admitted that the "face price" of Costco gas may be cheaper, but there are a number of discount programs, such as Safeway, K-Mart and Giant which allow her to get 20, 30, 40 cents a gallon off in gas with relatively minor amounts of purchases, so the price she actually pays at the pump quite often is substantially less than what she would pay at Costco. Tr. 10/17/13, 164-183.

Ms. Cordry contends that while the need for any new gas station is debatable, one would be more likely able to demonstrate that there is a retail gap in the neighborhood for a new gas station with a convenience store than for one without the store. She admitted that if the gas station sold less gas than anticipated by Petitioner, the lines would likely be shorter, depending on the time of day. Tr. 10/17/13, 191-197.

[There was an exchange among Ms. Rosenfeld, Ms. Harris and the Hearing Examiner on how to interpret the Council's action in ZTA 01-10 (effective may 2002) removing the words "for the public convenience and service" from Zoning Ordinance §59-G-1.24, which defines "neighborhood need." None of the parties could find any legislative history explaining the Council's change in the section's language.][8] Tr. 10/17/13, 199-207.

[8] A reference by Ms. Rosenfeld in the transcript to Exhibit 86(s), which contains, *inter alia,* an April 27, 2001 memo from Michael Ma of Technical Staff to Ralph Wilson, former Council Legislative attorney, suggests that the Planning Board's recommendation to the Council was to remove essentially the entire neighborhood need

Ms. Cordry indicated that there are 24 to 27 gasoline stations selling identical products to this neighborhood, and that's only within the seven minute drive neighborhood. Even a Costco station is available in Beltsville, about 10 miles away, which Costco considers within its market area (even though it is outside the defined market area neighborhood). Tr. 10/17/13, 207-210.

[When asked whether the more restrictive interpretation of need as a kind of necessity would run afoul of the concern raised in the *Lucky Stores* case about the interfering with competition, Ms. Rosenfeld replied that if you do put other gas stations out of business, you are creating an environmentally unhealthy site. You're creating, in effect, a nuisance. So, the need standard is there in part not necessarily to protect every business that exists but to make sure that you're not creating a land use situation that's unacceptable in the neighborhood.] Ms. Cordry added that the court was not saying that competition couldn't be limited to some extent, as it is in other areas such as taxi service or hospital beds, but that the special exception should not be denied just to limit competition. [Mr. Goecke responded that if people don't want to go to the existing stations and they are closing anyway whether or not Costco is already there, then it is an anti-competitive decision to deny Costco from entering into this market area merely to protect them. If people would prefer Costco, then why protect the existing stations?] Ms. Cordry replied that demand from Costco may come from outside the neighborhood, resulting in stations with more services shutting down within the neighborhood to its detriment. Tr. 10/17/13, 210-220.

On Hearing Day 17(October 21, 2013), Ms. Cordry resumed her testimony to discuss queuing at Costco gas stations. She made observations at the Elkridge, Maryland station (Elkridge is called Gateway because it is at the Gateway Shopping Center) because Costco officials said that station was comparable to the one planned at the subject site, though it has 12 pumps compared to the 16 pumps proposed here. She observed on a Sunday for about 45 minutes from about 2:45 to 3:30 in the afternoon. There was a large number of idling cars at that station throughout the period, generally never less than 20. Most of the times, it appeared to be in the range of 30 to 35 cars throughout that time period. On several occasions, cars were unable to enter the queuing area because it was full. On those occasions, an attendant come back to the back of the line to direct the cars away so that they didn't block the cross lanes of traffic that were trying to pass behind the station. She introduced a Google satellite photo of the Elkridge Gateway Costco gas station (Exhibit 345). She also introduced ground level photos of the queuing cars (Exhibits 346(a) - (f)). Tr. 10/21/13, 238-251.

Ms. Cordry returned to the Costco stations on other dates, as well, and made a record of her observations (Exhibit 347). She noted that people were not necessarily using all the available pumps for three reasons. One, people might not be able to see if the pump was occupied when they were pulling up because the congestion of other cars. Secondly, people did not seem to understand that the extra-long pump hoses that Costco has would reach to the other side of their cars. Third, when people were using the extra-long pump hose, it did appear that other people

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requirement. In fact, a subsequent memo from the Planning Board to the Council, in August of 2001, prior to the introduction of then proposed ZTA 01-10, appended an "Attachment 2" listing all the Planning Board's proposed changes, and page 26 of that document recommends leaving the language in §59-G-1.24 untouched with regard to the words "for the public convenience and service." Exhibit ----. Thus the later omission of those words apparently originated at the Council level, not with the Planning Board or its Technical Staff.

waiting in line were often somewhat reluctant to try to pull through the area between the two cars and pull up to the first pump, as illustrated by the cars at Sterling in Exhibit 348. Ms. Cordry concluded that if you assume a capacity based on every pump being full, you're probably going to somewhat overestimate what is going to happen at the station because of the human element. She also noted that the Costco station at Sterling had been modified in 2011 to improve the flow of traffic (Exhibit 349, showing the station before the modification), and that in both Sterling and Elkridge, the gas station is very far away from the store and completely separate from the parking lot and loading docks, so there is not an interaction between the parking and the loading docks and the main drive entrances and the Ring Road around the store and the parking and the gas station. All of these things have separate features and they're all separated. Tr. 10/21/13, 252-267.

On Hearing Day 18 (October 24, 2013), Ms. Cordry resumed her testimony regarding queuing at Costco gas stations, noting that the number of cars depicted in the queue at Elkridge (Exhibit 345) is about 27, which fills up the queuing area, even though Mr. Guckert's analysis assumed that it would take 34 vehicles to fill up the space. A similar observation about spacing in the queue could be made from Exhibits 350 and 351, which depict the Frederick and Leesburg stations in 2008. This illustrates the point that, generally, the queue area fills up far short of the theoretical maximum of cars that was being assumed by Costco. If cars back up in the center of the proposed queuing area to the point where a car obstructs the entrance aisle, that will immediately cause traffic to have to wait to get in. It is significant that this is a very narrow section of the ring road, which will be further narrowed by the pedestrian path, so backed-up traffic will create serious problems. People coming east on the one lane of the ring road are going to try to turn left across two lanes to enter the gas station, which will be especially difficult if traffic is backed up into the drive aisle. This is a bad place to build this station since it will cause a nuisance and traffic problems. Costco did not initially propose to build this station here, across from the loading docks, so that people would have to walk through the station and go around it and have this kind of traffic interfering with very limited space to overflow. It wanted to put it over in the corner, out of the way, and their goal in placing these stations is normally to put them as far away as possible from the entrance to the store and the parking, so it's as unobtrusive as possible for their customers. Now, they couldn't do that because of the zoning text amendment. The fact that it can be placed in the proposed site under the ZTA does not mean that it's a reasonable thing to do, to actually try to wedge it into there. Tr. 10/24/13, 149-164.

Ms. Cordry suggested that when the queue is full, people waiting to enter the gas station may not listen to the attendant telling them to come back later. She worries about how those trying to maneuver around the special exception area will be affected; about backups causing delays; about creation of a general nuisance for those trying to use the mall parcel; about more cars idling closer to homes, creating more noise than is being assumed will happen; about car horns blaring when somebody gets mad about sitting in line too long, waiting, trying to get past; and about the pollution created by queuing and idling which will, in reality, be much more intense than is being assumed in the emissions analysis. That analysis is only as good as the factual bases for the input data, and the underestimates are critical now that conservative assumptions have been relaxed. Tr. 10/24/13, 165-174.

On cross-examination, Ms. Harris introduced photos from various Costco stations

(Exhibit 356(a) – (e)) in an effort to demonstrate that site conditions differ at different stations, resulting in different operating conditions. [The Hearing Examiner noted that he accepted that point as well as Ms. Cordry's point that human reactions will result in variations from perfectly lined up queues.] Ms. Cordry admitted that there would be times when there are no cars lined up at the gas stations, but she noted that the evidence indicates that on many days, for many hours there will be large numbers of cars lined up and causing problems. On re-direct, she observed that on Saturdays, even in the non-holiday season, the parking lot in question is very full, and sometimes overflowing. Tr. 10/24/13, 177-203.

On Hearing Day 19 (November 14, 2013), Ms. Cordry introduced Exhibit 371, which is a highlighted version of one of Applicant's exhibits in its needs study at Elkridge, going back to April of 2012, showing cars in queues. She highlighted how many additional cars would be in line, overflowing the queuing, under two assumptions: one, that you started to overflow at 28 cars in the queue and the other at 30. Under Mr. Guckert's analysis, unless you had 35 cars or more, you would not be spilling out, but she noted that the overflow started sooner, and asserted that if you start overflowing at 28, which was her observation, that it was quite possible that you were overflowing at 28, 29, 30 cars and so forth, far less than 35. Tr. 11/14/13, 254-261.

On Hearing Day 20 (Tr. 11/19/13, 49-275)*,* Ms. Cordry resumed her testimony regarding the traffic, nuisance, pedestrian safety and the general operating issues around the mall and it's connection with the neighborhood. She began by mentioning the replacing of the gas station that had been located at Veirs Mill and the WMATA entrance to the mall with a Wendy's. She pointed to the suggestion that the demand from Costco Warehouse customers is somehow separate from the overall demand for gasoline in this area, but noted that it is part of the overall equation of supply and demand. Tr. 11/19/13, 49-52.

Ms. Cordry stated that Mr. Gang, in his land planning report, initially stated there were five entrances to the mall, three off of University and two off of Veirs Mill. He later corrected that to state that here are only two entrances off of University and three off of Veirs Mill. She described the entrance at University Boulevard and Valley View (Intersection 4). It has one entry lane from the west and there are two left-turn lanes coming from the east coming into the mall. Those lanes from the east coming west to the left-turn lane can stack at least 15 cars up to the break in the median. That entrance directs traffic into a 550 to 600 foot long corridor which comes up to the Ring Road at Intersection 16. There is a three-way stop where the incoming traffic is introduced onto the Ring Road, at a very shallow Y intersection. There is an entrance to the Giant store on the left, just to the north of that corridor. A little bit beyond that, there's an entrance into a parking lot in the northwestern corner of the mall. According to Ms. Cordry, there are times when this area is already over capacity, and adding a gas station on to that will create an additional burden and a nuisance. This is a very difficult intersection, with two lanes in each of these directions. None of them have a right-of-way. In each direction as you come in, a significant amount of traffic is crossing over the other lanes, and it is not a simple cross-over either because the traffic comes into the mall in that left-turn lane, and very quickly, much of it is going over to the Giant so that the traffic that is coming south on the Ring Road has to deal with that traffic moving over to access the Giant. Meanwhile, traffic either making a left turn from the Ring Road onto the exit ramp or coming south on the Ring Road making the right turn, does not necessarily stay in the right-turn lane. Many of the cars that come from the right-turn lane go

over into the left-turn exit lane, and many of the cars making a left turn go into the right-turn exit lane, so there is a crisscross pattern. The cars coming from the south do not necessarily have to make a right turn, so every driver has to watch out not just for two other cars but four other cars. All of this makes for a complex, difficult intersection for people to assess, and there are also pedestrian walkways on these streets, so drivers must take that into account as well and drive slowly. Sometimes this causes backups and additional emissions. Mr. Sullivan's work is based on assumptions that this traffic is generally free-flowing, but the slower the cars go, the higher these emissions levels are. According to Ms. Cordry, the evidence will show that there will be much more idling than Mr. Sullivan assumed. Tr. 11/19/13, 53-63.

Ms. Cordry then moved on to the mall entrance at East Avenue and University (Intersection 5). It is Intersection 17 at the ring road. It's a much less-used entrance because cars can't turn into it from the left; they can only turn into it from the northeast-bound lanes on University Boulevard. According to the predictions in Mr. Guckert's traffic impact analysis, it's expected to have only about a third of the Valley View entrance traffic in the morning and only about a sixth of that traffic at night. If people use it to bypass the Valley View entrance, they still have to go right back through Intersection 16 if they are going to go to the Costco store. Tr. 11/19/13, 64-65.

Ms. Cordry discussed the entrance off of Veirs Mill at the CVS parking lot, and noted that it lacks directional signs directing cars to the mall. She testified that the County has tried to get Westfield to agree to make that an actual mall entrance, but Westfield has not agreed, so it carries very little traffic into the mall. The other two entrances are from Veirs Mill and Reedie Drive and one from Veirs Mill by the WMATA bus bay entrance. Both have two long left-turn lanes available for cars to use as they come north on Veirs Mill and to make left-turns into the mall. Once a car turns in, they have relatively short driveways within the mall, about 150 feet for the WMATA entrance and about 220 for the Reedie Drive entrance. The WMATA entrance just pulls traffic from those going north and south on Veirs Mill Road. The Reedie entrance can take traffic from Veirs Mill, and also traffic on Georgia Avenue can turn onto Reedie Drive, traverse across and then drive straight on into the mall. The entrance at Reedie is signalized within the mall, but the WMATA entrance is not. When cars do come in the WMATA entrance, they theoretically have the right-of-way, with no stop sign, but there doesn't seem to be anything that's marked that actually tells them they have the right-of-way, so that slows people down to check. Tr. 11/19/13, 66-69.

Ms. Cordry further testified that the southern ring road was not heavily traveled before the Costco Warehouse was built, and even after the Costco Warehouse began operations, the southern ring road is not heavily traveled when the warehouse is not open, and people would not expect to have a lot of loud noises, traffic, cars and everything that goes with them. From 6:30 to 9:30 a.m., the time period where the gas station would be operating but the warehouse is not currently, there would be a total of only 201 cars going by in both directions during a three hour period, and the peak hour had only 105 cars (Exhibit 374, from Guckert count). So at most, fewer than two cars a minute are going through that area. It's not a lot of traffic. Tr. 11/19/13, 70-80.

Ms. Cordry gave a PowerPoint presentation (Exhibit 375), and produced videos and

photos of the site, all summarized in Exhibit 376, and contained on a thumb drive (Exhibit 376(a)). The PowerPoint presentation begins with views of the forest buffer, and continues with photos of ruts made by trucks on traffic islands (allegedly because of inadequate space for trucks to maneuver in the area of the site), photos of traffic in the area and of parking lot issues, including crowding and pedestrian interactions with cars. The final photos deal with alleged failure of Costco to properly maintain the area near its warehouse (which the Hearing Examiner indicated was not relevant to the gas station issues of this case). She noted that there was some erosion in the forest buffer and that she often uses the neighborhood roads to avoid traffic and traffic lights on the larger roads around the mall. As traffic gets heavier, the neighborhood will be affected by people travelling its local roads. Ms. Cordry stated that there are a lot of competing imperatives between traffic, the pedestrian paths and the parking, and at some point, they create a gridlock of competing imperatives. She feels that the proposed gas station should not be added to further complicate the situation. Tr. 11/19/13, 81-105.

Ms. Cordry observed that the warehouse is only open 10:00 to 8:30 during the week, 9:30 to 7:00 on Saturday, 10:00 to 6:00 on Sunday. That's only 70 hours a week. Due to those short hours, its customers don't bring traffic or noise to the backside of the Mall or to the Ring Road area during any of the periods that the county considers quiet hours, although the noise from the loading docks and the trucks accessing that area is a different question. The gas station, on the other hand, is going to be open approximately 104 hours a week which is 50 percent more time than the warehouse. Ms. Cordry made a lot of walking observations along the south side area of the mall in the morning, which are listed in Exhibits 377 and 378. Exhibit 377 is a narrative description of things such as trucks idling, pedestrians crossing, backups at Intersection 16, truck movements, and photos and videos depicting these events from April to September 2013. Exhibit 378 is a spreadsheet showing numbers of cars and trucks observed on the southern ring road for specified periods at certain hours of specified days from April 23 through June 9, 2013. She concluded that traffic in this area, even after the warehouse, remains very light in the early morning hours. Tr. 11/19/13, 106-112.

Ms. Cordry stated that the parking area adjacent to the site is generally the primary place where people start to park and it is very full much of the week. During weekdays and some of the weeknights, it's not completely full, but Friday evenings and all weekend long this area gets to be very full. Sometimes there are no spaces in this area. Westfield put up a good deal of additional signage regarding the garage, and now there is a substantially more usage of the garage; however, the shortage of parking in the parking lot still exists. On a Saturday, Ms. Cordry observed the area of the garage used by Costco (3rd floor) to be almost full. Tr. 11/19/13, 113-118.

Ms. Cordry then turned to her observations of trucks in the parking and loading area. She noted that there are gouges on islands in the parking lot where trucks have driven over them because of difficulty in negotiating the space available for maneuvering. She introduced Exhibit 379, a map labeling these islands, as well as photos of the islands in her PowerPoint presentation. Ms. Cordry suggested that there will be more interference with these trucks if the gas station is built because of additional traffic in the immediate area. These are very difficult turning radiuses. In the real world, trucks are going to have to move slowly, back and forth, inching their way around cars at the same time. All of that will cause slower driving, more traffic

backups, more emissions and more fumes. Ms. Cordry believes that Mr. Sullivan's assumptions are not conservative because in the real world, it's a lot messier. Tr. 11/19/13, 118-130.

Ms. Cordry then introduced a photo of Intersection 16 showing a backup of traffic (slide no. 19 in her Powerpoint presentation). The pictures show the traffic backed up all the way from the Ring Road down to University Boulevard which is approximately 550 to 600 feet. She also challenged Mr. Guckert's use of LOS measurements because the Transportation Area Policy Review Area guidelines do not use the LOS concept anymore, a fact which Mr. Guckert admitted. She feels that the intersection is failing, and therefore CLV analysis does not work. She noted that Dr. Adelman's observations yielded traffic counts about 15% higher than Mr. Guckert's, [although the Hearing Examiner noted that Dr. Adelman's observations were made shortly after the Costco warehouse opened, which would have yielded higher numbers.] Ms. Cordry used Exhibit 380 to illustrate traffic counts. She argued that Mr. Sullivan based his pollution estimates on the weekday peak hour traffic estimates from Mr. Guckert, but the weekend traffic is actually greater, and if Mr. Guckert's numbers were low, then Mr. Sullivan's pollution estimates were actually not based on conservative assumptions. She noted that her slide 20 also showed cars backed up at Intersection 16 all the way to University Boulevard. She also played a video of traffic backups at Intersection 16 and at the University Boulevard-Valley View Intersection (Exhibit 376(a). Tr. 11/19/13, 130-165.

Ms. Cordry also had slides and video of pedestrians negotiating the parking lot to illustrate the difficulties. She then discussed her observations of the loading docks for the warehouse, showing a truck blocking a traffic lane. Ms. Cordry introduced Exhibit 381 [later corrected in Exhibit 381(a)], in which she makes a comparison of net parking spaces available now v. after the gas station is open. She concluded that there would be a net loss of 10 to 20 parking spaces. People will have to walk further to get to their cars, and they will be funneled around the gas station. She also noted tractor trailers idling for long periods on the southern ring road, which would add onto the baseline pollution beyond the 10 minutes of idling time Mr. Sullivan considered. One truck took six minutes just to maneuver into the loading dock. She noted that there are three restaurants with outdoor seating near the proposed site. Those people, as well as workers, shoppers and those in line at the station will be exposed to the pollution. Tr. 11/19/13, 166-221.

Ms. Cordry introduced Exhibit 382 to compare gas sales at the Sterling Costco gas station versus projected gas sales at Wheaton. Costco assumed that Wheaton would sell about 12 million gallons annually, which is 86% of the Sterling sales of 13.9 million gallons. She noted that the different demographics might challenge that assumption, and Wheaton gas sales might well be more than projected. Moreover, each trip to the gas station might entail multiple trips within the mall if the customer went shopping as well as filling up. Ms. Cordry introduced numerous studies demonstrating that parking lots are complex environments which are potentially dangerous to pedestrians, bicyclists and motor vehicles. Exhibits 383 – 390. The problem is exacerbated in privately owned parking lots, over which the County has little control. She urged that a new problem not be created by permitting the complication of the existing parking lot by adding the proposed, very large gas station in the middle of a very busy parking lot. Tr. 11/19/13, 222- 275.

On Hearing Day 21 (Tr. 11/21/13, 85-176), Ms. Cordry was cross-examined regarding her testimony on Hearing Day 20. She also introduced two more exhibits regarding pedestrian safety in parking lots, Exhibit 397(a), the Montgomery County Pedestrian Safety Heads Up in Parking Lots campaign and Exhibit 397(b), Montgomery County's description of its pedestrian safety initiative. Ms. Cordry admitted that most of the times she made observations at the mall were relatively busy times, but she wasn't necessarily picking out the busiest time to go there. With regard to noise from idling trucks, Ms. Cordry indicated that the noise from at least one parked truck she observed in the parking lot area was not actually from idling, but rather from a small generator on the truck that can maintain the temperature in the cab; however, she testified that it made noise as if it were idling. Ms. Cordry also admitted that the third floor of the garage to the east of the Costco warehouse is not fully utilized. Tr. 11/21/13, 85-115.

Ms. Cordry testified that neighborhood people are using the local roads, such as McComas and Drumm Avenues to avoid mall traffic and lights on University, Veirs Mill and Georgia Avenues. She indicated that the 17- or 18-vehicle backup awaiting to make a left turn into the mall from University at the Valley View intersection empties in one to two light cycles. Her neighborhood is also concerned about people coming from Drumm and backing up on University approaching the Valley View intersection. She has seen backups extending almost all the way to Drumm. Ms. Cordry noted that these long backups coming into the mall end up creating idling, slow traffic, difficulties in getting through the mall property, which has effects both on the traffic within the mall and on the emissions from idling. While these types of situations may be common to malls, they may also become a nuisance.
Tr. 11/21/13, 116-125, 159.

Ms. Cordry observed, based on Exhibit 397(b), that 83 percent of the parking lot collisions occurred in private retail parking lots, which included lots at malls, strip malls, fast-food and other restaurants, banks, gas stations, et cetera. She did not have any data about how many accidents occurred at the Wheaton Westfield Mall. In 2012, there were 423 reported pedestrian collisions in the County and, of that number, 125, or about 30 percent, occurred in parking lots and garages, which was a 39 percent increase in one year and the third consecutive year of increases in these parking lot collisions. The most direct causal factor of pedestrian vehicular collisions is the peak hours of parking lot usage, and 83 percent occur in private retail surface lots. Tr. 11/21/13, 126-135, 156-157. Based on the comparison to Sterling and assuming the Sterling to Wheaton correlation is correct, Ms. Cordry indicated that 200 to 250 cars would be exiting the Wheaton Costco gas station during the peak hour, a little over four cars a minute on average, with four exits. Tr. 11/21/13, 136-143. Ms. Cordry stated that CLV numbers that meet LATR do not necessarily mean that intersection works, the clearest example being when the intersection is blocked. Tr. 11/21/13, 148-152.

Applying Mr. Guckert's figure of 1600 pedestrians entering and leaving the Costco mall entrance during the peak hour, Ms. Cordry reasoned that probably about 27 pedestrians a minute are either going in or coming out. She feels that with kids, with strollers, and with carts, there will be some issues with cars trying to exit from the gas station, slowing things down and compounding the circulation problems. Tr. 11/21/13, 168-176.

On Hearing Day 24 (February 24, 2014), Ms. Cordry resumed her testimony regarding

EPA's regulation of NO_2. Before addressing that area, there was a discussion regarding whether Ms. Cordry would be allowed to present additional testimony regarding traffic matters. A corrected parking space comparison was allowed as Exhibit 381(a). Initially, the Hearing Examiner ruled that he would not allow further evidence on areas she had covered in previous testimony, nor supplemental observations on traffic at the mall during the holiday period. Tr. 1/10/14, 128-143. [Thereafter, the Hearing Examiner reconsidered and agreed to accept the additional holiday traffic information, since it was relevant and since Applicant's traffic expert would be addressing holiday traffic issues in his rebuttal testimony. Other submissions relating to traffic were just argument and would be admitted and treated that way. Tr. 2/24/14, 56-76].

Ms. Cordry discussed Federal Register report of February 2010 that dealt with the NO_2 standards (Exhibit 424(b)), pointing out that NO_2 levels, unlike particulate matter, have a fairly steep gradient of exposures, so that the peak exposures on the roadways are considerably higher than those a few hundred meters away; it drops off fairly quickly over a several hundred-meter gradient. She reviewed the EPA's discussion of how they decided on an NO_2 one-hour standard, and she argued that the EPA was saying that a peak near a roadway of 190 micrograms per cubic meter means that levels away from the roadway must be lower than that for there to be compliance. In other words, even if lower levels are seen away from the roadway, that does not mean there is compliance. Exhibit 424(b), pp. 6479-6494. [Applicant disputed that interpretation.] Using the Sullivan November 2012 report (Exhibit 15), she argued that, after correcting for the Sullivan calculation error, the roadways would be well above the applicable NAAQS standard. Ms. Cordry suggested that if the NO_2 levels are in exceedance anywhere in the area, then the gas station should not be allowed to make the situation worse, even if the levels are not in excess of 190 micrograms per cubic meter right at the gas station and the gas station didn't cause an exceedance of that level. She stated that if the level is 190 on a roadway, by definition, it should not then be above 175, 100 feet off the roadway, not above 150, 200 feet off, and so forth. All of these are the standards that are being exceeded under her interpretation of the EPA regulations, and the gas station would be raising those levels. [The Hearing Examiner expressed doubt that he could apply the EPA regulations for NO_2 the way Ms. Cordry was suggesting.] Tr. 1/10/14, 143-193.

2. Diane Cameron, on behalf of the Audubon Naturalist Society (Tr. 9/23/13, 177-207):

On Hearing Day 15 (September 23, 2013), Diane Cameron testified on behalf of the Audubon Naturalist Society. She introduced an artist's rendering of the green forested buffer that exists now along the southern edge of the ring road at the Westfield Mall adjacent to the Costco site (Exhibit 296). This exhibit also has an artist's rendering of an envisioned shared-use pathway for pedestrians and cyclists that is mentioned as a desired facility in the Wheaton Sector Plan. Although she is testifying as a lay witness, Ms. Cameron is the conservation director for Audubon Naturalist Society and in this work she is a local clean water advocate, with a specialty in watershed protection and restoration policies and regulations. The Audubon Naturalist Society has for many years worked to protect the Anacostia and to restore the streams of the Anacostia watershed and of Rock Creek. The particular site in question actually includes head water streams for both the Anacostia River watershed and for Rock Creek. Her testimony concerns the intent and purpose of part of the Wheaton Sector Plan and specifically how the

proposal for a Costco gas station relates to the portion of the Wheaton Sector Plan pertaining to the Wheaton Mall and the green buffer. Tr. 9/23/13, 177-181.

Ms. Cameron read from page 53 of the Sector Plan, noting that it called for preservation of the existing green buffer in its entirety; enhancement and expansion of the buffer as possible in order to serve as a transition and as a protective natural area between the mall and the adjacent community; and to seriously consider the option to initiate a multi-functional, shared use path adjacent to the buffer. In her opinion, the proposed Costco gas station represents a threat to the integrity of this forested buffer and the head waters of these two creeks. This threat consists of additional air and water pollution that will be emitted from the proposed gas station and from the queuing lines of vehicles that will be waiting for the gas pumps. Environmental control measures can mitigate these pollution impacts, but they cannot entirely prevent them. In her professional experience, the mitigation of this pollution will still not be sufficient to protect public health and to protect this forested buffer from harm. Moreover, Costco is requesting approval to build and operate the County's largest gas station, which would have the effect of rendering impossible or nearly impossible the realization of the Sector Plan's desired pedestrian path. Tr. 9/23/13, 181-183.

Ms. Cameron stated that in her estimation, there is not enough physical space to provide both a shared use green infrastructure path and a large gas station while still being able to provide sufficient parking at the Costco site, given the imperative to preserve the green buffer in its entirety. The shared use path would be roughly 18 feet wide, which includes an eight foot wide pedestrian and cyclist pathway itself. It would consist of an eight foot wide shared use path that would be permeable pavement, and on one side of it there would be a linear storm water swale that would be about five feet wide and on the other side there would be a five foot wide roughly landscaping buffer between the pedestrians and the ring road that would be planted with shrubs and trees. Altogether, that would be an 18-foot wide facility. That would have to take a considerable portion over the presently existing ring road to do this. The ring road would either need to shrink and/or be shifted northward into what is now the parking lot. Thus, it would not be compatible with also having a gas station there. Westfield would have to agree to do this on their land. The specific vision in the Wheaton Sector Plan is for a transit-oriented redevelopment of Wheaton. Thus, we need to choose between being either automobile dependent or transit-oriented, and it's very difficult to really do both in the same sector or the same area. While cars will continue to coexist with pedestrians and cyclists in society, the question about whether to place a mega gas station on this site is seen by her organization as fundamentally incompatible with the transit-oriented, green urbanist vision for Wheaton which is contained in the Wheaton Sector Plan. So there's both a site-specific incompatibility and a policy incompatibility on the scale of the entire Wheaton Sector Plan. For all these reasons, the Audubon Naturalist Society joins with the Stop Costco Gas Coalition in asking for a rejection of the special exception application, S-2863. [The Hearing Examiner pointed out that Westfield is not a party, and that there was no authority to require Westfield to put in a shared use path of the kind that she suggesting would be beneficial.] Ms. Cameron responded that the Wheaton Sector Plan public policy desire could still be taken into account in this decision. Tr. 9/23/13, 184-188.

On cross-examination, Ms. Cameron admitted that the five foot pedestrian path that Costco is now proposing is a step forward since there isn't a pedestrian walkway today, but it's

very different than the shared use path envisioned in the Wheaton Sector Plan. She stated that the core point of her testimony here today is that the Audubon Naturalist Society believes that both protecting the existing forest buffer and creating this shared use path are important public policy goals and that they do not want to see either of those public policy goals obviated or thwarted by decisions that would render this possibility moot. Ms. Cameron feels that the particular design of the warehouse makes it difficult and would certainly create a narrowing of any pathway in that segment, but it doesn't prevent it. The gas station has additional impacts and additional conditions that it would create, including long queuing lines that would tend to be a deterrent to pedestrians and people on bicycles and people with children in carriages because of air pollution. Tr. 9/23/13, 189-197.

Ms. Cameron indicated that there are problems with the current storm water runoff management approach because in the forested buffer there is the discharge outlet of runoff from much of this part of the Westfield Mall and Danillo Sheveiko has observed, during and immediately after a storm, there has been a flow of runoff that is already starting to move boulders and move rocks that were supposed to be stationary in this rip rap filled channel. Thus, there already is an ongoing storm water runoff and erosion problem. There are more green solutions that are more effective in infiltrating runoff rather than just discharging it. The proposed gas station has been proposed to have some additional storm water management measures built along with it which can mitigate runoff, though they can't completely prevent it, especially for larger storms. There is also a potential for making it worse in terms of the additional amount of chemical pollutants that might be in the runoff from the additional number of vehicles that would be queuing because the exhaust that those vehicles are emitting will make its way into runoff eventually. More modern storm water management measures can filter some of these pollutants out, but they're not 100 percent efficient, so they don't filter all the pollutants out. And during larger storms, there is still a discharge that can be erosive. Moreover, tailpipe emissions from idling cars in a queue can have a negative effect on existing foliage, trees, bushes in the forest buffer. She admitted that that upon the redevelopment of the gas station site, if it were to be redeveloped, that the plan to direct all the storm water into the Wheaton Branch, and not the Kensington Branch, would avoid erosion on the Kensington Branch. She also admitted that she did not know if the existing amount of traffic to the Wheaton Mall is causing any damage to the foliage currently. In response to an inquiry from the Hearing Examiner, Ms. Cameron indicated that the addition of a gas station inherently would add more fumes and potential damage to the environment. Tr. 9/23/13, 198-207.

3. Pat Mulready on behalf of the SCGC (Tr. 10/17/13, 221-248):

On *Hearing Day 16 (October 17, 2013),* Pat Mulready testified on behalf of SCGC as a lay witness on the issue of emergency preparedness. She observed that the Kensington/Wheaton area is densely populated, and there is "everyday [traffic] gridlock," especially on the roadways around Wheaton Plaza. Under normal circumstances, police and fire services might be able to respond to an emergency situation at the gas station, but in an event such as "Snowmageddon," they could not get through. Earthquakes could happen, and in her opinion, those are "non-inherent" effects. She complained that no emergency management plan has been filed for the proposed gas station and that a 2-hour battery is insufficient. There should also be bigger fire extinguishers, and at least two people on staff at all times. She is also worried about what would

happen in the event of "gang warfare." Tr. 10/17/13, 221-248.

4. Larry Silverman on behalf of the SCGC (Tr. 10/17/13, 251-288; Tr. 10/21/13, 11-123):

On *Hearing Day 16 (October 17, 2013),* Larry Silverman testified as a lay witness on behalf of SCGC concerning environmental policy and the Clean Air Act (CAA), as it applies to the air quality or facilities such as this proposed mega gas station. He has been practicing environmental law and policy for about 40 years and teaches related courses at the university level. Tr. 10/17/13, 251-254.

Mr. Silverman described how CASAC, the Clean Air Science Advisory Committee, interacts with the EPA. The EPA will set up a plan on a particular pollutant dealing with national ambient air quality standards, and then they'll do a science review to see what the state of the science is. At that point, they go to CASAC and they ask them very specific questions. Then they separately do an impact review of who it's affecting and how is it being affected, and then it will go back to CASAC, which makes recommendations. Under the Clean Air Act, the standards have to be reviewed every five years, which is a tight schedule. SCGC is making two arguments. The first and strongest is that Applicant has not shown that it meets existing standards. The second is that existing standards are not necessarily protective of health given the rapid changes in the standards and the science. In the last year, both for NO_2 and for $PM_{2.5}$, fine particulate matter, CASAC and EPA agreed in their regulations to say that the way measurements are made should be changed. Tr. 10/17/13, 258-263.

The decision as to whether a region is in attainment with an air quality standard is a major decision. If a region fails to comply with an air quality standard, there are very severe consequences. So, the state of Maryland and the Council of Governments are not eager to take measurements in the worst places. With regard to the proposed gas station, there are two issues. How much pollution will it add is one issue. The other issue is what is it adding it to? What are the background levels? In his opinion, the background levels are in fact not clear because according to the latest advice from EPA, the system for monitoring needs to be altered in a rather dramatic way. The Applicant suggested that if you use a very conservative approach, that you will find there will be some violations. Tr. 10/17/13, 263-265.

Mr. Silverman suggested that the fact that EPA does not regulate something does not mean it's safe. Every regulation of EPA was fought over and struggled over with a huge interest at stake. There are many things they don't regulate. They regulate gas stations in a way but they don't regulate the air quality impact of gas stations. They regulate the technology of gas stations. In the EPA permitting process, if you run into a problem with the screening of your model, you discuss it with the experts at the approving authority. The Applicant would not have free reign as Mr. Sullivan has done here to change the parameters. Mr. Silverman contends that Mr. Sullivan's own studies, before he realized he had made a calculation error, indicated violations. [The Hearing Examiner noted that Mr. Sullivan testified on his return to the stand that, consistent with EPA Guidelines, he relaxed some of his more conservative assumptions to come closer to an accurate prediction.] Mr. Silverman suggests that Mr. Sullivan's change of assumptions after his calculation error was revealed is a red flag, as are the EPA's School siting guidelines and the Council's action adopting ZTA requiring minimum setbacks. He feels that the Council did not

include residences in the ZTA limitations and specified the setbacks of 300 feet rather than 1,000 feet because the EPA had discussed schools, not residences, in its siting guidelines, and the Council had concerns on the impacts in other locations of establishing larger absolute setbacks, leaving the final amounts to the Board's jurisdiction. Mr. Silverman likes the idea of monitoring to assess background and incremental levels, but that is an expensive and lengthy process. Tr. 10/17/13, 267-284.

Mr. Silverman disagreed with Mr. Sullivan's suggestion that under the PSD (prevention of significant deterioration) concept, if the increment does not reach a significant impact level (SIL) then the impact is not important. It's not to say that small increments are never important in affecting air quality. Tr. 10/17/13, 285-287.

On Hearing Day 17 (October 21, 2013), Mr. Silverman resumed his testimony. He noted that in the usual EPA approval practice, the experts are expected to consult with the approving authority in advance. Also, Appendix W calls for an attempt to reach agreement on the databases to be used and the modeling techniques to avoid misunderstandings. One of the problems in this case is that there have been a number of changes in Mr. Sullivan's assumptions. Mr. Silverman read from EPA Appendix W, 8.2.1, indicating that background air quality includes pollutant concentrations due to natural sources, nearby sources other than the one currently under consideration and unidentified sources. The monitoring network used for background determination should conform to the same quality assurance and other requirements as those networks established for prevention of significant deterioration purposes. An appropriate data validation procedure should be applied to the data prior to use. Mr. Silverman stated that he didn't see any validation or sufficient explanation when Mr. Sullivan changed his background numbers he used. Mr. Silverman also questioned the manner in which Mr. Sullivan selected which monitoring station to use to establish background levels. There are eight air monitoring locations in this region which the Council of Governments in the state and federal government and various agencies and scientists, research scientists, rely on. They are at Beltsville, Rockville, Arlington, 34th Street, D.C., 1st Street, D.C., Van Buren Street, D.C. and now Alexandria has one. Mr. Silverman feels that Mr. Sullivan did not give an adequate answer as to why he used Arlington, for example, for CO monitoring. Mr. Silverman also suggested that according to the EPA, the actual background numbers are probably higher than the regional monitoring system is showing. Tr. 10/21/13, 11-31.

Mr. Silverman further testified that according to the EPA's Guidelines, Appendix W, Section 9, air quality models, even if done as impeccably as possible, are subject to a 50 percent uncertainty. He feels that one of the major points that an approving authority wants from an expert is a clear statement of uncertainty and error charts, specifying variables or uncertainties or unknowns, and Mr. Sullivan has not done that. This impacts on whether Petitioner has met its burden of proof and on the credibility of an expert who does not communicate the level of uncertainty. [The Hearing Examiner noted that the hearing process, unlike other approval reviews, has cross-examination of the expert which allows the levels of uncertainty to be brought out.] Tr. 10/21/13, 32-36.

Mr. Silverman also cited Appendix W, Section 7.2.2 for the statement that receptor sites in the model should be located carefully, and he feels that Mr. Sullivan did not demonstrate that

he did so. He also cited Section 7.2.3, which details how to select the proper dispersion coefficients, urban or rural, based on a three kilometer radius, and he criticized Mr. Sullivan for using urban coefficients in the mall area. Mr. Silverman also read page 68226 of Appendix W for the methodologies in the permitting process for predictions of NAAQS or PSD increments, and noted that the standard on how to deal with SILs that Mr. Sullivan relied on is no longer operative because of the Sierra Club case. Mr. Silverman also suggested that controls used for clean diesel do reduce the NOx levels, but the percentage of NO_2 actually increases. [He was not able to site authority for that proposition.] Tr. 10/21/13, 37-49.

Mr. Silverman characterized Mr. Sullivan's position as arguing that this case had been over-analyzed, while Mr. Silverman believes that the potential impact on the nearby school and the Council's ZTA certainly justified this level of analysis. He pointed out that if there is an emergency in this area, hundreds of cars will flock to Costco, creating very severe impacts in the neighborhood. Moreover, EPA standards are becoming more stringent, citing C FR, Volume 78, Number 10, Tuesday, January 15, 2013, page 3239. Tr. 10/21/13, 51-66.

Mr. Silverman argued that the majority of Costco's experts are after-the-fact experts and inherently, after-the-fact experts who are paid have less credibility than the people who were brought in before the fact to determine whether there's going to be a problem or not or to compare alternatives. He stated that Mr. Ishida, Costco's Vice-president of real estate, told him that Costco looks for a potential super fund type liability before it settles on real estate, but they do not otherwise have environmental experts to guide their choice of real estate places. He noted that a tire and battery facility, which produces lots of hazardous materials, had been near the site, yet the geological reports submitted by Duke Engineering say that no investigation was made for toxic substances in the soil. Mr. Silverman testified that normally, in dealing with things like that, you have what's called a phase 1 investigation where essentially, you look at the history of the site and say is there a potential problem and then you investigate to see if there's a problem, how you can avoid it or minimize it. The Hearing Examiner asked whether this kind of investigation may be done as part of the permitting process, but Mr. Silverman stated that this kind of investigation won't be done as part of the permitting process because the controls are technology-based standards. He feels that the stormwater planning has been poor in general because all the potential factors had not been considered; however, he conceded that the stormwater system proposed for the gas station is better than the stormwater system for the mall because it incorporates environmentally sensitive design facilities. He added that accidents happen, and that's why you put things as far away as you can from people and that's why most gas stations of this sort are in fact 1,000 feet or more away from folks. Tr. 10/21/13, 67-81.

On cross-examination, Mr. Silverman argued that Mr. Sullivan had changed his assumptions without sufficiently justifying his changes, while in a "typical" modeling situation, the expert gets approval for revisions from the approving authority before making them. He has recently discussed this case with MDE, and they are interested, but had not given a definitive opinion other than what they told the Council, which was that the further away the source is, the better, given the unknown risks. Tr. 10/21/13, 81-91.

Mr. Silverman testified that Mr. Sullivan's choice of monitor locations was not internally consistent. Sometimes he picks the highest monitor for some things and then he picks another

monitor like Arlington which is much lower than others. He does not have a number that he think is the appropriate background level for PM2.5, but he believes the region is non-attainment for PM2.5. That may not stop all development, but that is a policy issue, beyond this particular deliberation. Mr. Silverman was unable to say whether the level of $PM_{2.5}$ in the ambient air regionally is decreasing. He also could not think of an applied model analysis that shows a specified uncertainty level; however, he criticizes Mr. Sullivan for not even suggesting a level of uncertainty. When he says this is atypical or a case of first impression, he admitted that he is really saying that no one has ever gone this far to show the levels of emissions from a gas station of this size. He also agreed that if you were to find out that Costco did in fact do a phase 1 environmental assessment, he would stand corrected on that point. Tr. 10/21/13, 91-103.

Mr. Silverman agreed that EPA standards are intended to provide a reasonable degree of protection against hazards that research has not yet identified, but it's an evolutionary process. He agreed that Exhibit 174, Slide 7 shows that in 1987, where the red circle is, that the VOCs coming from a gas station that sold 1.5 million gallons of gas is approximately comparable to what the proposed Costco gas station will sell in the year 2013, but added that there is still some health effect. Tr. 10/21/13, 104-113.

Mr. Silverman further testified that one element of the Zoning Ordinance standards is that the applicant must prove that the proposed special exception will not have adverse health effects on residents, visitors and workers. He was part of the discussions in establishing the protocols that would be followed in the modeling assumptions, but the modeling assumptions used in the latest air quality analysis does not follow that protocol. He was not asked to participate in the revisions of the protocol, nor was Dr. Cole. He believes Mr. Sullivan changed the monitors that he selected to measure background levels and he reduced the estimated amount of time that trucks would idle at the mall parcel. When EPA reviews modeling analysis, they have a right to demand all of the backup data, but that was not supplied in this case. It is his understanding Costco has the burden of proof on health. Addressing Exhibit 174, Slide 7, he stated that even with the ARID permeator, the 12 million gallon gas station has more significant emissions effects than the smaller stations. Tr. 10/21/13, 115-123.

5. James Core on behalf of KHCA (Tr. 10/21/13, 124-200; Tr. 10/24/13, 17-77; Tr. 11/14/13, 39-122):

On *Hearing Day 17 (October 21, 2013)*, James Core testified as a lay witness on behalf of KHCA. He lives at 8 Torrance Court in Kensington, Maryland, and works at the U.S. Department of State where he is a senior management analyst. His home is southeast of ring road and the Costco warehouse location. He considers the neighborhood to include the mall, as well as his property and that of his neighbors. Mall traffic affects his neighborhood. He walks through the mall to go to the Metro station every morning at about 7:00. In the morning, there's little to no traffic, except seeing some trucks that are transiting through to make deliveries. In the evening, there's a bit more traffic now that the warehouse is opened. He noticed in the last several months, there's a little more aggressive pattern with folks that are making the right-hand turn coming out around the Sears outlet and not nearly as universal respect for the crosswalks. He characterized the speed of traffic along the Ring Road as “30-ish, faster than it ought to be.” The traffic in the parking lot area near the Target and west of the Costco warehouse where this

special exception is proposed to go is slow, with folks just kind of creeping along, stop and go, looking for a parking spot in a highly utilized parking lot. Tr. 10/21/13, 124-131.

According to Mr. Core, since the opening of the Costco warehouse, it is no longer safe to walk along the Ring Road over to the Target. Mr. Core feels that the proposed special exception does not comport with the general character of the neighborhood. It's a very busy mall, and the parking lot that serves the Costco and the Target is a highly utilized parking area. This special exception's proposed gas station is going to bring hundreds of cars with dozens queuing at any given time, creating exceptionally long queues that he has not observed at other gas stations or in other parts of the mall. "[I]t's just too intensive to insert a mega gas station in this type of parcel. It's going to upend the traffic and parking conditions at the mall. There will be effects that spill over into the neighborhood . . ." Tr. 10/21/13, 132-134.

Mr. Core further testified that Costco's assumption of cars neatly stacking up at the pumps is not reasonable. In his observation on 2/17/13 at the Columbia, Maryland Costco, which has a gas station, the cars don't stack up as neatly as Costco suggested. It does not comport with human behavior. Drivers often leave extra space between vehicles, and motorists will also avoid queuing at gas stations where the pumps are on the opposite side of the car's fuel tank outlet. People do prefer to fuel on the right side of the gas tank despite the long hoses. This creates additional stacking. He also did not observe attendants directing traffic. This, again, results in more idling times, traffic spillage into the roadway and more emissions. Photos he took at the Columbia Costco, as well as satellite imagery from Google Maps of the Beltsville gas station, support his observations and are in the record in Exhibit 80(j). He feels that the queuing efficiency is overstated by Costco, and thus they are understating the emissions from idling and ergo the health problems associated with those emissions. Tr. 10/21/13, 135-138.

When asked whether Costco can show that the proposed special exception will not be detrimental to the use, peaceful enjoyment, economic value or development of surrounding properties to the general neighborhood at the subject site, per Zoning Ordinance §59-G-1.21(a)(5), Mr. Core responded that idling vehicles are going to back up on the Ring Road. Fuel deliveries and existing tractor trailer deliveries are going to be funneled into what is already a reasonably tight system in a constrained space. The turning radius is tight now. The trucks are coming up onto the islands adjacent to the loading dock, and one can see the gullies where the trucks are having difficulty getting into the loading dock space because it's so constrained that they already have to go up on the existing traffic islands. The gas station will add hundreds of cars and more tractor trailers coming in to do fuel deliveries, making the mall relatively less attractive for people to shop there, which is a cost to both other stores and adjacent residents. The proposed mega gas station is inconsistent with how the mall has been used in the past. There are some non-inherent effects associated with this type of activity documented by the Planning Board Staff, with the queuing, the idling, the emissions, the traffic. In his opinion, this is an intensity of use that's going to bring traffic and idling cars and negatively affect the experience of people that live next to the mall. The mall itself is not the problem, but the proposed gas station, pumping 12 million gallons a year, is an entirely different thing, and he would not have located next to the mall had he known of it. Tr. 10/21/13, 138-142.

Mr. Core testified that the proposed gas station will constitute a nuisance with respect to

the use and enjoyment of his property. It would add hundreds of cars into an already constrained environment, as well as tractor trailers, which will slow things down. It's going to increase fumes and odors as cars idle longer than you would expect at a typical gas station. It's going to bring more fuel trucks rumbling into the neighborhood. In his home, sitting on his deck, you can hear and sometimes feel the large vehicles that are transiting on the Ring Road. It's going to slow progress on the mall and local roads, and emissions and noise will go up from both the trucks and the cars. It will bring an intensity of activity that was never intended and is probably not safe in that space. He hears trucks idling in the evening and in the morning, a couple of times a week. Once he observed a truck idling on the southern ring road for over three hours, but he is not sure whether it was a Costco delivery truck. He also observed a bus idling there for a long period. Tr. 10/21/13, 144-149.

On cross-examination, Mr. Core sated that he was aware of the proposed green wall, but he is concerned that the wall will drive the emissions and the pollutants that are emitted into the cul-de-sac down closer to his home. Though he does not have a scientific background, common sense indicates to him that Mr. Sullivan underestimated the impacts. Mr. Core acknowledged that studies were prepared by Mr. Sullivan, but he doesn't believe the studies comport with reality of how people behave, of how people drive, of how people queue and therefore, anything that's based upon those studies is, by definition, incomplete and not a good basis for anyone to make a decision in a proceeding such as this. He could not cite a scientific study to support his contention, but in his research, he could not find a situation where a mega gas station of this nature is being wedged into an existing mall just a few hundred feet from existing homes. He emphasized that the burden of proof is on the Applicant. Moreover, the evidence suggests there are real problems and what Applicant has presented needs to be "plussed up" because the human factors, including how people line up at major intersections and how they line up at gas stations, do not comport with the data in the graphs that were presented in the special exception application. Tr. 10/21/13, 150-158.

[During much of the remaining cross-examination, Ms. Harris challenged the basis for Mr. Core's conclusions, but little new substantive evidence was produced. Tr. 10/21/13, 159-178.] On the question of whether the special exception would cause a nuisance, Mr. Core differentiated the proposed gas station from other mall activities. He stated that being a reasonable consumer, he bought a home near a regional mall, not next to a major gas station, which is a completely different thing. In his mind, it is a game changer because of the number of cars as well as the presence of idling, the presence of lots of fuel deliveries, more tractor trailers. The proposal calls for an intensity of use that is orders of magnitude larger than one could expect from a regular gas station. The nuisance is not just the traffic that's a contributing factor. It's also the type of activity that is planned. Mr. Core stated that even if a condition required a second attendant, that would alleviate some of the non-inherent characteristics, but it's still not going to solve all the underlying problems from the use. Tr. 10/21/13, 178-186.

On Hearing Day 18 (October 24, 2013), Mr. Core resumed his testimony to address the question of potential impact of the proposed gas station on nearby home values. He stated that when he bought his home, he was aware of the ring road and the way the mall was constructed, with most of the activity occurring in the center of the parcel, and with buffering parking lots. He was also aware of the normal trade hours, 10:00 a.m. to 9:00 p.m., and it was very quiet in the

morning. The proposed gas station would be open much earlier. The Montgomery Ward's auto service station that at one time existed on the mall parcel was located well north of the proposed site, and was a completely different type of operation, with no fueling of cars and no idling. Tr. 10/24/13, 17-22.

Mr. Core stated that the proposed Costco filling station is not a typical retail filling station (Tr. 10/24/13, 23):

> [W]hat is being proposed, is a mega gas station. It is a regional fueling depot. We're going to have 16 pumps, 12 million gallons per year. It's expected to pump eight times, eight times, sir, the regular volume of a normal gas station. It's three to four times what our County Council defined as a large gas station. This is, frankly, kind of more like putting a highway rest area fueling station right next to an existing neighborhood. That's a big deal. It's materially different, and I'm frankly a little afraid of it because of what it's going to do to my neighborhood, to my property value. It's just materially different.

Mr. Core opined that the gas station will have a negative economic impact on the value of his home. He viewed the mall as an amenity, but he did not buy next to a gas station. It comes after the fact, and will make his house more difficult to sell. The gas station will have a non-inherent negative impact from queuing and idling; the presence of underground tanks; and from its appearance. It's also going to make the area relatively less friendly to pedestrians. People are going to be concerned -- potential home buyers, people who live in the area or are considering living in the area -- are going to be very concerned about potential adverse health effects, whether or not they are scientifically proven, and that perception is going to have serious impacts on the ability to sell his house. Mr. Cronyn's report has no analysis whatsoever of what the effect on home values will be in the existing residential neighborhood by putting in a mega gas station. He also relies on erroneous assumptions from the Sullivan reports regarding noise and health impacts. There will be additional noise, especially in the morning before the regular mall opens. A half-dozen fuel tankers per day will exacerbate those impacts and will definitely be noticed. It will fundamentally change the experience on the mall property, and on the neighboring properties. Location matters, and many potential buyers will walk away, driving down the value of the homes. Tr. 10/24/13, 26-29.

Mr. Core introduced a number of publications that had not been previously supplied to Applicant's counsel. It was agreed that his direct could continue, but he would return on another date for cross-examination to give Applicant an opportunity to prepare. Tr. 10/24/13, 30-53. The new exhibits are:

Exhibit 352	August 2010 excerpt from NCEE, Preliminary Stated-Preference Research on the Impact of LUST Sites on Property Values: Focus Group Results
Exhibit 353	Document entitled Building Prosperous Places in Michigan: Understanding Placemaking Values, Perceptions, and Barriers
Exhibit 354	April 14, 2009, article entitled Is It Safe to Live Near a Gas Station?
Exhibit 355	January 20, 2012, report entitled Welcome to the FHA Appraisal Inspection Requirements Webinar
Exhibit 355(a)	Excerpts from Exhibit 355

Mr. Core further testified that Mr. Cronyn found that homes next to gas stations will appreciate, but he was talking about trend lines for appreciation of homes that are near gas stations, and people bought the homes when they were near gas stations. This case is very different because it involves putting a really large gas station right next to existing communities. That's an after-the-fact-type thing that's going to be a game changer. He therefore feels that Mr. Cronyn's analysis is flawed and irrelevant. Mr. Core also challenges Mr. Cronyn's use of an economic analysis model, rather than using appraisals, which would require that certain standards be followed. Using an appraisal model, he'd have to acknowledge that the houses in the neighborhood would lose value, since they would be relatively less attractive next to a gas station. Tr. 10/24/13, 54-60.

Mr. Core repeated the statement he made in Exhibit 96(a), that in March 2010, a survey was conducted for the EPA by the National Center for Environmental Economics, and Industrial Economics, based in College Park, that said that 75 percent of one group of respondents reported that a gas station does affect the home value with an average discount of $3,300, if a station is opened a half mile away. His own home is about 650 feet away from the site. Mr. Core also discussed the articles he submitted in Exhibits 352-355. A Michigan State University study indicated that opening an additional gas station within a quarter of a mile would reduce a home price by $6,052. All the references are to typical gas stations, not the mega gas station that the special exception would bring to his neighborhood. Home values can be affected by perception, whether or not based on reality, and people do not perceive gas stations favorably. Thus, they have a negative economic value on adjoining property owners. Referring to a Webinar on FHA Appraisal Inspection Requirements (Exhibits 355 and 355(a)), Mr. Core noted that Appraisers are required to look at any exterior influences or indications of obsolescence such as gas stations, dumps, landfills, and industrial/commercial uses. They also have to have photographs of many of these external influences, positive or negative, specifically including gas stations, along with other problem features such as railroads, freeways and hazardous waste sites. Tr. 10/24/13, 61-77.

On Hearing Day 19 (November 14, 2013), the Applicant began cross-examination of Mr. Core, much of which concerned how to interpret Exhibit 352, the August 2010 excerpt from NCEE, Preliminary Stated-Preference Research on the Impact of LUST Sites on Property Values: Focus Group Results. Applicant's point was that the responses of members of the focus groups varied from person to person, but Mr. Core noted that 75 percent of the respondents believed that nearby gas stations will have a negative impact, quantify it around the figure of about $3,300. He admitted, however, that in a summary of bullet points of Focus Group 2, it says, "The general consensus was that a nearby gas station would decrease home values but only if within sight of a home." Tr. 11/14/13, 39-63.

When Mr. Core was questioned about his assertion that Mr. Cronyn's testimony was flawed because it used an economic analysis rather than an appraisal approach, he stated that he is not an expert, but is testifying as a homeowner, a reasonable layperson who knows how the appraisal process is done, having bought and sold homes, and having seen those forms. They have to go through and do inspections of the property; they have to do inspections of the neighborhood; they need to look at comps; they need to find situations that are analogous to determine the value of the subject property; they have to look at roadways; they have to look at

characteristics of the housing stock; they have to look at things that are affecting the neighborhood; and then they have to come up with a value of the home. [Further cross-examination challenged the application of the studies cited by Mr. Core to the present situation because of very different market conditions.] Mr. Core considers the proposed gas station to be a "disamenity" because it's going to increase traffic in his neighborhood, create a real health risk and take away from his experience, but he admitted that on page 34 of the "LUST" study, it indicates that in some situations (which Mr. Core argues are not relevant here), a gas station 2 miles away can increase home values. Tr. 11/14/13, 66-122.

6. Elena Sheveiko on behalf of KHCA (Tr. 10/21/13, 202-237):

On *Hearing Day 17 (October 21, 2013)*, Elena Sheveiko testified as a lay witness on behalf of KHCA. She lives at 10812 Melvin Grove Court in Kensington, Maryland, just south of the ring road. She has a Costco executive membership and has been shopping in Costco for many years. Ms. Sheveiko opined that all gas stations are hazardous by their nature. It will be extremely dangerous for herself, for her neighbors, and especially for children in her neighborhood, and she is not being given a choice. On her court, there are five children under the age of seven who play outside. Tr. 10/21/13, 202-205.

Ms. Sheveiko introduced a photo of the Beltsville Costco gas station with her in the foreground to demonstrate the distance her home will be (125 feet) from the Costco station proposed for Wheaton (Exhibit 344). She chose to live next to the mall and close to a Metro. Hers is the closest home to the proposed gas station site. Ms. Sheveiko noted that traffic in the area has gotten much worse since the Costco warehouse opened. The Costco parking lot is always busy, and on certain days or certain time of the days, it's impossible to find a parking spot, with people already idling trying to find a parking spot. She did not try to park in the garage directly to the east of the Costco warehouse. Tr. 10/21/13, 206-220.

According to Ms. Sheveiko, traffic is so bad on the parking lot, it becomes dangerous to walk there with cart or without cart. It is also noisy. She didn't want the warehouse there, but she accepted it. She just doesn't want the gas station, citing a U.N. study claiming that air pollution is the number one cause of lung and bladder cancer. She also recited conversations with Costco representatives and described her worries if a gas station is added to the already bad situation of traffic, noise and pollution near her home. She also fears it will reduce her property values. The proposed wall will not prevent the air pollution and may funnel some of it to her neighbors. Tr. 10/21/13, 222-237.

7. Ethan Goffman, on behalf of the Montgomery County Sierra Club (Tr. 10/24/13, 78-112):

Hearing Day 18 (October 24, 2013), Ethan Goffman testified on behalf of the Montgomery County Sierra Club. He testified that the Wheaton Sector Plan envisions a walkable, mixed-use, transit-oriented hub with plenty of residences and retail businesses. Page 9 of the Plan describes Wheaton's future as being a major mixed-use center for Georgia Avenue and eastern Montgomery County, including regional shopping, transit-oriented residential and office, and business and government services. It proposes to capitalize on the role of Metro and Wheaton as a regional transit hub to promote high-density growth and redevelopment in the

business core. Another prime redevelopment goal is to reduce energy consumption and make Wheaton more green and sustainable by providing transportation alternatives to reduce vehicle miles traveled. He opined that building an enormous gas station in downtown Wheaton is antithetical to all parts of this Plan. The Montgomery County Sierra Club reiterated its previous objections filed in Exhibit 94 to the construction of this station, which it believes will undermine local, county, state, and national goals regarding smart growth and the environment. On the other hand, the Sierra Club welcomes the decision of Costco and Westfield to reinstate the pedestrian path largely in the form that it was presented to the Planning Board and staff when first reviewed, and it hopes the forest buffer will be expanded, along with and creation of a green shared-use path. Tr. 10/24/13, 78-80.

According to Mr. Goffman, the proposed Costco gas station will mean more cars and traffic in the mall and surrounding areas, making walking and biking more difficult. The station will also compete with transit and undermine efforts to move Montgomery County to a new paradigm. The Sierra Club advocates buildings and infrastructure easily accessible by transit, with walking and biking unhindered by automobile congestion. The Club believes this will increase the economic vitality and quality of life in the county. Mr. Goffman further testified that it is particularly important to encourage this kind of growth near a Metro station on the eastern side of the Red Line in an area of the county that has been eclipsed by the development in Silver Spring, Bethesda, Rockville, and White Flint. Wheaton's location at the junction of a major Metrorail and bus station makes it especially important for transit-oriented development. According to Mr. Goffman, plans for a rapid bus transit network encompassing Georgia Avenue and Veirs Mill Road further enhance Wheaton's position as a major smart growth node that would only be undermined by adding an enormous gas station. He recognized that some customers of the station may already be driving to the area, but a substantial portion are projected to be new gas-only trips. He feels that this station will act as a magnet, pulling cars away from other gas stations near and far, and increasing vehicle miles traveled, exactly the opposite of the county's goals. Tr. 10/24/13, 80-81.

The Sierra Club is also concerned because this station, in particular, is designed to operate with large numbers of idling vehicles for many hours a day, polluting the air, likely increasing asthma and other respiratory diseases, and perhaps even cancer, at the local level. Allergies are on the rise, due at least in part to environmental causes, including air quality. Asthma and allergies have become something of an epidemic among young people, severely restricting their quality of life. In Montgomery County in 2009, 12.4 percent of adults had a history of asthma, according to the Department of Health and Mental Hygiene. Numbers for children are not well documented, but the rate of emergency visits by 0- to 4-year-olds for asthma was five times that of adults in Montgomery County. Tr. 10/24/13, 82.

Mr. Goffman further testified that because Wheaton has a relatively large minority population and a large low-income population, there's also an environmental justice issue. Tr. 10/24/13, 82-83. [The Hearing Examiner concludes that it is not within his jurisdiction to consider such issues in this type of land use case.] The Sierra Club recommends applying the precautionary principle of first do no harm, rather than subjecting the people of Wheaton to possible adverse health effects so drivers can save a few pennies per gallon. The station's location, near numerous residences as well as a special-needs school and swimming pool,

underscores the impact. Where the local area is already well served with more than two dozen service stations, there is no reason to allow a mega-station that would concentrate all of these sales just a few hundred feet away from such sensitive areas. Tr. 10/24/13, 83.

Mr. Goffman stated that, even leaving aside disputes over the station's health effects, the added driving and idling created by this station would mean more greenhouse gas emissions, running counter to Maryland's stated goal of a 20 percent reduction from 2006 levels by 2020 in the Greenhouse Gas Reduction Act of 2009. The situation is worsened because no other station in the county operates with scores of cars idling for hours daily. In addition to the state, Montgomery County has itself committed to making significant reductions in greenhouse gases. Its Climate Protection Plan calls for reducing countywide greenhouse gas emissions to 80 percent below the 2005 base year by 2010 and 10 percent every five years through 2050. Two specific recommendations in the plan were T-9, develop comprehensive idling policies supporting Maryland's vehicle anti-idling law with an emphasis on both education/outreach and effective enforcement; and T-11, create an effective transportation education and outreach campaign to modify resident and business transportation behavior to reduce GHG emissions. According to Mr. Goffman, approving a station that creates an idling problem fulfills neither of these recommendations, nor those of the new Intergovernmental Panel on Climate Change. Tr. 10/24/13, 83-84.

The Sierra Club strongly agrees with the reasons given by the Planning Board and its Staff for their recommendations of denial, and urges that this project be rejected. It's wholly out of scale and unnecessary to the needs of developing a Wheaton that will attract more young people and contribute to the growth and vitality of Montgomery County. Tr. 10/24/13, 85.

On cross-examination, Mr. Goffman admitted that he doesn't know about the zoning or that the current zone would not even permit a residential use on this portion of this site. He believes that a large gas station with discount prices would make people drive more, contrary to the goal of reducing car trips. Even though the mall is zoned C-2, he believes a huge gas station that's never going to be moved and that's generating lots of traffic, will discourage developing the whole area as organically in the long run as a beautiful functioning neighborhood like Bethesda. Mr. Goffman admitted that he is not aware of any current plans to do away with the regional mall, but he would like to discourage driving to the mall. He is not opposed to a small gas station conveniently located for people, but he is opposed to the proposed station because of it's size and scale. Mr. Goffman testified that the Sierra Club would like to shrink parking lots and believes that the Council should have included a recommendation in the sector plan, prohibiting gasoline stations of this size on the mall site. Mr. Goffman admitted that if a Costco gas station were provided here, it would in fact reduce vehicle miles traveled by Wheaton area Costco gas customers who currently have to drive to Beltsville to fill up, but he surmised that the overall impact of the proposed station is that more people would be driving more. Tr. 10/24/13, 90-112.

8. Dr. Mark Adelman, on behalf of SCGC (Tr. 10/24/13, 205-295; 11/14/13, Tr. 125-250):

On *Hearing Day 18 (October 24, 2013)*, Dr. Mark Adelman testified as a lay witness on behalf of SCGC. He lives at 3206 University Boulevard West in Kensington, Maryland, about a

mile from the subject site. The first part of his testimony report [as summarized in Exhibit 321(a)] is intended as a rebuttal to Applicant's land use report. Dr Adelman also discussed, in general, his background and his approach to the case. Tr. 10/24/13, 205-228.

Dr. Adelman asserted that there is a consistent thread of misleading statements in Applicant's land use report, and, in the aggregate, they mislead the reader or the listener. To support this assertion, he pointed to a chart supplied by Mr. Gang showing circles to indicate the distance of the site from homes, and noted that the distances given were actually the diameter of the circles, not their radii. He also questioned the description of the number of entrances to the mall. He noted that the revised land use report still contains the statement that there are three entrances on Veirs Mill Road and two entrances on University Boulevard. While that is factually correct, it leads to the impression of a level of access which does not exist, because the three entrances on Veirs Mill all funnel to one bottlenecking point. Tr. 10/24/13, 228-233.

Other items questioned by Dr. Adelman include Applicant's reference to the former Montgomery Ward automotive service center, because for most people, an automotive service center is equatable with a gas station, which it was not. He also stated that the original land use report (Exhibit 10) indicated a daily mall patronage of 13,000, but the latest figure given by Applicant is 44,202, without a comparable bump in the estimates of the daily Costco store patronage, which was originally estimated at 4,000 and now is given as 4,146. Tr. 10/24/13, 234-240.

Dr. Adelman raised a question as to whether any conditions imposed in a special exception in this case would be enforceable. Tr. 10/24/13, 241-250. He also questioned why a pedestrian path would be a condition of the special exception, and the Hearing Examiner explained that to him. Dr. Adelman then raised a question about eyewashes at the proposed station, and the Hearing Examiner explained that whether or not there were eyewashes was immaterial. Dr. Adelman noted that there is a pedestrian connection between the mall and the neighborhood to its south, but the Hearing Examiner disagreed with Dr. Adelman's suggestion that there was a vehicular connection between the mall and the neighborhood to its south just because some repair vehicles went through the forest buffer to make a repair on stormwater management pipes. Tr. 10/24/13, 251-260.

Dr. Adelman testified that the Applicant proposes to bring more cars to a mall and yet reduce the number of parking spaces, thus creating an additional burden on traffic. He also argued that there's good reason to believe Applicant's landscape plan, calling for installation of sonotubes to hold the green wall will damage the forest buffer. When asked for evidence of that assertion, he pointed to Mr. Willard's testimony that, in his opinion, some root damage within the forest buffer was probably done by pedestrians walking past. Dr. Adelman reasoned that this evidence demonstrates that any work done at the border of or within the forest buffer runs the risk of damaging the root systems of the trees. The Hearing Examiner pointed out that the damage in question was actually done within the forest buffer and not related to installing sonotubes on the periphery of the buffer, so it was not an analogous situation. Dr. Adelman also raised the question of whether the construction of the station and any subsequent repairs will create a nuisance for the neighborhood. Tr. 10/24/13, 261-275.

Dr. Adelman asserted that Mr. Sullivan has not plotted his data properly in that he did not plot the low point of the trend in $PM_{2.5}$ at zero. The result is the incorrect impression that the levels of PM 2.5 are proceeding very steeply towards zero, but in fact, if you plot the data properly, you get a totally different impression which is that the trend line is quite shallow and is unlikely to reach zero in the near future. Dr. Adelman also argued that Mr. Sullivan should not have shown background data from monitors at three different sites, but rather he should have shown the data only for Rockville because that's the closest site. He also questioned Mr. Sullivan's failure to use "error bars." Tr. 10/24/13, 276-283.

In Dr. Adelman's opinion, Applicant did not make a serious effort to demonstrate the absence of health impacts from the proposed station, and Dr. Chase's report should be given almost no weight as to health impact. Dr. Adelman briefly discussed the witnesses who testified for and against the proposal. He argued that all of the factors are interrelated, and he did not believe that Applicant has met the burden of proof. Tr. 10/24/13, 284-287.

On cross-examination, Dr. Adelman admitted that he can't dispute Mr. Sullivan's numbers because he has not made any measurements on his own. He argued that that Mr. Sullivan is not a scientist, and did not display his data as a scientist would. On redirect, Dr. Adelman explained that Scientists recognize uncertainty in all data. In some cases, the data is sufficiently reproducible, precise, free of error that the data point itself encompasses the error bar, but it is more traditional to show a dot with a bar that extends vertically from the upper limit of certainty to the lower limit of certainty. Another way of plotting this data, for example, would be to show error bars and have three lines: one, the most probabilistic interpretation, and two other lines that indicated how the data would be interpreted if the error was the minimum value and how the data would be interpreted if it was the maximum value. For the data Mr. Sullivan used, he could provide an average with a range of standard deviation, based on the data set that he had available, and he would use that standard deviation to indicate an error bar. Tr. 10/24/13, 288-295.

At the beginning of the *19th Hearing Day (November 14, 2013)*, Mr. Silverman filed a legal analysis advocating the admissibility of video recordings (Exhibit 370). He also requested a copy of Costco's Phase 1 determination of any chemical contamination of the site, which Mr. Goecke will discuss with him. Tr. 11/14/13, 13-14. Finally, he requested a clarification on whether the fuel delivery trucks will all be clean diesel. Ms. Harris indicated she would investigate. Tr. 11/14/13, 15-17.

On Hearing Day 19 (November 14, 2013), Dr. Adelman returned to the witness stand to testify about traffic impacts from the proposed gas station (as summarized in Exhibit 358(b)). He indicated that he is not critiquing Applicant's traffic impact studies (TIA), but rather is presenting new information. He noted that the TIAs addressed mostly potential impact on the road system outside the mall, while he will address impacts inside the mall. Dr. Adelman stated that 25 percent of all the intersections specified for study in the scoping agreement (under which Technical Staff tells Applicant which intersections to study) were inside the mall, but did not ask for any information about the parking lot, which is the Opposition's main concern. He concluded that the critical lane volume methodology, while it's appropriate for all the signalized intersections on the main roads, is not appropriate for the kind of traffic and congestion that will

occur in this situation if the application is approved. Tr. 11/14/13, 125-137.

Dr. Adelman introduced a graph of the percent occupancy versus congestion (Exhibit 358(c)). He pointed out that Mr. Guckert's Ex. 3 on page 13 of his TIA indicates no count of people entering the parking lot at the proposed gas station site, even though they cannot leave the gas station without entering the parking lot. He feels that the TIA failed to analyze the actual usage of the parking lot. Dr. Adelman observed that since the Costco warehouse opened, the parking lot around the subject site has gone from lightly used to extremely heavily used and sometimes fully occupied. He asserted that the gas station would create additional traffic in the parking lot, and that as the parking lot gets fuller and fuller, each additional car has a magnified impact on congestion, although he could not find scientific support for that proposition. Tr. 11/14/13, 141-163.

Turning to Mr. Guckert's Supplemental Traffic Analysis (STA) (Exhibit 128(a)) and his Traffic Data Plan (Exhibit 128(b)), Dr. Adelman asserted that the new data was not a logical extension of the TIA, but rather a separate kind of data set. He contends that switching from Critical Lane Volume (CLV) labels to Level of Service (LOS) labels is misleading, though he does not dispute that the LOS labels of "A" depicted by Mr. Guckert are correct using a CLV analysis; however, Dr. Adelman contends that the use of CLV analysis does not properly describe the functioning of the parking lot intersections. He did a count at the intersection labeled 16, and following Mr. Guckert's methodology calculated the CLVs, as described in his Slides 19-31. Intersection 16 is the intersection of the Ring Road with the extension – into the Mall – from the intersection of Valley View and University Boulevard West. It is the only intersection by which vehicles coming to the Mall parcel where the proposed gas station is to be sited can reach the special exception site from the southwest (unless they drive around the Mall and enter from Veirs Mill). He characterized it as a crucial intersection from the point of view of the residents of our community and anyone accessing the mall from the southwest. His results were 15 percent higher than what Mr. Guckert projected. He noted that Mr. Guckert provided one count, but Dr. Adelman did two counts before the Costco warehouse opened, and eight after the store opened. He feels that his counts are reproducible, but he admitted that the counts would have been higher shortly after the Costco store opened. Nevertheless, he thinks that the 15 percent difference is significant because it must be factored into a projection. Tr. 11/14/13, 166-188.

[The Hearing Examiner repeatedly pressed Dr. Adelman to say what is the significance even if Mr. Guckert's projection actually is 15 percent lower than future reality proves traffic to be. What would be the impact on the functioning of the mall and its impact on the surrounding area? If the intersections are functioning well, what difference does 15 percent greater traffic make with regard to the functioning of the intersections or the functioning of the parking lot? Dr. Adelman made an assertion that it makes an increasing amount of difference the more congested it gets, but hasn't said whether that 15 percent is going to really make a significant difference in the operation of the intersections or the impact on the surrounding community. The real question is what is the impact, what probative value does it have on the issues that are before the Hearing Examiner.] Ultimately, Dr. Adelman's reply was, if and when the gas station opens, an already crowded parking lot, with a congested ring road, will be made worse. That worsening may approach the point of gridlock, but he has no projected numbers. Tr. 11/14/13, 188-196.

Dr. Adelman described the complicated functioning of Intersection 16, which is controlled only by stop signs. He observed that its complexity resulted in a dwell time two or three times longer than the dwell time of a car going through a typical intersection studied for CLV, such as the one at University Boulevard. For example, cars coming from the special exception site to the intersection do not go through smoothly when they want to traverse the intersection to continue on the ring road. They stop and must watch for cars coming in from the two lanes that are coming from University Boulevard. He feels that it is particularly a nuisance for the pedestrians who are crossing the various crosswalks. There are four crosswalks for pedestrians; plus there's an adjacent crosswalk that people coming from the Giant parking lot must use if they wish to go to the Target lot. Tr. 11/14/13, 199-202.

Dr. Adelman admitted that only a small amount of additional traffic will be added to any intersection by the proposed gas station if it's approved, but he insisted that the question is how small is small enough. Based on Mr. Guckert's counts, Dr. Adelman suggested that during the 10-hour interval that he counted, which was a Saturday, something in the range of 5400 cars came to the mall and went into the parking lot from the west side (the University Boulevard side), which is 540 cars going in per hour, and some additional numbers came from the east side. And depending on the accuracy of those other counts, he estimated the total number of cars going into the parking lot is somewhere in the range of 10,000 for the full 10-hour period or 1,000 per hour. The parking lot presently has approximately 790 spots, of which 350 are available to Costco patrons, and there are at least 500, possibly as many as a thousand cars going into the parking lot every hour at peak business times. That's another way of saying that the lot is already very, very heavily used; it's already congested. Whatever number of cars are brought to that lot incrementally add to the congestion that already exists. Tr. 11/14/13, 203-219.

Dr. Adelman posited that the more crowded the parking lots get, the more erratic the behavior of the drivers. He noted that people who shop at Costco emerge from the store for the most part with extra-wide carts laden with lots of material. People very often bring their cart around to the back of the car and stand there, unloading the cart. The drive aisles are sufficiently narrow, even though they're wide, and that blocks cars moving past. If a parking lot gets completely full, the congestion is worse, and if you add to that congestion by having cars entering the gas station one way and exiting into the parking lot, they're adding to the congestion of an already congested parking lot. He is not sure whether conditions requiring incentives to encourage people to use the garage would be enforced. Tr. 11/14/13, 220-227.

Dr. Adelman noted that cars coming to the mall from the northeast make a left turn from two left-turn lanes. They're very long stacking lanes. A significant number of people seeing the queue or the line or the congestion on Valley View Avenue, extended, in fact get out of the left-turn lane, drive down University to Drumm, execute a U-turn and come back. Drumm is one of the major gateways to the community, and it's been a source of concern that any congestion at University and Valley View spills over, down towards Drumm. While technically the intersection of Drumm and University is just outside the neighborhood as defined by planning staff; it's very close. The spillover at University and Valley View leads to two things: cars that make that U-turn and want to go back to go to the northeast and go in the Valley View entrance by the right-turn lane, add to stacking in that right-turn lane, stacking of cars that are waiting to

get into the Valley View extended. He has observed the stacking spill over far enough that the stacking is actually impeding the traffic in the right lane of through traffic. Tr. 11/14/13, 231-232.

Dr. Adelman compared the subject site with other Costco stores with gas stations. In the other cases, the store and the gas station are separated by a very significant distance. That means any congestion in the gas station area has almost no effect on congestion in the parking lot around the Costco store. They're separated by what is essentially a main road. He observed at Costco Gateway that the traffic in the gas station, queuing or not, has no impact on the traffic in the parking lot around the store. Thus, the projections that are used by a traffic impact analyst to estimate the number of cars that will be coming to the gas station at the subject site are based on numbers acquired from other gas stations which are in no way comparable to the situation that's projected for the Costco Wheaton store. Dr. Adelman concluded with a statement that because of the siting of the mega gas station and its mode of operation, traffic congestion in the immediate vicinity will increase greatly, thus creating a nuisance and additional risk to public safety. The increased congestion and complexity of the traffic flow increases the extent to which vehicles are moving very slowly or idling, with the parking lot being the center of the impacted area. Idling and slow-moving cars release large amounts of vehicle exhaust. The exhaust will increase air pollution. Air pollution creates health risks. Tr. 11/14/13, 233-238.

On cross-examination, Dr. Adelman admitted that his counts were made during the 90-day period following the opening of the Costco Warehouse (*i.e.*, during the period that the Applicant's witnesses testified represents a surge in business). He also admitted that even with his count 15% higher than Mr. Guckert's, the number that he calculated was a CLV of less than a thousand at the intersection, which would translate into an LOS Level A, although he noted that CLV methodology may not be appropriate for evaluating that kind of intersection. Tr. 11/14/13, 244-250.

The testimony on the *20th hearing day (November 19, 2013)* began with additional individuals opposing the Costco station, and concluded with further testimony from Karen Cordry.

9. Cheryl Cort, Policy Director, Coalition for Smarter Growth (CSG), (Tr. 11/21/13, 18-36):

On Hearing Day 21 (November 21, 2013), Cheryl Cort testified that she is the Policy Director, Coalition for Smarter Growth (CSG), and that CSG opposes the proposed gas station. CGS is a nonprofit organization that works to ensure that transportation and development decisions in the Washington, D.C., region, including the Maryland suburbs, accommodate growth while revitalizing communities, providing more housing and travel choices and conserving our natural and historic areas. CGS believes that a large-scale gas station will attract vehicle trips from outside the local area, and that is wholly inconsistent with the 2012 Wheaton CBD and Vicinity Sector Plan and antithetical to CGS's goal of promoting transit-oriented, pedestrian-friendly development within one-half mile of a Metro station. They seek to mitigate existing automobile-oriented uses in transit districts and prohibit new ones. Uses such as gas stations, automobile repair services, drive-throughs, and similar uses that attract motor vehicle use and encourage automobile-oriented designs, such as additional driveways, wider driveways,

surface parking and curb cuts, should be minimized, and, in some cases, prohibited. CGS would oppose any gas station on this site or anywhere in the Wheaton Sector Plan area. Moreover, the addition of a large-scale gas station would compound the automobile-oriented uses problem that's identified in the sector plan and would actively degrade the pedestrian environment and work against sector plan goals. A large-scale gas station would have a much more significant impact than any mitigation measures like a pedestrian pathway. Tr. 11/21/13, 18-23 and Exhibit 97.

On cross-examination, Ms. Cort did not think that the current C-2 Zone was determinative of future mall development because the GR Zone is proposed in the pending Zoning Code rewrite, and it permits some residential development. Tr. 11/21/13, 23-36.

10. Kathleen Shen testified on behalf of of FreeState Petroleum (Tr. 11/21/13, 37-83):

On Hearing Day 21 (November 21, 2013), Kathleen Shen testified on behalf of FreeState Petroleum Corporation. The Freestate management committee and the Freestate board of directors concluded that the proposed new Costco gas station would eventually drive the Freestate gas station at 11295 Veirs Mill Road in Wheaton out of business because Freestate needs to make a margin on its fuel sales to stay in business, and margins at this time are not that great. Freestate also feels that Costco shows irresponsible and predator-type pricing, and Freestate cannot compete with a high-volume Costco station. Freestate had a station at Layhill Road and Georgia Avenue that closed a year ago for several reasons. Its lease expired and Freestate decided not to renew the lease because it needed to spend a million to a million and a half dollars to upgrade the facility for the MDE and the EPA, and Freestate was afraid that it would not be able to get that money back if Costco was allowed the special exception. Freestate decided to close and walk away. Tr. 11/21/13, 37-45.

On cross-examination, Ms. Shen indicated that the Freestate station at 11295 Veirs Mill Road provides air for filling tires and has a small convenience store. Gas purchasers do not have to be a member of any club. The station is open from 6:00 to 10:00 Monday through Thursday; Friday and Saturday, 6:00 to 11:00; and then Sunday, 7:00 to 10:00. Monthly gas sales in 2013 have ranged from about 200,000 to 300,000 gallons. The station currently earns a profit, and if it had to close, it would lose that and incur costs to close the station. Tr. 11/21/13, 45-83.

11. Danila Sheveiko testified on behalf of KHCA (Tr. 11/21/13, 179-244):

On Hearing Day 21 (November 21, 2013), Danila Sheveiko, who is a former president of the Kensington Heights Civic Association, testified as a lay witness on behalf of KHCA. He lives at 10812 Melvin Grove Court, in Kensington, Maryland, and served three years on the county's Water Quality Advisory Group. Mr. Sheveiko reviewed his recollection of the history of Costco's involvement in Wheaton. Tr. 11/21/13, 179-189.

Mr. Sheveiko stated that one redevelopment goal of the Sector Plan is to reduce energy consumption and make Wheaton a more green and sustainable place. He feels that because the gas station will create elevated pollution, it will not make Wheaton a more green and sustainable place. He agreed that everything done within the sector plan did not have to further every goal

of the Sector Plan, but it should not work in the opposing direction, and the environment is set as one of the major goals of improving Wheaton. The plan also talks about expanding the connections between the central business district, the regional mall, and surrounding residential communities. He lives about 125 feet away from the special exception area. The Wheaton Sector Plan recognizes the importance of residential communities, and it's hard to imagine a more onerous use on the community than a gas station. Mr. Sheveiko doesn't think the Sector Plan somehow contradicts itself just because they didn't zone the autocentric mall out of existence. Tr. 11/21/13, 190-198.

Mr. Sheveiko does not have any confidence in the Costco master landscaping plan because there is no forest conservation plan, and he objects to that fact. He noted that Kensington Heights has about 225 single-family residences, and the Sector Plan provides that existing single-family residential neighborhoods should be preserved and protected from the adverse impacts of nearby non-residential development. Kensington View has about 150 homes within the sector plan area. Just because the view is technically not affected with an obstruction, the gas station still has impacts, whether it's the noise or the smell or the air pollution and health impacts, it's not compliant with the Sector Plan's statement that existing single-family neighborhoods should be protected. Because of the Costco warehouse, very few people are walking in that area now, and adding the gas station would make things worse and prevent further improvements such as a multi-use path. It will also add noise to the already substantial noise affecting the community, based on his experience living nearby. Mr. Sheveiko took issue with Costco allegedly claiming that the Opposition case was emotional, since he believes Costco is driven by an emotion of greed. Tr. 11/21/13, 199-225.

Mr. Sheveiko admitted on cross-examination that that Costco was not planning to eliminate any existing trees (but root zones may be affected); that it will be using native plants for its landscaping; that it will be retaining the existing green buffer between the mall, ring road, and the adjacent properties; that not every project satisfies every single Sector Plan recommendation; and that Wheaton Mall is located outside the CBD. Mr. Sheveiko feels, however, that every single part of the Wheaton Sector Plan falls under the transit-oriented goal. Tr. 11/21/13, 226-236.

12. Dr. Henry S. Cole testified on behalf of KHCA and SCGC (Tr. 12/5/13, 13-219; Tr. 12/6/13, 5-137):

On Hearing Day 22 (December 5, 2013), Dr. Henry S. Cole was called as an expert in the field of meteorology, air quality, air modeling and its scientific protocols and methodologies. He reviewed his background and stated that he has a Ph.D. in meteorology from the University of Wisconsin. From 1969 to 1977, he served as an assistant professor, then associate professor at the University of Wisconsin-Parkside in the field of earth sciences, teaching meteorology, climatology, and other courses on environmental science. From 1977 to 1983, he served with the modeling section of the EPA, which is the very branch that writes guidelines for modeling. He was a senior scientist, and he provided advice to the branch and to the division that dealt with air quality modeling. He later became the section chief of the model application section. His role was not doing the modeling, but more in the function of reviewing modeled information and analyzing it. In 1983, he became the science director of Clean Water Fund and Clean Water

Action, where he engaged in multiple studies involving hazardous waste sites. In 1993, he founded Henry S. Cole & Associates, an environmental science consulting firm, and his clients have ranged from community organizations to very large corporations, the federal government and county governments. He has written several publications, including one on the air pollution of coastal meteorology as it affects air pollution, and did a lot of work on the Urban Airshed Model. Costco stipulated to Dr. Cole's expertise in meteorology and air quality but objected to him being designated as an expert in air modeling and in scientific protocols and scientific methodology because he hasn't conducted a single air modeling in the last 30 years; he hasn't written about it since 1979; and there is no testimony about what his training has been in AERMOD which, he testified, did not exist when he was at EPA. Thus, the methodology that's being used in this case is something entirely different than what he was doing at EPA. The Hearing Examiner overruled the objection, finding that it goes really to weight issues, not to his qualifications *per se* as an expert. Tr. 12/5/13,13-62.

Dr. Cole testified that the Sullivan reports, although they gave figures for the percentage of the pollutants from the gas station at discrete sites -- the home, the pool, and the school -- did not give those figures for the incremental increase from the gas station for other locations on the mall. In his opinion, the modeling analysis which was done is not sufficient to show that Costco has met the EPA air quality standards that it has accepted as controlling. His reason is that by Mr. Sullivan's admission, he did an analysis and showed that the area should be classified as rural, meaning using rural dispersion coefficients. He's done the analysis that shows, following EPA guidance, that the site should be classified as a rural dispersion site, using dispersion coefficients. That's important because rural dispersion coefficients are more conservative, give you higher numbers. If you go to urban, the predicted concentrations will be lower. He did not follow EPA guidance because his conclusions tend to favor the urban dispersion coefficients, whereas EPA guidance says if it's mostly rural, you need to use rural dispersion unless there are other circumstances. Mr. Sullivan's best judgment would be an intermediate value, but he didn't incorporate that judgment into the modeling. Tr. 12/5/13, 63-80.

Dr. Cole further testified that there are two definitions of "receptors." One is the modeling definition, in which receptors are the monitors or model locations on a grid. The other meaning for the word receptor is the people who are affected by breathing the ambient air. He added to the basis for his conclusion that Mr. Sullivan's analysis would not provide a reasonable basis for the Board of Appeals to conclude that the special exception would meet the EPA National Air Quality Standards. Mr. Sullivan, in estimating motor vehicle emissions, used an obsolete model called MOBILE6. EPA's approved model for emissions is called MOVES2010. The analysis with MOBILE6 has the effect of reducing predicted concentrations of both $PM_{2.5}$ and NO_2. In the case of NO_2, there is very strong evidence that there's an exceedance of the standard from Mr. Sullivan's documents and, secondly, $PM_{2.5}$ annual, in his final report, is very close to the standard. When questioned about Mr. Sullivan's statement that he wanted to use MOVES model but he was unable to get certain parameters from Council of Governments, Dr. Cole responded that the model was issued in an earlier form, the MOBILE2010, back in 2010, along with Guidance, and there are other ways to get at the data. He stated that he takes Mr. Sullivan at his word that the kind of information that he's talking about was not available, but he does not know whether or not he could have obtained that data or simulated it in another way.

Secondly, Mr. Sullivan gave his best judgment for correction factors, but he has testified that he did not apply those correction factors. Tr. 12/5/13, 81-87.

Dr. Cole further testified that he does not believe that the emissions modeling takes into consideration the level of congestion, especially during peak periods; and the impact of placing a gas station, with queues, with delivery trucks, in the area of the mall, in particular. There is a very strong relationship between levels of congestion, number of cars, vehicle speeds, and emissions. If you get that wrong, if you don't have the right level of traffic, you're not going to have the right level of emissions. That's the third area. The fourth problem is that Mr. Sullivan made an assumption that people exposed to gas station queues or the level of pollution in the subject site area would only be exposed for 20 minutes. Some people, such as employees, may be there for many hours. The one-hour standard should not have been reduced by a 20-minute assumption. In the area of the mall, the concentrations are way higher for NO_2 than they are for background. People who may be exposed for 20 minutes at the queue, may also be moving to other places around the site. Also, when you look at a shorter averaging period, it's well-known in air pollution meteorology that the maximum exposures for a smaller time period are going to be higher. He is not aware of anywhere in the EPA regulations or guidance that would support the reduction of these concentrations based on exposure time. Tr. 12/5/13, 87-92.

Dr. Cole also complained that there have been numerous revisions of the modeling and, in some cases, the documentation for the changes that have been made are not clear. Moreover, in any analysis, the standard norm in science is to state what the errors could be and what your uncertainties are, and he sees none of that in Mr. Sullivan's reports. It's critical because there are many, many uncertainties in this analysis: predicting emissions, predicting atmospheric turbulence, which is a very complex issue. One way to deal with it is to err on the side of conservatism, to use those assumptions and methods which will cover the potential for errors and uncertainty, and the reason why you want that safety zone is because the question applies to the protection of human health. If you're wrong and you do something that in fact harms health, you can't reverse that. Dr. Cole is deeply concerned that when subsequent modeling, such as the correction of the background for NO_2, shows that there's an exceedance, Mr. Sullivan pulls away the conservancy. Dr. Cole does not accept Mr. Sullivan's explanation that his revised estimates are more accurate and still conservative. When you have an emissions factor that's either 10 or twice below what EPA standard emission model is, that's not conservative. When you don't adequately account for congestion in your emissions, that's not conservative. There's a great deal of uncertainty. Tr. 12/5/13, 94-95.

Dr. Cole opined that the evidence the Applicant generated supports the contention that the NO_2 one-hour standard would be exceeded and, potentially, the $PM_{2.5}$ annual standard would be exceeded -- (a) the Sullivan report doesn't rule it out with sufficient evidence, accounting for uncertainties, and (b) tends to, in a number of important instances, under-predict emissions and over-predict dispersion. Those kinds of things reduce predicted concentrations. The fact that changes were made once results showed exceedances is deeply concerning. Tr. 12/5/13, 97.

Dr. Cole discussed how air turbulence is modeled. It's very hard to know exactly what's going on. The air is affected by so many different things – the history of the air parcel, is it going over the suburbs, is it going over a city, what happens when it hits the parking lot, what

happens when there are buildings present, all of which greatly adds to the uncertainty. In every model, a basic tenet is that concentrations are inversely proportional to wind speed, so the higher the wind speed, the lower the concentrations. In urban areas, there are buildings and other things that make the dispersion better in urban areas and that's why urban coefficients yield lower pollutant concentrations. There's more spread of the atmosphere, and there's more turbulence to spread the pollutants. However, when the air moves from one area to another, there is a lag in this effect. Tr. 12/5/13, 98-107.

Dr. Cole described AERMOD, which stands for American Meteorological Society, AMS, slash Environmental Protection Agency, EPA, Regulatory Model. It's now the preferred recommended model, which is what Mr. Sullivan used. However, there are many choice points, and the choices the modeler makes affect the outcome. Mr. Sullivan presented both urban and rural results, but in his judgment, he seems to put the weight on the urban characteristic. He says in his November report that he feels the most accurate representation would be to choose some value between urban and rural coefficients, but Dr. Cole did not see evidence that he's applied that principle. In Dr. Cole's opinion, there's so much uncertainty here in a transitional zone that the modeler should err on the side of safety, using a more conservative analysis. Mr. Sullivan made a good stab at being accurate in suggesting an intermediate value between the rural and urban coefficients, but Dr. Cole feels that there's so much uncertainty here in a transitional zone that one should err on the side of safety with a more conservative analysis by applying the rural coefficients. Mr. Sullivan didn't even apply the intermediate value. Dr. Cole stated that the rural coefficient for one-hour NO_2 yields 127 micrograms per cubic meter, while the urban coefficient yields a figure of 70 micrograms per cubic meter. Adding them together and dividing by 2 yields 98.5 micrograms per cubic meter. Adding background of about 90 yields a total of 188.5 micrograms per cubic meter. There are also additional assumptions with which he disagreed. Tr. 12/5/13, 108-119.

Dr. Cole then used another figure from the Sullivan report of August 2013 report (Exhibit 255(a), p. 24) to suggest that the calculated figure for one-hour NO_2 yields would be 192.5 micrograms per cubic meter, which is over the EPA standard of 190; however the Sullivan figure he used may have been based on an older figure for background. Dr. Cole suggested that whether it's 188.5 or 192.5 micrograms per cubic meter, it's still too close to the standard and from his standpoint there are other reasons why it understates the actual value. He noted that MOVES (Motor Vehicle Emission Simulator) gives $PM_{2.5}$ values for slow speeds and idling approximately 10 times higher than MOBILE6 for that same class of speeds. MOBILE6 also under-predicts NO_2 by a factor of 2 to 1. MOBILE6 was based on a very limited amount of testing, whereas MOVES is based on an enormous amount of data and information and testing of automobiles. Dr. Cole read from Federal Register, Volume 71, Number 47 (March 10th, 2006). Pages 12498 to 12499:

> However, at the microscale level for hot-spot analyses, these limitations become very significant. Activity factors such as speed, driving cycle, and number and distribution of engine starts per day do have an important impact on actual $PM_{2.5}$ or PM_{10} emissions for motor vehicles. Most, if not all, transportation projects that would need to be analyzed would result in changes in these activity levels that would need to be incorporated into credible hot-spot analyses. For example, and it gives some examples

> here, construction of a highway interchange, anything that -- it says anything that changes average speeds, driving cycles of vehicles, idling time, et cetera, in the immediate vicinity of the interchange.

According to Dr. Cole, here we're adding more traffic to a place that has a lot of traffic. So it's important to get an accurate input for emissions, for motor vehicles, that reflects EPA's current model, which is MOVES2010. Tr. 12/5/13,123-141.

The Hearing Examiner asked Dr. Cole if he had anything to say about Mr. Sullivan distinguishing NOx from NO_2 in terms of how far away you were from the source of emission and what the impacts were on the analysis if only 25 percent of NOx is NO_2. Dr. Cole responded that the assumption that Mr. Sullivan made was that a hundred percent of the NOx emitted from these many vehicles would be converted to NO_2, and he agreed with that. The Hearing Examiner noted that that was Mr. Sullivan's most conservative assumption, but he changed that for purposes of analysis near the Costco loading docks. Dr. Cole recalled that Mr. Sullivan testified that he thought that the problem in the mall was a loading dock problem and not a gas station problem. Dr. Cole noted that even after 93 percent of the loading dock effect is removed (as Mr. Sullivan did on page 18 of his August 2013 report), the values are above the NO_2 standard in this analysis. Dr. Cole finds that to be a serious issue because Mr. Sullivan testified that the gas station and its traffic would have a minuscule effect on NO_2 concentrations, but the evidence is very much to the contrary. If you adjust for the correction from MOBILE6 to MOVES, which Mr. Sullivan has acknowledged to be a factor of two in that area where you have queues and slow-moving traffic, you get the value of -- 98.5 times two is 197. If you add 197 to 90, you get a value of 287 micrograms per cubic meter compared to the standard of 190 for NO_2. Dr. Cole's conclusion is that if you correct for not following EPA guidance on the MOVES and MOBILE, even without correcting for what Mr. Sullivan acknowledged to be the difference between MOBILE and MOVES and not considering an intermediate value for dispersion coefficients, which Mr. Sullivan has testified is the most accurate, you still come up with 195 micrograms per cubic meter, which is above the standard. Tr. 12/5/13, 153-163, 166-167.

The Hearing Examiner questioned Dr. Cole on how he responds to Mr. Sullivan's argument that you can't use the full NOx amount; you have to assume some reduction for the percentage which is NO_2 rather than NOx. The Hearing Examiner asked, if Mr. Sullivan is correct, would that eliminate the different results from MOVES and MOBILE6, and then some? Dr. Cole replied that Mr. Sullivan would have to do some calculations to determine the percentage of conversion to apply, and the answer depends on many different variables. To come up with an accurate answer would require some kind of chemical analysis and modeling of something that incorporates both dispersion and the chemical conversion. You would also have to include in that analysis what else was in the air. For example, if there's high levels of ozone in the air, that conversion from NO_x to NO_2 is a very fast reaction, on the matter of seconds -- not hours. From a scientific standpoint, if he wants to come in with a lower percent, he needs to do that kind of analysis. He can't just pick a number out of the air, like 25 percent or 50 percent. He has not done that analysis, and the appropriate assumption is a 100 percent conversion from NO_x to NO_2 in the absence of a much more complete analysis, which has not been done. In Dr. Cole's professional opinion, Mr. Sullivan's August 2013 report does not accurately predict the level of vehicular emissions for $PM_{2.5}$ and NO2, given the issue of MOVES versus MOBILE6.

Tr. 12/5/13, 163-167.

Dr. Cole further testified that for all of the pollutants of concern -- carbon monoxide, NOx, VOC, $PM_{2.5}$, and diesel particulate matter, if you use MOVES, it shows that those emissions all go up as speed goes down. Cars that are idling or running at slow speeds are less efficient than cars that are moving freely. Tr. 12/5/13, 173-175.

Dr. Cole stated that the EPA regulates $PM_{2.5,}$ but it does not have a separate standard for ultrafine particulates. The standard of $PM_{2.5}$ covers a multiple of particle sizes. The particles vary in terms of the size distribution, and the different sizes have very different effects. Also, particles differ in their composition, for example, some carrying toxic heavy metal and others carbon. Since the $PM_{2.5}$ standard is a category that lumps things together that have a variety of toxicity, the EPA and its Clean Air Advisory Council, CASAC are considering how to refine the analysis. Slide 29 shows that the greatest mass is concentrated in the coarser particles, so that 10 percent of the particles contain the majority of the mass, but the greatest numbers are in the ultrafine particle range. Ultrafines in this particular diagram are from .1 micrometer to .01 micrometer. The ultrafine particles have a lot of surface area, and are ideal locations for the deposition and absorption of other contaminants. Ultrafine particles penetrate and are retained deep in the respiratory system, in the lungs. Although EPA does not have a separate standard for ultrafine particles, vehicle emissions are a major source of ultrafine particulates in ambient air, and their impacts add to the uncertainty factors in the calculations. That needs to be incorporated in decision-making aimed at protecting public health. In the August 2013 Sullivan report, Figure 19 projected the level of $PM_{2.5}$ under the urban dispersion model on the mall parcel to be a maximum of 11.2 against an EPA standard of 12. Where the issue is protection of public health, the 11.2 is very close to 12, and so the uncertainties become very, very critical. The National Ambient Air Quality Standards are a good starting point, but the uncertainties and sensitive populations must be considered and conservative assumptions must be used to avoid harm to public health. Tr. 12/5/13, 188-201.

Dr. Cole expressed concern that every time an analysis showed an exceedance or a near exceedance, Mr. Sullivan backed away from conservatism in the analysis. For example, the NO_2 analysis was fine and showed no exceedance until the background error on conversion was corrected. Then suddenly, a lot of these modeling projections showed exceedances, and at that point, Mr. Sullivan projected reductions in emissions. Dr. Cole feels that is not a valid scientific approach. It's backing away from the statements that were made early in the process, and he has a lot of trouble with that, particularly given these two pollutants, one-hour NO_2 and annual $PM_{2.5}$, which are either close to the standard or exceeding the standard, depending upon which of the assumptions were used. He would not recommend the gas station even if there were a condition requiring actual monitoring of pollutants thereafter because it would put a major gas station of an unprecedented size in the county so close to people. Tr. 12/5/13, 202-204.

In Dr. Cole's opinion, if MOVES10 had been used in the AERMOD model and rural or even intermediate coefficients had been used, the model would have shown a potential for exceeding the annual $PM_{2.5}$ standard, and an NO_2 exceedance of the one-hour standard is likely. Dr. Cole also feels that Applicant did not do any analysis of the incremental impact of the gas station on the mall itself, as distinguished from its margins. Tr. 12/5/13, 210-215.

On Hearing Day 23 (December 6, 2013), Dr. Cole returned to the stand to resume his direct testimony. Dr. Cole stated that vehicle cruising emissions are a lot lower than idling and accelerating emissions. 12/6/13, 5-6. He further responded to the Hearing Examiner's question of whether Mr. Sullivan was correct in stating that the conversion from NO_x to NO_2 would be less than 100%. Dr. Cole testified that he looked at EPA guidelines with regard to this very issue and they frame it in terms of tiers. Tier 1 is 100 percent, which is where you start. Tier 2, if you have reasons to suspect that not all of the NOx is converted to NO_2, you go to 80 percent. Tier 3 is what he described in his previous testimony, which is that the modeler has to go through an analysis that takes into consideration the ozone concentrations and that takes into consideration the highest NOx predictions and the ozone concentrations. That analysis has not been done, so 100 percent conversion should be assumed. Normally, when you depart from one tier, particularly something from like tier 2 to tier 3, you get the consensus of the regulatory agency. There's a process that you go through, as suggested in a March 1, 2011 memo from the EPA (Exhibit 391(a)). Tr. 12/6/13, 7-17.

Dr. Cole further testified that a gas station located next to a loading dock and in a very busy parking lot would be aggravating factor in the concentration of air pollution, and location of the facades of the mall, the warehouse facade, the Target facade and the proposed eight-foot wall, would also be aggravating factors under certain circumstances. The analysis in Mr. Sullivan's report did not take into account those physical features on the property, nor whether he proposed wall would create a canyon effect channeling a higher level of pollutants to the homes and the Stephen Knolls School to the east under some wind conditions. Tr. 12/6/13, 17-21.

In Dr. Cole's professional judgment, Mr. Sullivan's August 2013 report predicts that some of the one hour levels of NOx would be clearly above EPA's National Ambient Air Quality Standard of 190 micrograms per cubic meter. A few are below, but for those, he has retreated from conservative methods used in the earlier November 2012 report. The projections for maximum limits of $PM_{2.5}$ have not been accurately modeled in Mr. Sullivan's August 2013 report. In Dr. Cole's opinion, the deficiencies are sufficiently significant to make it likely that there would be an exceedance of the 12 microgram per cubic meter annual standard, if the situation were properly modeled. Tr. 12/6/13, 21-23.

On cross-examination, Dr. Cole testified that he had met with Mr. Sullivan to see if they could agree on a protocol for the air-quality modeling. He had concerns at the time, but had not reached any conclusions. On his website, Dr. Cole said that he was providing support to groups opposed to a mega-gas station close to residences. Tr. 12/6/13, 28-36. Dr. Cole admitted that the mall parcel itself was mostly urban in nature; however, he insisted that the EPA modeling guidance (Appendix W) calls for use of the rural coefficients because the rural area predominates in the 3 kilometer radius. Although the guidelines allow the exercise of judgment, he would have used the more conservative rural coefficients in this case. If the analysis were restricted to the Technical Staff defined neighborhood, then he would have to look carefully at all emission sources within, not just general background figures; however, he modified that statement by asserting that it would be scientifically unsupportable to restrict the analysis of dispersion coefficients to the area that defines the neighborhood. Tr. 12/6/13, 37-52.

Dr. Cole testified that air modeling would cost perhaps $100,000 because there are numerous databases and a lot of judgment involved. He hasn't used AERMOD, so he would have to hire a sub-contractor. Tr. 12/6/13, 54-56. He stated that the NO_2 violation he is most concerned about is on the mall parcel itself. For $PM_{2.5}$, it's the entire neighborhood that would be in the exceedance zone in his judgment. Dr. Cole admitted that Mr. Sullivan's figures (in the November 2012 report, p. 69) for the annual incremental increase from the gas station under the urban modeling for $PM_{2.5}$ at the nearest home would be .005 micrograms per cubic meter over a background level of 12.1 micrograms per cubic meter. For the Stephen Knolls School and for the Kenmont Pool, the increase would be about .003 micrograms per cubic meter for both, all of which are below the figure of .3 micrograms per cubic meter proffered by Applicant's counsel as the EPA's definition of a significant impact level of increase. Mr. Sullivan's figures for the annual incremental increase from the gas station under the rural modeling for $PM_{2.5}$ at the nearest home would be .012 micrograms per cubic meter over a background level of 12.1 micrograms per cubic meter. For the Stephen Knolls School and for the Kenmont Pool, the increase would be about .009 micrograms per cubic meter at both places, all of which are still below the figure of .3 micrograms per cubic meter proffered by Applicant's counsel as the EPA's definition of a significant impact level of increase. Dr. Cole stated that he did not do his own modeling, but rather criticized the Sullivan approach conceptually. He feels that there are a lot of interacting variables which compound one another – additional cars, slow speeds, added congestion and congestion means backups with idling, and so all of those things combine to contribute emissions in what he judges to be a nonlinear way. Tr. 12/6/13, 59-72.

Dr. Cole conceded that for the points outside the mall itself (*i.e.*, the nearby homes, the Kenmont pool and the Stephen Knolls School) the increment to $PM_{2.5}$ created by the gas station would be extremely small, even taking uncertainty factors into account; however, that is not true on the mall itself, and he noted that under EPA guidelines you don't add something that would either bring you over a standard or that would make it more difficult to obtain a standard. Thus, if a site is over the standard, you don't want to add more pollutants. The numbers for $PM_{2.5}$ from Mr. Sullivan's November 2012 report indicate concentrations exceeding the current standard of 12 micrograms per cubic meter. However, he is aware that subsequent to Mr. Sullivan's November 2012 report, which listed the $PM_{2.5}$ background as 12.1, the Council of Governments revised that figure to 10.8 micrograms per cubic meter. Nevertheless, he feels that the background sites chosen for the Sullivan study (Rockville and Beltsville) were not representative of this particular area. Dr. Cole's judgment is that even with background levels of 10.8 for PM2.5, there is a very strong probability that these receptors, the home, the school and the pool, would in fact exceed the standard of 12 micrograms per cubic, even if Mr. Sullivan's total predicted figures are around 11 micrograms per cubic meter, given all of the uncertainties and the factors he discussed which depress the predicted values. Tr. 12/6/13, 72-86.

Mr. Sullivan's background figures were based on the 98th percentile of background concentrations. Dr. Cole stated that he understood Mr. Sullivan to have calculated the 98th percentile by examining five years of data, 365 days per year, and looking at all of the hours for all of those years, it turns out that the 98th percentile is the 175th highest hour. He agrees that is the EPA recommended approach, but he does not agree that is conservative. He also agreed that Mr. Sullivan presented evidence the pollutant levels were declining as the EPA standards are becoming more stringent, but he noted that EPA is requiring NO_2 monitors to be put closer to the

concentrated sources such as roadways because the monitoring sites that are currently being used are not representative of those conditions. Thus, Mr. Sullivan may not be getting the best information on NO_2 values in regions such as the mall area where there are three major arteries and a lot of vehicle activity. Mr. Cole admitted that the Arlington Monitoring site recorded decreased NO_2 background from 2008 to 2013, but stated that it did not necessarily indicate a trend. [The Hearing Examiner noted that the same Exhibit 404(f) showed that the readings from the Beltsville monitor increased over the same period.] Tr. 12/6/13, 86-100.

Dr. Cole disputed the validity of Mr. Sullivan reducing the one-hour NO_2 concentrations by 1/3 because people spend only 20 minutes in the queue, both because he disputes that the EPA standards can be applied that way and because people will still be exposed when they go elsewhere in the mall, even though the concentrations away from the source will be lower. Tr. 12/6/13, 101-129. Returning to the issue of NO_x conversion to NO_2, Dr. Cole further described the three tier analysis. Tier 1 is 100 percent, which is what Mr. Sullivan used. Tier 2 is 80 percent. Tier 3 requires an analysis where you consider ozone concentrations, and you have to use either the Ozone Limiting Method (OLM) or another model. Dr. Cole maintained that he did not find anything in the record that would substantiate going below the 100 percent conversion rate, using the "three-tier analysis," saying it would have to be justified, and Mr. Sullivan had not done that analysis. Tr. 12/6/13, 129-132.

Dr. Cole indicated that it is reasonable to assume that the mall property is going to be warmer than the residential properties and generally, air will travel from the cooler to the warmer area; however, when you have a slope, walls, barriers and buildings, it complicates the calculation. Tr. 12/6/13, 132-137.

13. Mark Meszaros, on behalf of the Kenmont Swim Club (Tr. 12/6/13, 159-202):

On Hearing Day 23 (December 6, 2013), Mark Meszaros testified that he lives at 2810 Peregoy Drive, and that he is testifying on behalf of the Kenmont Swim Club, with the express authorization of Dan Mueller, the president of the Board, and with a statement approved by the Board. Kenmont Swim and Tennis Club was founded in 1958, as a non-profit business to provide a recreational facility for the community. There are 1400 individual members in Kensington, Wheaton and Silver Spring. Another 1300 guests visit the pool, and participate in swim meets and day camps or as friends and family. Approximately 60 percent are below the age of 18. The Kenmont Swim and Tennis Club opposes the Costco gas station, as sited. The Board of Directors is greatly concerned about the traffic, fumes and pollution that would result from the mega gas station being built in the parking lot adjacent to the pool facility. It would impact the Kenmont Pool very directly because the fundamental purpose of Kenmont is to provide outdoor activities that include physical and cardio exercise in and around the pools, basketball and volleyball courts. The Board of Directors believes that the placement of the Costco gas station is an incompatible land use and will have a significant negative impact on the Kenmont facility and the health of its patrons. The risks created by Costco gas station to Kenmont are health, safety and financial. Tr. 12/6/13, 159-168.

Although some studies may suggest that the air quality is within EPA standards, this gas

station will not improve the environment for the swimming pool patrons. It is also clear to the Kenmont Board that the models and information are disputed. By placing the Costco gas station at the presently located site, it will put the largest fueling station in Montgomery County just over 300 feet from the baby pool, main pool and lap pools. Members and guests often stay at the pool for many hours a day, and this would potentially expose them to further airborne pollutants during their visits. Many members, particularly children, visit the pool daily and repeatedly, thus repeatedly exposing them to the same risk. The times when these children are at the pool coincides with the time of year when the D.C. area tends to have the most frequent warnings of air quality. While at the swimming pool, it is common for users to breathe deeply as they're working out vigorously. Common activities include swim practice for the swim team made up of children under the age of 16. Kenmont will be devalued, and a likely side effect is that other fueling stations in the community will disappear, depriving consumers of options. Traffic to the mall has massively jumped since the Costco store opened. Kenmont is concerned for the patrons and children who transit the pool to the mall, and feels that this gas station will bring further traffic onto the Ring Road, which is already at troubling levels. The way the gas station is designed, it's going to in fact increase that even further because it loops people who didn't choose to gas up before they go into the store and forces them to come back around a second time on the Ring Road adjacent to the swimming pool. Idling cars are endemic to this type of fueling station which creates noise, emissions and safety problems. Further, the handling of hazardous materials in such a constrained physical space is troubling. Tr. 12/6/13, 168-171.

During the very first meeting with Costco and Westfield, they were asked whether the station could be moved from the spot that was then planned to the present site. Kenmont was told by, he believes, a Westfield representative that the present location was not an acceptable alternative because they deemed it to be unsafe; however, Mr. Meszaros cannot remember who said that. Also, they pointed out that there were existing uses along the edge of the store which prohibited them from siting it where it is sited now. They said that because of the entrance, the repair shop and the loading docks, that would not be a good place to put the gas station. Tr. 12/6/13, 171-173, 197.

Mr. Meszaros further testified they are concerned about drainage and about the potential long-term financial viability of the club if the proposed gas station were to be built in such close proximity of the pool. At least one person pulled his member application and requested monies back upon learning about the gas station. Placing the largest fueling station ever to be sited in Montgomery County next to Kenmont and its neighbors puts a disproportionate burden on the local community. The swimming pool has been an anchor to the community for 50 years. The loss of the facility would do irreparable harm to Kensington. Kenmont opposes the location of the gas station so that the pool can continue the tradition of creating a safe and healthy environment for our community. Tr. 12/6/13, 174-175.

Mr. Meszaros stated that he has seen patrons sitting outside at the Panera and Elevation Burger stores, some for more than 20 minutes. Tr. 12/6/13, 193-194.

[At the beginning of *Hearing Day 24 (January 10, 2014)*, the Hearing Examiner mentioned exhibits that had been placed in the record since the last hearing, included, *inter alia*, Exhibit 410, e-mails between the Hearing Examiner and Renee Kamen regarding comments on

the supplemental needs analysis; and his research of the legislative history of Zoning Text Amendment 01-10, the changes to the zoning ordinance regarding the requirement for the showing of need; Exhibit 411, an August 13, 2001, letter from the Planning Board to the County Council, recommending changes in the zoning ordinance with regard to special exceptions, with two attachments. Attachment 1 was the Planning Board's summary of proposed special exception changes listed by categories, and Attachment 2 was an excerpt from the Planning Board's list of proposed changes to the zoning ordinance, with more specifics in the record; Exhibit 412, September 27, 2001, memorandum from Ralph Wilson regarding the same legislative history; and Exhibits 413 – 415 regarding that same legislative history. Tr. 1/10/14, 6-7.]

14. Abigail Adelman testified on behalf of SCGC (Tr. 1/10/14, 11-122):

On *Hearing Day 24 (January 10, 2014)*, Abigail Adelman testified on behalf of SCGC. She lives at 3206 University Boulevard West in Kensington, and has resided there for 33 years. Her educational background includes degrees in biology and in interior design. Her career includes histology and the founding of the AVT Design Group. She has been a member of Costco for 18 years, but she has never bought there gas because she finds the long lines inconvenient. Throughout 2011 and 2012, Mrs. Adelman counted the number of cars idling at the Beltsville station while she was shopping at Costco. The shortest line was 10 cars idling while 12 cars fueled, and the longest line she counted was 64 cars idling while 12 cars fueled, on July 11th of 2011. It makes no sense to her to waste time and fuel, polluting the air, and sitting in polluted air to use Costco's pumps. The waste of time and fuel would erase any savings from the often minimally lower cost of gas. Tr. 1/10/14, 11-14.

Mrs. Adelman attended the first community meeting with Costco on February 4th of 2010, and joined the effort to block the proposed gas station in the fall of 2010. She opposes the gas station because she has an overriding concern about the potential adverse health effects to humans. Her objections fall into three categories, and the first is location -- locating a high-volume, members-only mega gas station 120 to 125 feet from residential homes and 840 feet from a school risks the health, safety, well-being and quality of life of neighborhood residents and school pupils. This station, if built, will operate for 15-and-a-half hours each weekday and 13 hours per day on weekends. According to Mr. Brann, there will be a particular high volume of traffic on Saturdays around noon -- the same time that families, children, parents, and grandparents will be in their gardens, playing outside or shoveling snow. All of these activities will occur in close range to the fumes from fueling, slow-moving, and idling cars. Tr. 1/10/14, 14-15.

Second, placing a high-volume, members-only mega gas station in the southwest parking lot of Wheaton Mall will only add to the pollution burden and poor air quality that Mr. Sullivan's report confirms exists now, thus increasing the adverse health risk of visitors, patrons of Costco and the mall who use this parking lot. The increased traffic from the new Costco warehouse creates congestion in the southwest parking lot. Significant numbers of cars drive slowly around the lot as they look for a parking space or idle as they wait for a parking space to be vacated. Pedestrians are forced to dodge these cars as they walk towards the mall and as they return to their vehicles. Having approximately an additional 225 to 250 cars per hour idling, fueling, and

then exiting the proposed gas station directly into this parking lot adds to this already dangerous congestion and is an adverse health-risk experience, especially for those with asthma, a cardiac condition, or COPD. Patrons of the proposed gas station will breathe the emissions of cars tightly packed around them and will experience, directly, a uniquely heavy dose of toxic tailpipe emissions and evaporative fueling emissions as they idle and move slowly towards the fueling pumps. Tr. 1/10/14, 15-16.

Third, placing a mega gas station close to workers at the warehouse and at the Costco loading dock increases their exposure to the gas station fueling evaporation and tailpipe emissions. Indeed, the loading dock workers' exposure is greatest due to the proximity of the proposed location combined with the length of their shifts. Since the loading dock is enclosed on three sides, workers will likely be exposed to increased concentrations of pollutants, including NOx, $PM_{2.5}$, and ultrafine particles. Workers and customers in the Costco warehouse are also exposed to evaporative and emission pollutants, as the rooftop warehouse air handlers are close to the proposed location. Workers' indoor exposure will again be the length of their shift while customers' exposure will be in the range of one hour. In her opinion, the proposed location of this mega gas station must be changed to a safer site, away from residences and a school in order to reduce the risk to public health. She asked that Costco acknowledge these adverse effects, which, in her opinion, have been overwhelmingly substantiated in this case, and withdraw its application. Tr. 1/10/14, 16-18.

Mrs. Adelman compared the present application with Costco's application to place a 16-pump gas station, similar to the S-2863 proposal, in a mall on West Ox Road in Fairfax, Virginia. Exhibit 421(a). She stated that in that application, Costco designed circulation improvements to reduce vehicle stacking and improve circulation in the parking lot. In its testimony, residential areas are specifically addressed, and Costco notes that the strategic location of the gas facility, "has the added benefit of being located furthest away from the residential townhomes to the east." These townhomes are located across a highway from the new gas station. So Costco can be sensitive to the location of existing residential installations in the vicinity of their proposed mega gas stations. It just has not chosen to do so here. The design of the West Ox station gives the gas station customers plenty of room to maneuver, far away from the warehouse itself. Access to the gas station is directly off of West Ox Road, not from an interior private road into a mall parking lot. The exit is onto a circulation lane that goes directly out to West Ox Road, not through a mall parking lot. There is no pedestrian danger whatsoever that I could see from this gas station installation. There are no residences close-by. There is no loading dock nearby; in fact, the loading dock is at the rear of the store, with plenty of space for semi-trailer trucks to safely maneuver. Tr. 1/10/14, 18-23.

Mrs. Adelman further testified that Costco doesn't seem concerned about the potential adverse health effects on the medically fragile and severely disabled students at Stephen Knolls School who visit the mall, nor do they seem concerned about the potential health effects on its workers at the loading dock or the effect on its patrons at its own gas station, who'll be exposed to NO_2 levels above NAAQS limits while in the queue, while pumping gas, and while parking, walking, and unloading purchases into their cars nearby. She cited Zoning Ordinance §59-59-G-1.21(a)(8) regarding special exceptions not adversely affecting health, and quoted the Council legislative attorney's comments regarding ZTA 12-07 (Exhibit 290) to support her argument that

Costco has not met its burden of proving that the proposed gas station would not violate the Zoning Ordinance. Tr. 1/10/14, 24-28.

Mrs. Adelman is particularly concerned about the chronic diseases associated with the proximity and exposure to polluting tailpipe emissions such as $PM_{2.5}$ from idling or slow-moving vehicles. She noted that the Washington Metropolitan Council of Governments' air quality report states that the Washington region is a non-attainment area for ground-level ozone and the EPA $PM_{2.5}$ standard. She stated that particulate matter is increasingly implicated as a major contributor to the development of lung and cardiovascular disease. $PM_{2.5}$ pollution can be high any time of the day or the night or the year. It often peaks mid-afternoon on a warm sunny day when children are most likely to be playing outside. Mrs. Adelman also sought to introduce portions of numerous scientific articles on the subject. Exhibits 365 and (a) through (g), 372 and 421(b), World Health Organization Air Quality Guidelines, Global Update 2005. She indicated that the WHO Guidelines state it is possible to derive a quantitative relationship between the concentration of $PM_{2.5}$, as monitored in ambient air, and specific risks to health. An increasing range of adverse health effects has been linked to air pollution at ever-lower concentrations. Since current research has not identified thresholds below which adverse effects do not occur, regulatory agencies stress that their standards/guidelines cannot fully protect human health. Three categories of particulate matter are found in vehicle emissions: PM_{10}, the largest; $PM_{2.5}$, the most studied and implicated; and ultrafine particles or UFPs. [Because she is not an expert, the Hearing Examiner ruled that he would admit her testimony in this regard only to show why she has the level of concern she expressed. He is not going to view what Mrs. Adelman says as an expert opinion. He views it as an expression of her concern based on her research, and community concern has always been allowed to be testified to in this kind of proceeding. Tr. 1/10/14, 28-51.]

Mrs. Adelman further testified that the purpose of the World Health Organization (WHO) Air Quality Guidelines (Exhibit 421(b)), is to inform policy makers and to provide appropriate targets for a broad range of policy options for air quality management in different parts of the world. They do not publish standards or regulations, but she opined that WHO expects developed countries to follow their guidelines. According to Mrs. Adelman, WHO's standard for $PM_{2.5}$ is 10 micrograms per cubic meter, which is 2 micrograms lower than the EPA's. She noted that Mr. Sullivan's revised urban annual projections of $PM_{2.5}$, ranging at the home, school, and pool receptors, were 10.8 to 10.9 micrograms per cubic meter of air, just within EPA's new annual standard of 12 micrograms per cubic meter of air, but not in attainment with the WHO annual guideline. She testified that Public health studies suggest, at every stage of life, motor vehicle emission fumes enact a measurable toll on health and mental capacity, and scientists don't know what the threshold is below which $PM_{2.5}$ will have no adverse effects. Tr. 1/10/14, 53-69.

Mrs. Adelman introduced a series of charts from the Metropolitan Council of Governments (COG) showing regional air quality (Exhibit 425). She noted that in July of 2013, COG rated three orange days, days when air quality is unhealthy for sensitive groups, and 14 days, nearly 50 percent of the month, as yellow, moderate cautionary days. In August, COG rated 19 days as yellow cautionary days. That's over 60 percent of the month. In September, there were seven yellow moderate days; in October, nine; and as of November 14th, 2013, there

were six yellow moderate days. In 2012, the addition of America's Health Rankings, which was begun in 1990, placed the State of Maryland 40th out of 50 states for high levels of particulate air pollution, at 10.9 micrograms per cubic meter of air. That value, 10.9 for particulate matter, is out of attainment for the World Health Organization at 10 micrograms per cubic meter of air guideline and very close to EPA's standard of 12 micrograms per cubic meter of air. Considering these ratings, Mrs. Adelman question whether a mega gas station should be added to an already compromised air quality area. Tr. 1/10/14, 73-77.

Mrs. Adelman also referenced Exhibit 90(b), a letter of July 2012, from Mr. Angelo Bianca, Deputy Director of Air and Radiation Management Administration in the Maryland Department of the Environment. He stated that there are a number of petroleum-based toxic air pollutants emitted from gas stations that pose some level of risk to public health from the delivery and dispensing of fuel and the idling of vehicles. The difficulties are quantifying that risk, especially the incremental risk beyond existing levels, quantifying and determining what risk level is acceptable. Mr. Bianca also notes that models have limitations; their accuracy is only as good as the inputs used, and the models often do not have available for input meteorological data that closely represents long-term conditions at or near the site. Given these issues, he concludes that the more distance that can be placed between a source (in this case, a mega gas station) and residences and community gathering places is certainly beneficial to minimizing risk. California Air Resources Board and EPA support the concept that distance from gas stations pumping over 3.6 million gallons of gas a year can play a role in reducing exposure to gasoline fueling evaporation and toxins from vehicle tailpipe emissions. Distance from the pollutant source will reduce the risk to public health. A 300-foot minimum buffer from schools is recommended by both agencies. It is reasonable to consider that large stations – and this proposed mega gas station is 3.3 times larger than what EPA defines as a large gas station – would likely warrant a wider buffer. Tr. 1/10/14, 77-79.

Mrs. Adelman referenced a study involving a small gas station in Spain which concluded that there might be a pollution impact out to 100 meters, but she could not say what technology was used in the station. She cited an article entitled the Ambient Air Pollution, American Academy of Pediatrics, which is Exhibit No. 365(d), for the proposition that children are the most vulnerable population to vehicle tailpipe emissions. She noted that the Stephen Knolls School is only 840 feet away from the site, and she said that the EPA school siting guidelines require a 1,000 foot buffer between a school and a large gas station. [The Hearing Examiner interjected that his recollection of the EPA School Siting Guidelines was that they called for a study of the situation before siting a school within 1,000 feet.] Tr. 1/10/14, 79-86.

According to Mrs. Adelman (based on an email from the school, Exhibit 432(a)), the Stephen Knolls School total student population is 98. Forty-seven students are school-age, and 51 students attend preschool. Student ages range from 3 to 21 years. Attendance at the school can be as long as 18 years. The school year runs from the end of August through June, and most students enroll in the summer camp program held in July. Thus, most students will be at the school for about 10-and-a-half months out of the year. Her information came from an email from the School. The medical needs of the school-age students include oxygen (five students are on oxygen tanks or ventilators); nursing (eight students have private-duty nurses with them throughout the day); and various nursing services (28 medical treatments are provided daily; ten

students have medicines regularly dispensed, and one student requires regular suctioning). The list of student medical disabilities includes chronic lung disease, asthma, respiratory distress syndrome, environmental allergies, cerebral palsy, Down syndrome, and Rett's disease. Thirty-five to 40 Stephen Knolls School students go up to Wheaton Mall several times a week to practice life skills. This is an important part of their educational experience and highly valued by students, teachers, and families alike. Since students often take the path to the crosswalk on the ring road to access the mall, there is a concern that the increase in slow traffic and vehicle idling will render this approach to the mall unsafe for those medically fragile students. The same concern holds for the students who use and enjoy the school's playground located between the school building and the ring road. Tr. 1/10/14, 87-90.

Mrs. Adelman argued that Costco has not met the burden of proof required by 59-G-1.21, General Conditions(a)(8), in the special exceptions requirements for gas stations. She feels that Dr. Chase's testimony limited the neighborhood he analyzed to the mall boundaries. Since no serious analysis of the possible adverse health risks to the population included the neighborhood as defined by planning staff has been undertaken by the Applicant, the possibility of adverse health effects and general welfare of the neighborhood must determined by the significant findings from relevant, current, peer-reviewed medical and epidemiological research studies provided by the Opposition. Research studies on the adverse health effects of toxic air pollutants have exploded in the scientific literature. They show dramatic positive correlation between environmental pollutants released from fueling evaporation and tailpipe emissions, particularly from slow-moving and idling vehicles, and significant adverse health effects. These studies consistently recommend a minimum buffer from large gas stations of 300 feet. Logic would, in this case, urge an even wider buffer from gas stations of this size, but even the suggested 300-foot buffer cannot be met at this location. Also, one must not dismiss the health risk placed on visitors and workers in the applicant-defined neighborhood -- again, within the mall boundaries. Of particular concern is the southwest parking lot, the location of the proposed mega gas station. This gas station, if built, will place a significant potential adverse health-risk burden on persons using the same parking lot. Mr. Sullivan's reports do not assess health risk, particularly with respect to NO_2. He can only evaluate whether pollution levels meet or exceed EPA NAAQS. Dr. Chase has provided a conclusory report with no meaningful analysis of the specific impact of the gas station on air quality or health impacts. The applicant cannot meet and did not meet the required burden of proof that visitors to the mall and workers at the loading dock will be safe from the risk of adverse health effects. The Stop Costco Gas Coalition members and members of KHCA recommended denial of the special exception. Tr. 1/10/14, 91-94.

On cross-examination, Mrs. Adelman admitted that her estimate of having approximately an additional 225 to 250 cars per hour idling, fueling, and then exiting the proposed gas station was based on the maximum hour of likely use of the station, not on all hours. Tr. 1/10/14, 101-102. Mrs. Adelman agreed that the proposed gas station would comply with ZTA 12-07, as adopted by the Council. She also admitted that the CASAC committee considered the WHO guidelines in making their recommendations to the EPA and that those guidelines were considered before EPA promulgated its final National Ambient Air Quality Standards on $PM_{2.5}$. CASAC recommended a range of 11 to 13 micrograms, and the EPA adopted a number in the middle of that range Tr. 1/10/14, 112-114.

In response to a question as to whether she was aware that the gas station would add only .003 micrograms per cubic meter of $PM_{2.5}$ to the Stephen Knolls School, Mrs. Adelman testified that any additional pollution coming from the location where the proposed gas site is to be located is unacceptable. Tr. 1/10/14, 121-122.

15. Dr. Maria Jison testified on behalf of KHCA (Tr. 1/10/14, 193-260; Tr. 2/25/14, 16-105):

On Hearing Day 24 (January 10, 2014), Dr. Maria Jison testified on behalf of KHCA as an expert physician and an expert in pulmonary and respiratory medical conditions. She is board-certified in internal medicine and in pulmonary disease and critical care medicine. Dr. Jison has over 10 years of clinical attending experience as a pulmonary/critical care physician in the inpatient and outpatient settings, over 10 years' experience as an ICU physician, and three years experience as a pulmonologist. She does not claim expertise in occupational or environmental medicine, and has never worked on air quality analysis or analyzing the effects of fine particulates on the general population. Dr. Jison lives within the defined neighborhood, just south of the ring road near the Sears Outlet building, at 10818 Torrance Drive, in Kensington, Maryland. Tr. 1/10/14, 193-201.

Dr. Jison testified that her husband has asthma, and her two children, age 2 and 4, both have asthma. Her 4-year-old actually is seen and treated at the Asthma and Allergy Institute that is in the Westfield South Building on the mall property, just to the east of the Sears Outlet building. Asthma is characterized by increased inflammation in the air passages and increased mucus production, which results in the temporary narrowing of the airways that transport air from your nose and mouth into your lungs. One in 12 people in the United States have asthma, and one in 11 children. Asthma accounts for about a quarter of all emergency room visits in the United States each year, and it accounts for about 10 million outpatient visits and 479,000 hospitalizations. The average length of stay for an asthma attack admission is about 4.3 days. Nearly half of all asthma hospitalizations are children, roughly 44 percent. It's the third-ranking cause of hospitalization in children, and it's the number one chronic cause of school absenteeism in children. Asthma symptoms can be caused by many things, including allergens or irritants, such as pollution, that are inhaled into the lungs and resulting in inflammation, clogged and constricted airways, which could lead to wheezing, which is a common symptom of asthma, difficulty breathing, coughing, tightness in the chest. The progression from a mild attack to a severe attack that could be life-threatening can be very rapid and unpredictable. Dr. Jison is very concerned about potential adverse health effects on her family as a result of the gas station, since increased pollution from a large gas station so close to the neighborhood can have adverse effects on asthma. Tr. 1/10/14, 202-207.

Dr. Jison does not agree with Dr. Chase's view that a clinically insignificant impact is one that does not produce a permanent health effect. She noted that an asthma attack is a clinically significant effect that can be life-threatening; so it's clearly significant. If someone suffers from repeated attacks, that can impact their overall and general health. Chronic inflammation and recurrent attacks, which means acute exacerbations and spikes in that inflammation, can affect lung function and can contribute to an overall decline in lung function over time. Over the long term, it can cause airway remodeling, whereby the air passages or air sacs that exchange gas can thicken, more mucus may be produced with a higher state of

inflammation, such that that would affect lung function and ability to exchange air. An adverse health effect does not have to be apparent clinically; it could be something that exists in the increase or changes in important biomarkers. The effects aren't necessarily clinically apparent but, when taken as a whole, would be considered adverse. Tr. 1/10/14, 207-214.

Dr. Jison referred to the EPA's final rulemaking regarding NO_2 (Exhibit 424(a), p. 6480), Federal Register for NO_2, February 9th, 2010. The ISA concluded that the findings of epidemiologic, controlled human exposure, and animal toxicological studies provide evidence that is sufficient to infer a likely causal relationship for respiratory effects following short-term NO_2 exposure. The ISA concluded that the strongest evidence for an association between NO_2 exposure and adverse human health effects comes from epidemiologic studies of respiratory symptoms, emergency department visits, and hospital admissions. These studies include panel and field studies, studies that control for the effects of co-occurring pollutants. . . . With regards to this evidence, the ISA concluded that NO_2 epidemiologic studies provide little evidence of any effect threshold. In studies that have evaluated concentration-response relationships, they appear linear within the observed range of data. Dr. Jison interpreted these statements to mean that, based on toxicological studies, concentration-response studies and human studies, the EPA concluded that these studies have demonstrated health effects at levels below the current standard for NO_2 and that there does not appear to be a threshold level, in that the concentration-response relationships that they have observed in these studies appears to be linear and that they have not yet found the lower level where you would not see health effects. Tr. 1/10/14, 215-218.

Dr. Jison further testified that she considered sensitive populations to be people with chronic diseases that would be at increased risk to an exposure, such as asthma or chronic respiratory disease or chronic cardiovascular disease, certainly children and the elderly and even pregnant women and asthmatics in particular. Asthma has been cited by the EPA as a particular sensitive population. With respect to the adverse effects of $PM_{2.5}$ on those sensitive populations, fine particle pollution or $PM_{2.5}$ is of particular concern with regard to lung injury because fine particles are the perfect size to be inhaled deep into the lungs. Because of their size and their increased surface area, they are also perfect for being deposited onto the interstitial tissues of the lungs, the tissues surrounding the lungs in the air sacs and that are between other various anatomical parts throughout the body. But particularly in the lungs, $PM_{2.5}$ is the perfect size for depositing there and can be translocated through into the general blood circulation and circulated into the rest of the body. Fine particles also are retained longer within the lungs. Animal studies shows that fine particles can be retained even up to a year, and when you have retention of those particles, it can affect the functioning of alveolar macrophages, which are cells that are responsible for clearing debris from the lungs and also responsible in the immune response of the lungs. And fine particles can induce an inflammatory response in the lung and that inflammatory response can persist for a long period of time after the exposure, and then repeated insults can be additive to that. Thus, lung injury from pollution is really from a combination of exposure and dose. The longer particles are retained and chronic exposure, the more frequently the person is exposed, can result in a cumulative dose. Because of the increased surface area of such particles and their physical properties, they can adsorb onto lung surfactant molecules. Lung surfactant is a lung-lining fluid. It lines the insides of lungs and air sacs. It plays an important role in protective immunologic and physiologic functions in lungs. It helps keep, clear bacteria and other infectious matter and debris from the lungs. It also helps keep air sacs open so that they

can be optimally functional. The interactions of $PM_{2.5}$ with surfactant is thought to be fundamentally important in the health effects, and this is thought to be one potential mechanism by which $PM_{2.5}$ could cause injury to the lungs in addition to inciting inflammation, and this, of course, would lead to impairment of the lungs. So sensitive populations, people with asthma or chronic respiratory disease or chronic preexisting cardiovascular disease, would be more sensitive to the effects of pollution or $PM_{2.5}$. Children are especially vulnerable because their lungs haven't completely developed. Air sacs continue to grow after a person is born, and lung function continues to evolve and that can be affected by exposure to pollution and particulate matter. People with chronic conditions are at increased risk because their disease is already characterized by a state of chronic underlying inflammation, particularly asthma or certain cardiovascular diseases. Tr. 1/10/14, 221-225.

Clinical studies show that high levels of fine particulate pollution are associated with the greater odds of having asthma symptoms exacerbated, having a more severe asthma attack and increased use of rescue inhalers, medications that would alleviate symptoms of asthma. Studies show that even what would be categorized by industry and EPA as low levels of $PM_{2.5}$ are associated with increased asthma symptoms and clinically relevant declines in lung function and increased cardiovascular risk. Small incremental increases in $PM_{2.5}$, in 10-microgram-per-cubic-meter increments, are associated with increased cardiovascular mortality. Studies show that central site monitoring stations may reflect fine particulate pollution levels that are below EPA limits but that the exposure to fine particulates, as a result of daily activities and point-source exposures for individual, as measured by personally worn monitors in some of these sites, may actually be far higher than what the central monitors would reflect and often exceed the EPA standards (a kind of personal cloud). Tr. 1/10/14, 226-227.

Even prenatal exposures to $PM_{2.5}$ have been associated with increased risk of respiratory infections early in childhood, in a dose-dependent manner, even at levels that are below EPA standards. And prenatal exposure also has been shown to be associated with lung function deficits in early childhood. Studies have shown that local exposure to traffic has adverse effects on children's lung development and is independent of regional air quality. One study in southern California communities show that children who grew up within less than 500 meters from a freeway had lower lung function levels by age 18 compared to kids who lived further away from a freeway, and the distance was over 1500 meters. And in another southern California study of 12 communities, clinically low lung function levels were correlated with the levels of exposure to various pollutants, including fine particulates. Low lung function in children was observed even in communities where the average level of fine particulate matter over the eight-year study period was within EPA limits. That particular study showed that lung development from ages 10 to 18 years is reduced in children who are exposed to higher levels of background pollution. There are studies that also show effects in healthy individuals. People who exercise in an environment that has increased levels of pollution have decreased performance. This would apply to people who walk, swim or otherwise exercise in or near the mall. Tr. 1/10/14, 227-230.

Dr. Jison noted that prior to the final EPA rulemaking on NO_2, multiple professional medical societies, including the American College of Chest Physicians, the American Lung Association, the American Medical Association, the American Thoracic Society, all supported setting the one-hour NO_2 standard to below 80 parts per billion, to even below 50, based on

scientific studies that were available at the time. Tr. 1/10/14, 234. She also pointed to Federal Register page 6488 of the EPA's final rulemaking regarding NO_2 (Exhibit 424(a), where the ISA concluded that transient increases in airway responsiveness following NO_2 exposure have the potential to increase symptoms and worsen asthma control. So, the uncertainty over the adversity of a response from controlled human exposure sites doesn't mean that the NO_2-induced increase in airway responsiveness is not adverse but that there's a risk of an adverse health effect for asthmatics, but that this risk can't be fully characterized based on the studies that were existing at the time. That is inconsistent with the statements of Dr. Chase that transient health effects can't be characterized as adverse effects. The EPA has reviewed several studies that show health effects that are seen for both $PM_{2.5}$ and NO_2 even at levels below the current standards. There appears to have not been a bottom yet identified by the studies. Tr. 1/10/14, 235-237.

The Hearing Examiner inquired as to how he could apply the evidence that there may be adverse health effects below the standard to this case. After argument from the parties on this point, Dr. Jison stated that scientific studies suggest a connection with respiratory effects at levels below EPA standards, and she concluded that just because the pollutants are within the EPA standards does not mean that there will be no adverse health effects, especially in this unique situation. Tr. 1/10/14, 238-254.

Dr. Jison further testified that Dr. Chase's testimony relied on studies relating to diesel emissions and cancer risks, not with the respiratory effects of emissions from gas stations. He mentioned asthma, but did not cite any supportive data on this point. Also, Dr. Chase did not respond to the studies she and Dr. Breysse referenced. Tr. 1/10/14, 255-258.

On Hearing Day 27 (February 25, 2014), Dr. Jison returned to the stand to resume her direct testimony. Tr. 2/25/14, 16-105. [Prior to that, Ms. Rosenfeld objected to a rebuttal report filed by Mr. Sullivan, arguing that it was not true rebuttal. The Hearing Examiner indicated that the parties should brief the issue and then he would decide. Tr. 2/25/14, 9-16.]

In her continuing testimony, Dr. Jison stated that the EPA had published an analysis with respect to potential health effects of NO_2 on people. In the 2010, Federal Register Notice on the NO_2 final rule, the administrator notes that the evidence relating to short-term, minutes to hours, NO_2 exposures to respiratory morbidity was judged in the ISA to be sufficient to infer a likely causal relationship. The EPA administrator cited four studies supporting short-term NO_2 one hour standards below 100 parts per billion, and on page 6495 of the Federal Register (Exhibit 424(a)) 2010 NO_2 final rule, it stated that the EPA administrator considered an even lower short-term NO_2 standard of 80 parts per billion because evidence existed that could support this lower standard. It was considered possible that an NO_2 induced increase in airway responsiveness could occur in asthmatics following exposures to concentrations of NO_2 below 100 parts per billion and that such an increase could be clinical significant. Further, on page 6487 of the NO_2 final rule, it's noted that several professional medical societies such as the American College of Chest Physicians, American Lung Association, American Medical Association and the American Thoracic Society supported setting the short-term NO_2 standard to below 80 parts per billion even supporting it below 50 parts per billion based on a study that demonstrated respiratory health effects around 50 parts per billion. On page 6500 of the Federal Register, the document states that the meta analysis does not provide any evidence of a threshold below which clinically

significant effects do not occur in asthmatics. The lower one-hour standard was not adopted by the EPA, but additional studies have come out more recently showing health effects at lower levels. Tr. 2/25/14, 16-21.

Dr. Jison further testified that just because effects may be transient does not necessarily mean they are insignificant, contrary to Dr. Chase's testimony. The EPA provided a statement regarding transient health effects in the NO_2 final rule from the 2010 Federal Register Notice. On page 6488, the EPA stated that the ISA concluded that transient increases in airway responsiveness, such as in asthma, following NO_2 exposure have the potential to increase symptoms and worsen asthma control. The uncertainty over the adversity of the response reported in controlled human exposure studies does not mean that the NO_2 induced increase in airway responsiveness is not adverse. Rather, it means that there's a risk of adversity, especially for asthmatics with more than mild asthma, but that risk cannot be fully characterized based on existing studies. The EPA's determination to reduce the levels for $PM_{2.5}$ and NO_2 were based on evidence that there were health effects occurring at exposure levels well within the existing standards which had been intended to provide an adequate margin of safety. Federal Register Notice for $PM_{2.5}$ page 3120 (Exhibit 424(e)), and then again for the NO_2 on pp. 6480-84 (Exhibit 424(a)). Dr. Jison opined that the standards are expected to protect sensitive populations such as children, but they are not designed to avoid harm to the most sensitive individuals. She noted that the EPA publications (page 3090 of the Exhibit 424(e) regarding $PM_{2.5}$ and page 6502 in Exhibit 424(a) regarding NO_2) recognized that the standards are not intended for zero risk, and there may still be some risk to sensitive individuals. Dr. Jison stated that children at the Stephen Knolls School are a hypersensitive population at the very far end of the sensitivity scale, as are children with asthma such as her own children. She emphasized that the EPA did not conclude that there were no health effects below the standards. Rather, at most, it did not yet have sufficient evidence, at the time, to determine those issues. When asked by the Hearing Examiner, if the EPA has not yet been able to establish a standard which encompasses the level of risk that might be found here, how should he set that standard, Dr. Jison replied that one has to look at individual aspects of this particular application and the location, the uniquely sensitive population that's going to be affected, the volume of gas station, and the added pollution in close proximity to this neighborhood and to all these sensitive populations. There are studies that show that the effects of $PM_{2.5}$ deposition deep into the lungs can go systemic and can last long after the initial exposure event, and the gas station would be cumulatively adding to that for these people who live here and have no choice but to be near the station all the time. Dr. Jison admitted that it is not known what level is safe, but given what is known, she feels that it doesn't make sense to put a gas station in this community in close proximity to all these sensitive populations. Tr. 2/25/14, 21-34.

Dr. Jison critiqued the studies relied on by Dr. Chase. Of the 15 articles he referenced in his two-page memo, none was relevant to the discussion regarding effects on vulnerable populations such as asthma and respiratory effects. All but one dealt solely with effects of diesel fumes, which have not been a major factor in this case, and 12 of the 15 articles appear to be from the same group of authors, which might suggest a narrow focus. Dr. Chase did not provide any analysis of the articles she and Dr. Breyesse relied on. She feels Dr. Chase misunderstood the process by which the EPA sets the standards and he did not consider the other evidence that both Dr. Breyesse and the EPA in CASAC have considered with regards to his conclusions. Tr.

2/25/14, 35-37.

Dr. Jison further testified that there are studies showing a synergistic effect of health conditions combined with pollutants, but the EPA did not rely on them because it could not tease out which effects were the result of which pollutants. She is not saying that all gas stations are necessarily going to have an adverse effect on people. A smaller station or one located in an area with lower background pollution levels, or one more distant from adjoining uses or sensitive populations may not have any adverse health effect at all. In Dr. Jison's opinion, this particular proposed station will cause adverse health effects on people based on the unique aspects of the whole scenario – it brings a very high concentration of a large volume of cars to one area that are going to be idling for an extended period of time, is very close to homes, the school for sensitive kids, a pool where various teens come to train, and it's in the middle of a shopping mall where people will spend considerable amounts of time, both being in line getting gas and shopping and eating. She noted that both Mr. Sullivan and Dr. Cole testified that there is a correlation between the volume of gasoline pumped and the effects on air quality – the more gas that's pumped, the greater the potential adverse health impacts. Combined with its location, in her opinion, the adverse health effects of this station would go above and beyond effects of other local gas stations. Tr. 2/25/14, 43-49.

Dr. Jison further testified that based on the studies, even a 20 minute exposure to NO_2 at levels of 160 micrograms per cubic meter could have adverse health effects. There is also a clear association with exposure of pregnant women to increasing levels of $PM_{2.5}$ and reduced birth weight, reduced lung function in early childhood and increased respiratory infections. There is a potential for adverse health effects on people who work on the mall parcel because those people are going to be chronically exposed. In her opinion, the proposed gas station will have adverse health effects on residents, workers and visitors in the subject area. Tr. 2/25/14, 50-61.

On cross-examination, Dr. Jison testified that even though Mr. Sullivan's reports may suggest that the additive amount of $PM_{2.5}$ on top of ambient levels would be insignificant compared to the total background, the point is that personal exposures have been shown in studies to be much higher than what ambient levels have measured. Depending on the activities and the chronicity of exposure, an increased dose could occur and could have additive and cumulative effects, especially with recurrent exposures. Even though Mr. Sullivan's predictions demonstrate that the incremental amount of $PM_{2.5}$ being added to the ambient levels are extremely small, Dr. Jison believes that adverse effects will still occur based on the data, the sensitivity of the population and the chronic nature of the exposures. She admitted that there are very few studies of the effects of living near a gas station, as distinguished from living near heavy traffic. Dr. Jison believes the Stephen Knolls children are exposed to levels that are near the EPA NAAQS right now, and it does not make sense to add another pollution source near them. Dr. Jison admitted that she could not guarantee that any particular individual would be adversely affected by levels below the EPA NAAQS standards, and even though ambient $PM_{2.5}$ levels have decreased, asthma levels have increased. When asked whether the concentration of contaminates at the mall would be different than what might be found on a heavily traveled roadway, Dr. Jison stated that the studies she has been referring to have been of vehicular emissions, which is the same type of emissions coming from the gas station and people driving around the mall and visiting the mall and visiting the gas station. Tr. 2/25/14, 66-92.

On re-cross, after redirect, Dr. Jison admitted that an increment of .009 micrograms per cubic meter of $PM_{2.5}$ for one hour, as produced by the gas station at the school and pool according to a Sullivan report, was very small, but she insisted that the studies show that even below the EPA standards, the personal exposure levels are much higher and adverse health effects are occurring. Even the small increment was likely to increase someone's personal exposure. Tr. 2/25/14, 97-105.

16. Dr. Patrick Breysse testified on behalf of KHCA (Tr. 2/10/14, 49-349):

On Hearing Day 25 (February 10, 2014), Dr. Patrick Breysse testified on behalf of KHCA as an expert in industrial hygiene, epidemiology and health issues from vehicular emissions, and establishment and measurement of air quality standards and evaluation of scientific studies and methodology, and exposure science. Dr. Breysse lives at 11963 Harford Road, Glen Arm, Maryland 21057, and works at Johns Hopkins University Bloomberg School of Public Health, 650 North Wolfe Street, Baltimore, Maryland 21205. His CV is Exhibit 88(c). Dr. Breysse received his Masters and his Ph.D. from the Johns Hopkins Bloomberg School of Public Health, and his Ph.D is in the environmental health engineering program, with a focus on occupational safety, health and air pollution. He did a year of study as a postdoctoral fellow at the British Institute for Occupational Medicine in Edinburgh, Scotland, and he is now a full professor at Johns Hopkins in the Department of Environmental Health Sciences, Division of Environmental Health Engineering. Dr. Breysse began his career as an industrial hygienist, looking at factors in the workplace, focusing on air pollution, and then later started applying the same tools to assessing indoor and outdoor air quality outside the workplace. He has specialized in the last 10 years on indoor and outdoor air quality and health both to children and adults. He does a lot of work with faculty in the School of Medicine, particularly in the Division of Pulmonary and Critical Care Medicine. His major contribution is to provide expertise on how to measure what people are exposed to, in order to determine whether there's a relationship between what people are exposed to and the health condition being investigated, whether it's childhood asthma or adults with chronic obstructive pulmonary disease. He has written about 180 scientific articles, and about 20 of them relate to health effects resulting from exposure to pollutions from vehicular emissions. He was on the board of directors for the American Conference of Governmental Industrial Hygienists and has served on numerous advisory panels, including for the National Academy of Sciences. Dr. Breysse testified once as an expert in a zoning proceeding in Harford County, Maryland, regarding the health impacts of the changes in traffic patterns that might impact the neighborhood and particularly the kids at the school from the proposed expansion of a sand and gravel operation. Tr. 2/10/14, 49-78.

Dr. Breysse discussed various methodologies for studying the health effects of pollutants and noted that the combination of the effects is likely to be worse than if you would take each of the individual effects alone and sum them up. He also discussed bias in scientific studies and how to measure statistical significance of a study result. He suggested that for risk assessment purposes in the U.S., the EPA guidelines has suggested that models yielding single estimates are not as helpful as those yielding a range of possible results. Dr. Breysse testified that the National Academy of Sciences created a committee to review risk assessment for the EPA and other regulatory agencies a few years ago, and they strongly concluded that this uncertainty estimation

has to be a key component of any risk assessment. He testified that a modeler should avoid the trap of changing assumptions in his model to create single number estimates. Tr. 2/10/14, 79-100.

When asked about EPA discussions leading up to the rules that they issued with respect to both the NO_2 and the $PM_{2.5}$, to the effect that the studies indicate no evidence of a threshold with respect to either NO_2 or $PM_{2.5}$, at which there were no health effects (Exhibit 424(b), p. 6500), Dr. Breysse testified that it doesn't mean there is no threshold; rather, it may be that the threshold has not yet been found; however, there are still risks being observed as far down as scientists have gone on the exposure curves. Tr. 2/10/14, 101-113.

Dr. Breysse testified that the fact that all gas stations may produce some pollutants and the threshold for health effects has not been determined does not, in his opinion, mean that you can never build a gas station. It depends on the size of the gas station and how close the receptors are. The risks have to be weighed against the benefits. The number of cars queuing up is part of that picture and how long they're idling is part of that picture. Even if the projected levels here are comparable to those of a 1.5-million-gallon station in 1987 or a three-million-gallon station in 1998, that does not mean it would be safe. There's growing evidence that particulate matter can have some wider-ranging health effects. PAHs, polyaromatic hydrocarbons, complex molecules produced from traffic pollution appear to cause developmental disabilities in children. Increased traffic-related pollutions can affect childhood lung development, and kids who live next to freeways with high traffic-related pollution start off with a lung function deficit. Among people who have COPD, chronic obstructive pulmonary disease, who've quit smoking, the consensus is that their exacerbations are related to traffic-related air pollutant exposures. Tr. 2/10/14, 114-127.

According to Dr. Breysse, the permissible levels set by the EPA sometimes stay the same over the years, but never go up. The standard is not set at a level that creates zero risk. The EPA is required to deal with susceptible populations and that creates a challenge for the EPA because even the scientific community is not quite sure what susceptibility means. Where there are obvious markers of susceptibility, like a kid with asthma, the EPA is required to try and set a standard that's going to be protective for them, but it isn't going to be protective for 100 percent of the people. There are some people who have unique susceptibilities that are unknown or not well understood, and they are not going to be protected. The children at the Stephen Knolls School have unique susceptibilities that perhaps were not on the radar of EPA, and he knows of no studies that would allow EPA to have an evidence base to design a standard that would be protective for kids with that level of disability. Tr. 2/10/14, 128-133.

Dr. Breysse took issue with Dr. Chase's statement that the EPA standards are based totally on CASAC recommendations. Dr. Breysse stated that CASAC reviews the literature and recommends a range of values to the administrator, who sets the standard. They give the administrator some leeway to set the standard within that range. At that point, the EPA administrator is free to do whatever he wants, and in fact, there have been cases when the EPA administrator set standards higher than what CASAC recommended, one of which resulted in a lawsuit. [Ms. Cordry indicated that the case was *American Farm Bureau Federation v. EPA*, 559 F.3d 512 (D.C. Circuit (2009). The court remanded the primary annual $PM_{2.5}$ NAAQS to the

EPA because the EPA failed to adequately explain why the standard provided the requisite protection from both short- and long-term exposures to fine particles, including protection for at-risk populations, such as children.] After the submissions of studies to the EPA are cut off for a particular standard to be set, it takes a year of review before the standard is issued. Since the standard can be in place for five years, it could, in some cases, be six to seven years behind the times in terms of the scientific literature, which is why they periodically update. By the end of its cycle, there could be five or six years' worth of literature that's not reflected in the current standard. That is the case with NO_2, where the cutoff date was mid-2008. Five-and-a-half years of additional studies have been conducted since then. Tr. 2/10/14, 133-139.

Dr. Breysse further testified that NO_2 is an irritant gas. It causes irritation to the mucous membrane and the respiratory tract, and certain diseases are exacerbated by irritation. Short-term high exposures to NO_2 create inflammation in the lungs that's acutely dangerous, not just chronically dangerous. The acute exposure requires the EPA to think of an averaging time that's shorter than a year, and in fact, in this case, a person can have a quick response to a high level exposure to NO_2. So the EPA says the one-hour average should be kept below some level that it believes is safe. There are two challenges. One is to figure out what a safe number is, and then to figure out how to enforce it. $PM_{2.5}$ is easy in one regard because it's relatively homogenous in space in an urban area. NO_2, however, is very heterogeneous. The EPA says that the evidence suggests that that safe level of a one-hour NO_2 exposure, in general, should be somewhere around 75 to 85 parts per billion, but readings close to sources can be high, while farther away, they can be lower. The EPA can't put monitors everywhere, but by putting monitoring equipment next to roadways (a high source) and specifying that the level cannot exceed 100 parts per billion, the peak value far from that roadway will be less than 75 to 80 parts per billion. So it's a little bit nuanced because the standard says 100 parts per billion, but if you read the evidence, it's very clear that the EPA administrator thinks that the health threshold for one-hour NO_2 is clearly 75 to 85 parts per billion, and they even say in their record that there's pretty good evidence that it's down to 50 parts per billion. That's really the EPA's target; however, the evidence becomes less certain down to 50. Tr. 2/10/14, 140-143.

One should not treat the one-hour NO_2 standard as 100 parts per billion everywhere because it really just represents the peak value. That's the approach that CASAC recommended to EPA for this kind of spatial regulation dealing with the spatial heterogeneity, and that's the approach the administrator took. From a health perspective, the National Ambient Air Quality Standards are not fine lines. As stated by the EPA Administrator, "Given these considerations, epidemiologic evidence provides strong support for setting a standard that limits the 98th percentile of the distribution of one-hour daily maximum area-wide NO_2 concentrations to below 85 parts per billion." Exhibit 424(b), p. 6501. In considering specific standard levels supported by the epidemiologic evidence, the administrator notes that the level of 100 parts per billion would be expected to maintain the area-wide NO_2 concentrations well below 85 parts per billion. [In answer to a question from the Hearing Examiner, Ms. Cordry stated that the Opposition's position is that the EPA National Ambient Air Quality Standard "area-wide" for one-hour NO_2 concentrations is actually somewhere 50 to 75 parts per billion rather than 100 parts per billion, because adverse health effects are seen even at those lower levels.] Dr. Breysse stated that if there was a concentration of NO_2 at 100 parts per billion near a roadway, he would expect concentrations be 850 feet from a roadway to be in the range of roughly half to 70 percent of

what's at the roadway. Tr. 2/10/14, 143-152.

Looking at Mr. Sullivan's reports from December of 2012 and January of 2013, and correcting for Mr. Sullivan's conversion error in NO_2 background, Dr. Breysse concluded that the one-hour NO_2 levels shown at the mall, at the pool and at the Stephen Knolls School were well within the range that health effects are seen in terms of the literature that the EPA relied on for the previous NO_2 standard. Correcting the 175 microgram/meter^3 reading shown at the high point for the Sullivan background error, it appears to be noncompliant with the NAAQS standard. Dr. Breysse testified that the data indicate the gas station would be a significant contributor to the NO_2 one-hour problem. The same is true in Figure 1 of Mr. Sullivan's August 2013 report (Exhibit 255) which had corrected the background computation problem, listing the background for one-hour NO_2 as 98 micrograms per meter cubed. At the pool and the school, the levels are shown as between 150 and 160 micrograms per meter cubed, and at the gas station itself, the levels would be out of compliance. Dr. Breysse stated that there's the potential for a variety of susceptible populations to be impacted by these exposures. Tr. 2/10/14, 153-176.

In response to questions about Mr. Sullivan changing his assumptions to be less conservative and more "realistic," Dr. Breysse further testified that giving single-point estimates with changing assumptions one at a time doesn't get closer to the truth. Instead of changing the assumptions, he would approach modeling by having multiple data inputs and run the model numerous times to get a series of results that could be compared. Tr. 2/10/14, 177-183.

Examining Mr. Sullivan's refined assumptions in Figures 9 and 10 of Exhibit 255, with the one-hour NO_2 background level reduced from 98 to 90 micrograms per cubic meter, and using urban dispersion in Figure 9 and rural dispersion in Figure 10, Dr. Breysse testified that the these results suggest that concentrations near the homes of the people within the area, may result in excess respiratory disease based on the studies that the EPA cited. Using the rural dispersion rates, the isopleths in the neighborhood show 150-160 micrograms per cubic meter, which translates to 80 parts per billion. These values are in the range that the EPA administrator thinks are problematic in terms of disease risk. [Ms. Cordry noted that, using the urban dispersion rates, the isopleths in the neighborhood show 110 micrograms per cubic meter, which translates to 58 parts per billion.] Tr. 2/10/14, 187-191.

Dr. Breysse further testified that a mixture of pollutants (*e.g.*, NO_2 and $PM_{2.5}$) can result in health effects even though the individual components are below the applicable standards. [A number of studies were referenced during Dr. Breysse's testimony (Exhibit 440-449)]. The Southern California studies suggest there's a host of pollutants that are impacting the lung development in children. There's an exposure-response relationship for both PM and NO_2, for example. As air pollution exposure goes up, the fraction of kids that are abnormal (*i.e.*, abnormal lung development/lung function) goes up. The authors concluded the effects of NO_2 could not be distinguished from the effects of particulate matter as NO_2 was strongly correlated with particulate matter contaminants. It's hard to say just how much is due to one versus the other, and the EPA doesn't know how to grapple with that problem. [The Hearing Examiner expressed his concern about attempting to apply a standard that the EPA has not yet announced.] Tr. 2/10/14, 198-217.

The study in Exhibit 442 came up with a combined traffic-related exposure index, the TRP. The study in Exhibit 443 showed a 10 to 11% decline in NO_2 near roadway tollbooths using EZPass, which reduced congestion and idling. Tr. 2/10/14, 218-229. He also did a study measuring in-home pollutant concentrations over a weeklong period of time (Exhibit 445), and he found that as NO_2 levels went up in his study, he observed increased asthma symptoms, and specifically, limited speech due to wheeze; wheeze, cough, or chest tightness while running; coughing without a cold; and nocturnal awakening to a cough, wheeze, or shortness of breath. The in-home NO_2 concentration was an average of 30 parts per billion, and it ranged from 2.9 to 394 parts per billion. Tr. 2/10/14, 230-239. Another study discussed by Dr. Breysse looked at the effect of NO_2 and $PM_{2.5}$ on adults with COPD (Exhibit 446). The NO_2 concentrations were, on average, 10 to 10.8 parts per billion in the bedroom and 11.8 parts per billion in the main living area of these homes. $PM_{2.5}$ levels were 11 to 13 micrograms/meter^3 in the bedroom and 12 micrograms per cubic meter in the living area. There was enough evidence of a signal here to suggest that air pollution is a cause of exacerbation in people with COPD. Tr. 2/10/14, 240-245.

Dr. Breysse stated that the levels of annual average NO_2 listed in Figures 11 and 12 of Exhibit 255 are consistent with the exposures he saw in his studies, and they are in the range that he was seeing health effects from long-term exposures. He disagreed Dr. Chase's testimony (Tr. 9/16/13, 197) that you wouldn't likely have health effects from $PM_{2.5}$ until you got up to about 15 micrograms per meter cubed. The EPA administrator thinks there's health effects down to that level currently, and the regulatory science, which is usually a few years behind the published science, already suggests that the threshold is probably below the 15 level. The 2013 ISA Draft (Exhibit 447) summarizes studies of the effects of air pollution as of November 2013. In the 2010 Mann study, they looked at NO_2 exposures that ranged from 20 to 50 parts per billion, and for each 20-micrograms-per-cubic-meter increase, they found less than a 50 percent increase in symptoms of wheeze. Tr. 2/10/14, 246-262. Exhibit 448 is a large study of asthma emergency department visits in Atlanta from 1993 to 2004. They looked at 91,000 ED visits, and they tried to associate the ED visit pattern with the air pollution pattern. That exposure-response curve shows that when the concentrations were low, the risk ratio was low; when the concentrations were higher, the risk ratio was higher, and ED visits go up in an increasing fashion with increasing exposure. The study concluded (at p. 315), "These associations were present at relatively low ambient concentrations, reinforcing the need for continued evaluation of the Environmental Protection Agency's National Ambient Air Quality Standards to ensure that the standards are sufficient to protect susceptible individuals." Tr. 2/10/14, 263-267.

The Harvard study (Exhibit 249) regarding particulates concluded that health effects from $PM_{2.5}$ extend down to concentration ranges that include eight micrograms per cubic meter. Including recent observations with $PM_{2.5}$ exposures well below the U.S. annual standard (which was 15 micrograms per cubic meter at the time but is now 12 micrograms per cubic meter) and going down to eight micrograms per cubic meter, the relationship between chronic exposure to $PM_{2.5}$ and all-cause, cardiovascular, and lung-cancer mortality was found to be linear without a threshold. Dr. Breysse emphasized that the study had not documented a threshold. Furthermore, estimated effects of $PM_{2.5}$ did not change over time, suggesting that there's a stable toxicity. Looking at Figures 19 and 20 in Mr. Sullivan's August 2013 report (Exhibit 255), Dr. Breysse testified that the micrograms per cubic meter of $PM_{2.5}$ are all above the levels at which the Harvard studies suggest there would be a health concern. Tr. 2/10/14, 268-275.

When asked about health effects of pollutants on workers, Dr. Breysse stated that there's a bias called healthy worker effect -- if people are bothered by something, they leave the job, while the more vigorous stick around. Also, OSHA's exposure limits are out of date and they aren't routinely used other than just for deciding whether a company is legally compliant or not. The vast majority of OSHA standards have not been changed since 1968. The standard of practice should be, if exposure approaches half of what is believed acceptable, workers should be asked if they are having any health complaints and what can be done to reduce the exposure. If somebody were working outdoors around this traffic queue for long periods of time or at this loading dock, he could not say that they would not have health concerns, but workers tend to be younger and fitter than the normal population, so you might see less effect than on the general population. OSHA doesn't exactly have a $PM_{2.5}$ standard. So it's hard to compare that directly, but the respirable dust standard is a generic standard, and their NO_2 standards have not been reevaluated since 1968. As a general principle, an industrial hygienist would not say that the OSHA standards are acceptable now in terms of providing adequately for workers' safety. The standards an industrial hygienist in the United States would look to determine appropriate levels within a factory include OSHA, the ACGIH TLV, the NIOSH recommended exposure limit, and the EPA toxicity database of reference doses for susceptible people. If management thinks exposures are at the point where they are having overt health effects or they're approaching guidelines, they need to reduce or minimize the exposures. Tr. 2/10/14, 282-291.

Dr. Breysse summarized his opinion in this case, stating that he does not believe that this station is going to be benign in terms of the health impacts of the people who live around it. It is inevitable that the type of source is going to produce pollutants that will raise people's exposures to levels that are within the range that the health literature suggests are dangerous. Certainly they're going to increase morbidity for a variety of respiratory concerns, in particular. His assessment is not based solely on the EPA standards, which are five to ten years behind the scientific literature. He opined that the air pollution produced by this source will put the people around there at a greater risk for health effects than they are now. Tr. 2/10/14, 292-293.

On cross-examination, Dr. Breysse admitted that he had not done a risk assessment for the Stephen Knolls School, the pool or the nearby homes. The CARB guidelines only place you in the ballpark, but he would have preferred if Mr. Sullivan had done health risk assessments. He criticized the failure to include uncertainty estimates in the models or a range of possible outcomes, as suggested by the National Academy of Sciences report on risk assessment. Dr. Breysse agreed that the EPA guidelines are supposed to include a margin of safety to protect sensitive populations, but they aren't guaranteed to protect from all adverse health effects. In his opinion, the EPA NAAQS for the one-hour NO2 standard does not protect people with COPD because when they published their previous standard, the data didn't exist to allow the EPA to establish a standard that would protect them. Dr. Breysse admitted that if Mr. Sullivan treated all the NOx as NO_2, that would actually be a higher level than the actual NO_2 that would exist at the site. He also indicated that although no regulatory agency in the United States has issued standards for evaluating the synergistic effect of NO_2 and $PM_{2.5}$ and other contaminants, he recommended a weight-of-evidence approach based on the published literature. Dr. Breysse was not able to say what the EPA considers a significant impact level of an increase in pollutants would be. Tr. 2/10/14, 307-349.

17. Donna Savage testified on behalf of KHCA (Tr. 2/24/14, 111-337; Tr. 2/25/14, 106-197):

On Hearing Day 26 (February 24, 2014), Donna Savage testified on behalf of KHCA, of which she is a past president and vice-president. She lives at 1084 McComas Court, Kensington Heights, Maryland, in far southwest corner of the map in Exhibit 159, about a mile and a quarter distant from the subject site. Therefore, she doesn't expect to be directly affected by the fumes and the traffic except when she goes to the mall. She is opposed to the gas station because it is going to adversely affect her while she is at the mall shopping or visiting friends, but mostly because she believes this proposed gas station would deeply and permanently undercut the plans for redevelopment and the expectations that residences and businesses have of that plan and of redevelopment. Ms. Savage described her background and introduced her resume (Exhibit 459). In her opinion, the proposed gas station will adversely affect or retard the logical development of the general neighborhood or the relevant commercial zone, in violation of Zoning Ordinance §59-G-2.06.

Ms. Savage opined that Section 59-G-2.06 would be violated in six areas:

1. the wording and intent of the Wheaton Sector Plan,
2. the county's general goals and how this proposed gas station doesn't fit,
3. expectations of the community regarding Wheaton redevelopment,
4. Wheaton as a transit hub,
5. Wheaton defined by its small businesses, and
6. Westfield Wheaton's future.

Tr. 2/24/14, 111-122.

Ms. Savage addressed the wording and intent of the Wheaton Sector Plan. Citing pp. 9-15, 21-22, 25. 28-29, 43, 67-72, 74 and 77 of the Sector Plan, she stated that the primary goal of the sector plan is to capitalize on Wheaton's significant transit infrastructure, which is repeatedly touted throughout this plan as a major asset for Wheaton. The Sector Plan is designed to make Wheaton a more walkable community, to increase transit use, and to decrease reliance on automobiles. She pointed out that Westfield Wheaton, including the proposed gas station location, is within the Wheaton Urban District and also within Wheaton's enterprise zone. Page 74 of the sector plan talks about the desire to reduce energy consumption, vehicle miles, and carbon emissions. Although there would be real questions under this provision about siting any additional gas station within the Wheaton Sector Plan boundary in light of these provisions, that quotation from the Sector Plan on page 74 is particularly relevant to this proposed gas station because of the problem of idling. Tr. 2/24/14, 125-154.

[The Opposition introduced Exhibit No. 336, the state's Greenhouse Gas Reduction Plan. The Hearing Examiner refused to allow the introduction of evidence that the Council was considering a bill (Bill No. 6-14) relating to greenhouse gasses that it had not yet passed.] Ms. Savage summed up, stating that one of the non-inherent things about this Costco gas station is that it will bring people who are getting gas everywhere else and not waiting in lines and will bring a bunch of them to this spot in Wheaton and it will make them line up and idle. There are some health effects, and in lots of ways it goes against what the Wheaton Sector Plan says. Tr. 2/24/14, 155-162.

[The Hearing Examiner asked the Opposition to clarify how having a car-centric facility such as the proposed gas station in the western portion of the Sector Plan area is inconsistent with the Wheaton CBD Sector Plan, since the Wheaton CBD Sector Plan expressly keeps the C-2 Zone in the west with a regional mall which attracts cars by its very nature. He indicated that he didn't understand the distinction, in terms of the Sector Plan, of a gas station versus some of the other merchants that would attract cars.] Ms. Savage responded that on page 43 of the Sector Plan, it indicates that the Westfield District has the potential to evolve into a mixed-use district that would enhance the mall as a retail destination. She also noted that proposals before the Council would have the C-2 Zone evolve into a GR zone, and GR can be mixed use, with a specified percent of residential. Metro is available for access, and the Sector Plan discusses bike paths and pedestrian paths, and ways other than automobiles to get around -- the Wheaton plan is trying to push in that direction: non-automobiles. Nothing in the Sector Plan suggests that it is proposing or encouraging auto-related development, *i.e.*, a gas station or an auto dealership or a service station. Tr. 2/24/14, 164-178.

Ms. Savage further testified that there is little benefit in gas cost savings at Costco because people can get gas discounts at Shell stations, *e.g.* by shopping at Giant supermarket (Exhibit 460(d)) or using a Citibank card (Exhibit 460(e)). Safeway and Kmart also have similar programs. These programs are accessible to everyone, while only Costco members who pay $55 a year membership fees can access the Costco stations, and drivers also have to wait in line to get gas. Only 25% of the Wheaton population are members, but the whole community would be impacted by the non-inherent adverse effects. This proposed gas station would also make it more difficult to walk and bike in and around the mall. It would lengthen the safe path to the Metro and various stores, even if a sidewalk is added along the southern ring road (Exhibit 450(i)). Ms. Savage also believes that the sidewalk will be provided whether or not there is a gas station. She also complained that adding a gas station right where the pedestrian path accesses the mall at the "Mount McComas" development, which is south of the ring road at the location of the subject site, would not encourage additional pedestrian usage. Tr. 2/24/14, 179-209.

Ms. Savage further testified that the proposed station might interfere with possible smart growth and logical development in the area. [The Hearing Examiner noted that this fear was too speculative on this record to allow any conclusions to be reached since the rezoning that has been proposed has not been adopted.] Tr. 2/24/14, 219-234.

Ms. Savage introduced Exhibit 461(b), describing transit-oriented development (TOD) as a dense, mixed-use, deliberately-planned development within a half mile of transit stations that is designed to increase transit ridership. TOD supports the use of transportation alternatives by including transit accessibility by bicycles and pedestrians. Since the proposed gas station would be about a third of a mile from Metro and the bus station and TOD is a goal of the Sector Plan, Ms. Savage feels that the proposed gas station is not transit-oriented and would therefore violate that goal and what the County and state are trying to do with transit-oriented development. She also introduced articles showing a reduction in the miles driven in recent years (Exhibit 461(d)), which the Hearing Examiner noted could cut against the Opposition's argument that there would be excessive traffic and resulting pollution form the gas station, while supporting their argument that there is a lack of need for this station. Tr. 2/24/14, 235-250.

When asked by the Hearing Examiner whether every development on the mall or anywhere else had to meet every goal of a Sector Plan, Ms. Savage answered no, but it probably should not be developing in something that is the polar opposite of what the development goals are. Tr. 2/24/14, 256-257.

Ms. Savage attempted to use additional documents (Exhibit 462) and evidence of recent development in the area to show that Wheaton community expectations did not include this proposed gas station. Tr. 2/24/14, 251-280. Ms. Savage then turned to her proposition that Wheaton is a transit hub, as evidenced by Exhibit 463, including Metrorail, Metrobus and Bus Rapid Transit (BRT), which is under consideration. Tr. 2/24/14, 281-298. Ms. Savage also argued that Wheaton is defined by its small businesses, and a very large Costco gas station could drive small business gas stations away, which would deprive the community of useful services Costco stations do not provide. Tr. 2/24/14, 299-304.

Finally, Ms. Savage addressed Westfield Wheaton's future (Exhibit 464). She noted that County Executive Leggett had recommended mixed-use zoning for the entire Westfield Wheaton site. While the Council did not approve that plan, the Sector Plan recognizes at p. 53 that the C-2 portion could be rezoned under the zoning rewrite for mixed use. That would give Westfield Wheaton more options, but it would not bar a gas station. She suggested that Westfield is considering these options for the mall, as evidenced by a PowerPoint presentation it made regarding its concepts for other malls (Exhibit 464(b)). Ms. Savage summarized her position that the county, in the form of the Board of Appeals, should not let all this taxpayer-funded and public effort (9.89 work years by her calculation) go to waste by dismissing the transit-oriented development assumption undergirding the Wheaton Sector Plan; the county should not shatter 14 years of thoughtfully crafted expectations by Wheaton area residents about the development of their neighborhood; the county should not compromise its and residents' and business owners' vision of how Wheaton's transit hub development should proceed; the county should not authorize a facility that inherently will create idling fumes and greenhouse gases that run directly contrary to the health and climate benefits the county is trying to create from its smart growth land use policies; and the county, as represented by the Board of Appeals, should deny Costco's request for a special exception gas station at this location. Tr. 2/24/14, 305-337.

On Hearing Day 27 (February 25, 2014), Ms. Savage returned to the stand for cross-examination. She testified that she wouldn't say the area of the subject site is heavily trafficked by pedestrians, but the cars lined up at the proposed station would discourage walkers there because it will be unsafe and/or unpleasant. She admitted that the sidewalk on the ring road would help, and she stated that she was no longer confident that Westfield was obligated to put in the same sidewalk without the gas station being approved. Tr. 2/25/24,106-122.

Ms. Savage admitted that the purpose of a Sector Plan was, for now, to keep the mall auto-centric in C-2 and to focus the TOD along Veirs Mill Road, where there has been significant TOD development in the CR zoned area near the Wheaton Metro site. She acknowledged that Westfield has not announced any plans for a mixed use development at the mall site, and the gas station is not going to undo the TOD development that's already happened. Tr. 2/25/24, 123-132.

[Applicant introduced excerpts (p. 4-81) from the Council draft dated March 4, 2014, of the proposed Zoning Ordinance re-write (Exhibit 467). The Hearing Examiner noted that it would not be irrelevant if the Council enacts it.] Ms. Savage admitted that a gas station would be appropriate in an auto-dominated area, such as may be permitted in the GR Zone under consideration by the Council. [Applicant also introduced an excerpt from the PHED Committee draft of 12/16/13 regarding the proposed GR Zone (Exhibit 468), which showed that it had excised some language about minimizing reliance on automobiles.] Ms. Savage noted that this was inconsistent with the Sector Plan. Tr. 2/25/24, 133-152.

When Applicant's counsel asked whether idling cars was unique to gas station uses, Ms. Savage replied that it was unique to this gas station compared to other types of gas stations. [Ms. Harris noted that the automobile filling station is a conditional use listed as a permitted conditional use in the GR zone under the Zoning Ordinance re-write. Tr. 2/25/24, 171.] Ms. Savage further testified that a significant increase in traffic on ring road would impede walk-ability and bike-ability in the area. Tr. 2/25/24, 153-178.

On re-direct, Ms. Savage testified that the Sector Plan anticipates that people who live on the outside of the core need to be able to get to the wonderful amenities in downtown Wheaton, and one of those ways to do it is by passing through the mall. Ms. Savage indicated that her group had successfully defeated a zoning text amendment (ZTA 10-04) that would have exempted this Costco gas station from going through the special exception process. She stated that there are other uses permitted in the C-2 Zone that do not require automobile use. [Ms. Rosenfeld noted that per footnote 40 of the C-2 Zone, some residential uses may be permitted under specified circumstances. Ms. Harris pointed out that the subject site does not meet those criteria.] Tr. 2/25/24, 179-197.

Testimony of Individuals Opposing the Petition

1. Barbara Gottlieb (Tr. 7/31/13, 31-74):

On Hearing Day 10 (July 31, 2013), Barbara Gottlieb testified that she lives at 105 Robin Road, in Silver Spring. She grew up in Kensington before the mall which was then knew as Wheaton Plaza was built. Her parents, husband, daughter and she shop at the Target and other stores there. They are local residents and customers of the mall. She buys reasonably priced gasoline on Veirs Mill Road, right around the corner from Wheaton Plaza. In her professional life, she works at Physicians for Special Responsibility, which is a national organization of physicians and other health professionals, and much of the work that she does there addresses air pollution and toxic substances; however, she is not speaking as a representative of that organization. Tr. 7/31/13, 31-32.

Nevertheless, she asserted [as a lay witness][9] that there are dangerous health impacts of

[9] During the cross-examination of Ms. Gottlieb, the Hearing Examiner noted that nobody had objected to her testimony although it included a great deal of testimony which could be characterized as expert opinion. He added the caveat that she is a lay witness who has not been qualified or accepted as an expert in this area, and he would consider her testimony with that in mind and give it appropriate weight given that consideration. Tr. 7/31/13, 68.

gasoline combustion, and she feels that the proposed Costco mega gas station would inflict severe impacts on her family, her friends and her neighbors in the Wheaton/Kensington area. In her opinion, air pollutants from gasoline combustion inflict grave harm on the basic organ systems of the body, the ones in the respiratory system most obviously, but also on the heart and cardiovascular system. Pollutants from gasoline cause and worsen asthma. They worsen COPD, chronic obstructive pulmonary disease, which is the fourth leading cause of death in the United States. They increase the numbers of heart attacks and cancer cases. They cause death from respiratory and cardiovascular causes, including strokes and they increase mortality in children and infants. These harms are well-documented in the scientific literature. Tr. 7/31/13, 32-33.

More vehicles mean large quantities of both gaseous and particulate pollution, including carbon monoxide, nitrogen oxides and air toxics and volatile organic compounds such as benzene, tolamine and gibadine and formaldahyde. The transportation sector is responsible for 61 percent of carbon monoxide emissions, nearly 51 percent of nitrogen oxide emissions in nearly 30 percent of volatile organic compounds. Not only that, but it is gasoline-powered cars and trucks, not diesel-powered trucks, that are the major contributors to these emissions. That's important because these dangerous pollutants would be emitted by the very vehicles that would be lining up to fill their tanks at the proposed mega gas station at Wheaton Plaza. Many who shop there stand to suffer significant harm from the air pollution from a gas station. Children face special risks from air pollution because their lungs continue to grow and develop throughout childhood and into adolescence, probably because they are more active outdoors than adults. According to the policy statement of the American Academy of Pediatrics recognizing the health hazards of outdoor air pollution, a child's developing lung is, quote, highly susceptible to damage, closed quote, from air pollution. That does place the children at Stephen Knolls School at risk. Older adults also face a greater burden from air pollution, as it's not uncommon for seniors to go to the mall for socialization and to walk around to get exercise. As the body ages, it's less able to defend against the effects of air pollution. In addition to those two groups, people with pre-existing conditions such as asthma, heart, obstructive pulmonary disease, cardiovascular disease and diabetes all face a greater burden from traffic-related air pollution. To look at just one of those, 25.9 million Americans already have asthma, including 7.1 million children. So the pollutants from gasoline add to the burden that they face every day. In fact, a 2010 review by the Health Effects Institute, looking at existing research, concluded that traffic-related pollution may actually cause the onset of new cases in children. Ms. Gottlieb then discussed the potentially harmful effects of the named pollutants, including their by-product, ozone, in more detail. She also detailed potential harmful effects from particulate matter, especially fine particulate matter consisting of particles 2.5 microns in diameter or smaller (*i.e.*, $PM_{2.5}$). Tr. 7/31/13, 33-44.

Another concern is the cumulative effects of air pollution. The toxins that people would be exposed to from breathing air near the proposed Costco gas station would not be acting alone. They would act on top of the already polluted air they already breathe. This would intensify the threats to their health. If Costco were to build a 16 pump gas station at Wheaton Westfield Mall, it would greatly increase air pollution in three ways. One, from the dangerous emissions from the cars idling their engines while they wait in line for their turn at the pump, and with 16 pumps, that's a lot of cars. It would increase congestion in the parking lot, which is often full. There are slow-moving and idling cars cruising for a parking space. They are emitting these pollutants also. And then, finally, it would introduce the evaporative emissions from air toxics from the

gasoline that is pumped. The health risks associated with this scenario are serious and even life-threatening. They endanger the people living near the proposed gas station and the students at the Stephen Knolls School, and they would worsen the air breathed by the thousands of people who shop at Wheaton Westfield Mall. Some of those people face a greater risk than others because they are more susceptible to the damaging effects of air, traffic-related air pollution, the elderly, children and people with pre-existing conditions, including asthma, chronic obstructive pulmonary disease, cardiovascular disease and diabetes. Certainly, the cost of gasoline is a factor that should be taken into account, but there are also costs related to the increased illnesses, medical treatment and premature deaths that result from these air pollutants. Ms. Gottlieb concluded that it would be a severe threat to health and to the quality of life to permit this gas station to be constructed, and she strongly encouraged denial of Costco's special exception application S-2863. Tr. 7/31/13, 44-46. Ms. Gottlieb's direct testimony was introduced as Exhibit 217.

On cross-examination, Ms. Gottlieb admitted that she is not a doctor, and that her degree is in French language and literature; however, she works with physicians, and she has both edited and co-authored reports with physicians, including a report on air pollutants. She hasn't done any studies on Wheaton Westfield Mall, and her concerns are more general. She indicated that any gas station is harmful to your health. The concentration of air pollutants matters. She admitted she does not know what an arid permeator is and is not aware of any of the technology that Costco uses in constructing its gas stations; however, any technology that can reduce emissions is a good thing. She also stated that she has not done any research on this site and has not read Mr. Sullivan's report. In addition to her concerns about students at the school, Ms. Gottlieb is concerned about visitors to the mall, people who are waiting in vehicle queues to purchase gasoline, people who are waiting near the gas pumps as their tanks are being filled, people who are walking through the parking lot and people with asthma, who are more vulnerable to some of these pollutants. Tr. 7/31/13, 47-74.

2. Kamran Youssefieh (Tr. 7/31/13, 79-100):

Kamran Youssefieh testified that he owns 19 gas stations, including a Shell gas station at 9510 Georgia Avenue, in Silver Spring. He stated that he has never known any handicapped person to come to any of his stations who didn't get help. His cashiers help without even being asked. He challenged people who drive 10 or 20 miles for gas to calculate how much they're saving versus how much they're spending to get out there to save that money. He characterized that practice as illogical. He is a Costco shopper himself, but finds that their gas stations have lines, which are not convenient. Moreover, if you need air for your tires, or any kind of support, you don't get that at Costco. He predicted that if the Costco gas station is approved, nearby gas stations would go out of business because of loss of volume, firing employees and creating eyesores. He admitted on cross-examination that lower prices from competitors would cause him to lower his prices, but said he would not attempt to compete with a Costco station because it would be financial suicide since Costco would be selling the gas at cost to get people into the warehouse. He further testified that there is ample capacity in the existing stations and that about 20% of his customers use a discount program from Giant or Safeway. Tr. 7/31/13, 79-100.

3. Virginia Sheard (Tr. 7/31/13, 105-122):

Virginia Sheard testified that she lives at 3303 Geiger Avenue, in the Kensington View Community which is across University Boulevard from the Westfield Mall. She has participated for many years on KVCA's Land Use and Zoning Committee. KVCA monitors several of those uses in Kensington View and has opposed most of those recently proposed. They rarely (perhaps never) support new special exception applications because of the impact on the residential integrity of the community. Ms. Sheard is testifying as an individual, not on behalf of KVCA. Tr. 7/31/13, 105, 114-115.

Ms. Sheard challenges the definition proposed of the general neighborhood as being seven minutes drive time from the site. Section 59-G-1.21 clearly states that the reviewing body must consider the effects of the views on nearby properties and the general neighborhood. In her opinion, it cannot be interpreted to include properties a mile or more from the site. Section 59-G-1.21(a)(4) requires that the use be in harmony with the general character of the neighborhood, including the intensity and character of activity and traffic and parking conditions. This too implies that the use be evaluated in direct relation to a physical site. Tr. 7/31/13, 106

Another concern she has is about what happens if the special exception is granted. "We are being asked to accept as statements of fact a voluminous body of material about EPA standards, air quality protocols, interpretations of data pretended with incomprehensible and inconsistent metrics and comparisons with other sites that are totally dissimilar from the proposed site." Tr. 7/31/13, 106. In her opinion, this information has not established compelling reasons about what the community gains from a mega station, and only reinforces the concept that the primary beneficiaries will be the 25 percent of Costco customers who will have access to cheaper gas. Data on air particles, fumes, traffic patterns, noise, pedestrian safety and other elements are presented as fact, but are really subjective conclusions based on dated national studies and policies, deductions, global rather than site-specific data sets, modeling that challenges reasonable people to understand its relevance and generalities that cannot be applied logically to this application. Tr. 7/31/13, 106-107.

Ms. Sheard feels that many days of expert testimony have not provided specific or compelling facts about what will happen at this specific site in the near, middle and long-term future when considered as cumulative effects added onto what already existed at this location. Monitoring and data collection done at the mall at its current level of activity cannot accurately illustrate the density of activity or physical or chemical impact of this proposed use at this site five, seven, 15 years in the future as new retail uses are added and other projected gross changes occur at the mall. What recourse would be available to the community if these presented facts are wrong? What happens in 2018 or beyond if the cumulative fumes from this site are added to the existing air quality elements of the mall, the delivery trucks, queued autos, days of orange or red air quality warnings or climate change resulting in health issues in nearby residences? What if the loss of the 100 or of about approximately 100 parking spaces at the mega station site creates aggravating parking shortages for users, whoever parks at the mall? Tr. 7/31/13, 107-108.

Currently, many special exceptions are granted with specific operating conditions that

must be maintained over the life cycle of the use. The conditions are measurable and enforceable, and if the conditions are not maintained, there's a remedy. Inspections can be required, compliance mandated and if conditions are not maintained, sanctions can be imposed from monetary fines to suspension of activity. This provides some measure of protection for the public and the immediate neighborhood because quantifiable metrics were evaluated at the time of review. How will the County remediate adverse effects that develop in the future if the station is built? Tr. 7/31/13, 108.

Parking has been an issue at the mall for many years and is likely to get considerably worse in the future as the retailer mix in the mall is upgraded and expanded. A new store is coming next to Dick's Sporting Goods. These new customers will join the existing customer base to seek parking convenient to their shopping target and will be competing for spaces already in tight supply on heavy shopping days. Traffic exiting the pumping area or the proposed pumping area will need to merge with the exit out of the general parking lot. As the number of patrons at the mall increases, shoppers aiming for the same parking spaces will become more competitive. If the station is not approved, those approximately 100 spaces could be maintained for the shoppers of the mall in general. Tr. 7/31/13, 109.

As the Westfield retail mix changes, Ms. Sheard further testified that it is reasonable to assume that the customer base will increase, and she questioned as to what data is available to assess parking needs in the future. She noted that Section 59-G-1.21(a)(5) requires that the use not be detrimental to the use, peaceful enjoyment, economic value or development of surrounding properties or the general neighborhood at the subject site, implying that the neighborhood is a measurable, bounded area where such determinations can be objectively evaluated. A broad swath of the County's seven minutes driving time from the site does not satisfy this criterion. Tr. 7/31/13, 110-111.

Sections 59-G-1.21(a)(7) and (8) require that the use not affect health, safety, security, morals or general welfare of residents, visitors and workers in the area of the subject site. In her opinion, parking issues and traffic circulation will affect residents, visitors and workers. Ms. Sheard cited the *Lucky Store* special exception decision as concluding that a needs analysis should start in the local area, not the customer base. The local area is the mall and the public roads and access malls, access roads into the mall, University and Veirs Mill turn lanes. The short access lanes and limited entrances into the mall are part of this equation, not the customers who live two miles from the site. She also questions projections about future demand for gasoline and noted that discounts are readily available to Giant and Safeway card users and can range from 10 cents up to a dollar per gallon or more. She further asserted that 20 percent of the households in Wheaton do not own a car compared to only four percent of the households county-wide, and she noted that online shopping is rapidly expanding, even for big box stores. She feels that Applicant has not established that a need exists for the proposed use to serve the population in the general neighborhood. She feels that new demographics suggest that this cannot be clearly demonstrated in the Wheaton area. Tr. 7/31/13, 111-112.

4. Margaret Alpert (Tr. 10/17/13, 113-148):

On Day 16 of the hearing (October 17, 2013), Margaret Alpert testified that she lives at

3003 Plyers Mill Road in Kensington, within a mile of Wheaton plaza. She is a child development specialist and two of her grandchildren are on the Kenmont Swim Team, one of whom has asthma. She opposes the petition because of traffic congestion, pedestrian issues, parking problems, idling vehicles, potential air pollution, related health concerns and questions about maintenance of the proposed green wall. She noted the unique nature of Costco gas station concentrating fuel delivery in a very small area, and she worries that Mr. Sullivan's report has changed, and that we are continually learning more about the health effects of various pollutants and their interactions. She doesn't want her grandchildren or anyone else's "to be the guinea pigs for what we will later on learn from these new, new EPA results." Tr. 10/17/13, 113-126. As to pedestrians, she indicated that she sees people from the pool, including children and teenagers, walk over to the mall in the summertime. She finds it more difficult for a pedestrian to negotiate the Wheaton mall parking lots than those of some other malls because of congestion. Tr. 10/17/13, 127-148.

5. Mary Ann Carter (Tr. 10/24/13, 113-148):

On Day 18 of the hearing (October 24, 2013), Mary Ann Carter testified that she lives at 3201 Decatur Avenue, Kensington, Maryland, and she works at the Stephen Knolls School as the library media specialist (*i.e.*, the school librarian). She is testifying on her own behalf, not as a school spokesperson. She pointed out the location of the school, in the southeastern corner, just outside of the mall proper. Tr. 10/24/13, 113-114.

Stephen Knolls is not a typical school. It is composed of two special programs. There is an early intervention program with preschool children who are only 3 and 4 years old who have already been identified as special-needs. The other program is for school-age students up to 21 years old who have multiple-severe disabilities, most of whom are also medically fragile, who cannot be accommodated in any other local school. There are about 100 children, and the school has about 10 nurses present at a time. The staff also includes occupational therapists, physical therapists, speech therapists. In any one 30-minute lesson with a class of students, Ms. Carter might have one student experiencing a seizure, with a nurse monitoring, while she continues with the lesson, while another student is being prepped by a nurse for a tube-feeding; another class that day might have a child begin to have difficulty breathing because they're trying to cough up the phlegm, so a staff person will be helping that child readjust his/her position and wipe up whatever comes out while Ms. Carter goes on with her lesson, and another child's medical monitor starts to beep, beep, beep, and somebody has to call in a nurse to come and see what's going on and fix that problem. That's a typical day. And on a bad day 9-1-1 gets called, and on the worst days a child dies. Stephen Knolls cares for and educates Montgomery County's most fragile citizens, and they attend there longer than most typical children are in a typical school. Children are eligible for the summer program, so they're present even on the Code Red days of summer. And once they're enrolled in kindergarten, unless the family moves far away or the child dies, they'll stay with the school for the next 17 years until they age out at 21 years old. Tr. 10/24/13, 115-117.

Every one of the students is sent to Stephen Knolls specifically because of their special needs. They are bussed from all over downcounty to this specific location because this is the place that Montgomery County has created to care for these most special-needs children. Their

parents live in Takoma Park or Silver Spring, but the children are bussed there. And if this gas station gets built, these families do not have the freedom to decide that because their child might be more severely impacted because of this gas station than a typical child would, they can't decide that they'll just move to Rockville or move to Bethesda and have their child be far away from this, because their child will get bussed right back to this location. They can't move away. They don't have the choices that most of our county residents have. Residents can choose to go to a different gas station in their neighborhood, but Stephen Knolls students cannot choose to attend their neighborhood school. 10/24/13, 117-118.

Ms. Carter understands that more pollution is an inherent adverse characteristic of a proposed gas station, but she argues that what is not inherent is the particular population that would be exposed to this additional pollution. Tr. 10/24/13, 118.

Ms. Carter testified that although the EPA may indicate it is alright for the general population to be exposed to some more pollution, no one has defined the impact on this particular population. No one can say how this could affect that 3-year-old boy on an oxygen tank, attending school on a Code Red day in the summer. No one can say what the long-term effects will be on a child with respiratory problems who will be coming to the school every day for 15 years. The effects of the added pollution that the gas station will bring to this particular population have not been tested because it would be unethical to do so; yet she feels that's what's being proposed – put the gas station in and see what happens to them; see if it causes the student hospitalization rate to go up; see if it causes the death rate to go up. There is already a lot of pollution at the school from the traffic, but that does not make it right to add even more pollution from the gas station on top of that, even if it's just a little more. The cumulative effect may just be the strain that breaks the compromised health of these children. Tr. 10/24/13, 118-119.

Ms. Carter further testified that the second impact to the students will be the increased traffic, which may impede the ability of the school to safely walk these physically compromised students from the school to the mall. That is part of their regular activity, and no Costco study has addressed this issue. "Fast-Food Fridays" is the highlight of the week for some of these kids. She noted that bus transportation to the mall for these children may also be burdened by extra traffic. Tr. 10/24/13, 119-120.

Ms. Carter concluded with the following summary:

> In summary, the special exception process requires that the proposed use not affect the health of those at the subject site. So the standard by which Costco's application must be judged is whether the gas station could have adverse health effects on children at Stephen Knolls School who have serious disabilities and health issues, children who land in the hospital from a common cold. Until there are sound scientific studies that considered this specific population, a preponderance of evidence does not exist that shows that the proposed mega gas station will not have adverse health effects and the traffic studies have not shown how we will continue to be able to access the mall safely. Tr. 10/24/13, 121.

On cross-examination, Ms. Carter was asked whether she was aware that the EPA

guidelines require National Ambient Air Quality Standards to be set at a level that takes into account sensitive populations. She replied that she was aware of that but does not believe that that specifically addresses this situation because this is a concentrated set of handicapped children who are bussed here from all over the county to this specific location, not just some general special-ed kids out in the general population. Ms. Carter admitted that she was not familiar with Mr. Sullivan's reports or the testimony of Mr. Guckert and Dr. Chase. When confronted with the suggestion that Mr. Guckert's evidence would predict only one additional car every minute on the ring road, Ms. Carter concluded that it would still impact these children, who take about four minutes to cross the ring road. Tr. 10/24/13, 134-144.

6. Susan (Sam) Campbell (Tr. 11/19/13, 11-27):

On Day 20 of the Hearing (November 19, 2013), Susan (Sam) Campbell testified that she lives at 9306 Adelaide Road, Bethesda, Maryland. She appeared with her son, Jack, who has severe developmental delays. Ms. Campbell testified that opposes the Costco gas station because it would be about 300 yards away from the Stephen Knolls School that Jack attends, and though he is probably one of the least medically fragile students in the school, most winters, he gets pneumonia and ends up in the hospital. He does not clear colds and sicknesses like typical children do. Stephen Knoll is a Montgomery County Public School that serves children with severe and profound delays. Children start as young as two-and-a-half there and they will go to the age of 21. Jack is going to be there until he's 21, and he has already been there for 10 years. The school has 110 students, with a staff of 75, and of those 110 students, 50 are medically fragile. There are seven students that attend with full-time private duty nurses. It's not uncommon for one to two students to pass away each year. The school serves children with multiple and significant disabilities such as chronic lung disease, cerebral palsy, MS, severe brain damage, and a variety of other syndromes. With these physical and cognitive disabilities, some students cannot move themselves, they're wheelchair-bound and they require 100 percent help at all times for feeding, diapering, moving them in any capacity. Most cannot speak. Some are blind and some suffer seizures. Some require nebulizer treatments as well, and some of the students are on oxygen and/or ventilators. Because of their complicated and compromised health, air quality is a constant priority, and it's actually monitored in the school, but she does not know the details of how that is done. Stephen Knolls is the safest place for her son. It's the most appropriate environment for him, and for the other delayed and medically fragile students.

Ms. Campbell described how the students in wheelchairs and walkers are escorted across the southern ring road to the mall to learn life skills. The walk takes perhaps 10 minutes, and they may spend an hour or two in the mall. There is also a playground on the north side of the school close to the ring road where the children play outdoors. If this gas station is built, her son and many other students would be exposed to it for six hours each day, including summer school, for up to 18 years of their lives, and air quality can be a major issue for these students. Ms. Campbell observed that life is hard enough for these children, so why voluntarily put a gas station there with many idling cars that would jeopardize their health, which is already an uphill battle for parents and the nursing staff. Tr. 11/19/13, 11-27.

7. Maria Alvarez (Tr. 11/19/13, 27-39):

On Day 20 of the Hearing (November 19, 2013), Maria Alvarez testified that she lives at 1706 Gruenther Avenue, Rockville, Maryland. She appeared with her daughter, Angela, who has cerebral palsy, dystonia, epilepsy, quadriplegia, asthma, profound deafness and developmental delays. Angela is 16 years old and she's a typical student at Stephen Knolls. She has been in Stephen Knolls for eight years now. Angela needs a safe environment and care 24 hours a day, 7 days a week for the rest of her life. The Stephen Knolls School is located in proximity to the proposed Costco mega-station and she brought her daughter to make sure that the Hearing Examiner had a clear picture of the population at Stephen Knolls. Ms. Alvarez feels that the Stephen Knolls school is a blessing because not only is it a place for them to go and learn but also to develop who they are, have a sense of community and have a safe environment for the children and for parents as well. Stephen Knolls is not just a typical school; it is Angela's special home and a community for her parents. Angela loves going to school, being with her friends and her teachers. Most of the students at Stephen Knolls share at least two diagnoses with her daughter and their cases are very complicated. Tr. 11/19/13, 27-29.

[Ms. Alvarez testified for herself and her child, and also sought to testify on behalf of the Stephen Knolls Parent/Staff Association (PSA), as its president; however, the Applicant objected that it had not been provided the requisite notice and information required for her to testify on behalf of a group. The Hearing Examiner ruled that her testimony would be received as an individual, and if the Applicant retained its objection after hearing this testimony, it would have the opportunity to bring her back for additional cross-examination. Tr. 11/19/13, 30-32.]

Ms. Alvarez testified that Stephen Knolls is a public day school which provides a special education program for students who range in ages from 3 to 21, with mild to severe cognitive deficits and multiple disabilities. The school mission is to increase the acquisition of academic and related developmental skills by providing a safe and nurturing educational environment filled with meaningful opportunities designed to maximize each student's unique abilities. She believes that building a "mega-gas station" will endanger her child and the health of the other children at Stephen Knolls and it would also endanger the mission of the school, to provide that safe environment. She stated that the community has six areas of concern – the air quality and health impacts, the traffic and parking environmental impact, the noise pollution, the smart growth issue and the lack of need. The children at Stephen Knolls need a safe and nurturing educational environment, and they need a responsible community to make the best judgment for their safety, for their well-being, for their future and the future of their families. Ms. Alvarez noted that Angela has other respiratory-related conditions, such as bronchial dysplasia, and because her diagnosis is so complicated, one thing triggers the other and so on. When Angela gets sick with a cold, it means that she can develop pneumonia or bronchitis and may end up in the hospital, away from her home, her safe environment, her family. Not being able to hear, not being able to comprehend, she is anxious, spastic, scared to death not knowing what's going on. Tr. 11/19/13, 32-35.

Ms. Alvarez testified there are only two schools like Stephen Knolls in the County. One is for the residents that live up-county, and Stephen Knolls is for everybody else down-county. So if the gas station were built at this location, she would not have the option to move her

daughter to a different school. Angela is very vulnerable to medical conditions associated with elevated levels of certain types of air pollution. On days that are code red or code orange, when the air quality is lower, she is limited to inside. There's a lot of preventive care to avoid any mishaps. However, Angela is taking fieldtrips to the mall right now, and Ms. Alvarez and the school feel that it's safe for her to go there. Tr. 11/19/13, 36-39.

8. Vivian Pescov (Tr. 11/19/13, 39-48):

On Day 20 of the Hearing (November 19, 2013), Vivian Pescov testified that she and her husband have been residing since January 1967 on McComas Avenue in Kensington, about 10 blocks away from Wheaton Plaza. They have been members for almost 45 years of the Kenmont Swim and Tennis Club, located on Faulkner Place, close to Wheaton Plaza. Her daughter was on the swim team. Families enjoy coming to the pool to socialize and participate to the different events like crab feasts, the Kenmont picnics on Memorial weekend, the 4th of July, Labor Day and the Sunday picnics and raft nights. Senior citizen enjoy the pool, the swimming and their grandkids. Her daughter and her family also visit often. According to Ms. Pescov, Kenmont Swim Club has feared the installation of Costco's station and the health hazards which she believes will be triggered by the excessive traffic and idling cars either waiting in line to gas up or trying to find a parking place. She has witnessed this situation at the plaza and especially on days like Friday, Saturdays and Sundays where traffic is a veritable zoo and it's really critical to drive and to park. On a recent Saturday, she waited 15 minutes in line from Drum Avenue until she was able to make a left turn and go to the Giant, and she feels the traffic will get worse and worse during the holidays. She is not against the Costco Warehouse, but she fears that the traffic she sees in her neighborhood will increase considerably when the gas station is installed. Ms. Pescov is concerned that during the summer hot days, the overcrowded parking and idling cars trying to park in the lot and around the ring road will present a huge problem. She feels the emissions are extremely dangerous and will be dangerous not only to adults sitting around the pool, but it will also be a big danger to children who will be exposed to the high levels of particulate matter and ozone. The exposure on a daily basis to nearby toxic emissions during the hottest months would render pool members, especially children who are more vulnerable than adults, to chronic adverse effects. Children spend more time outdoors playing and swimming. She is a seasonal asthmatic, and she fears that the ZTA, which increased the distance from the proposed station, is not enough to protect neighbors from pollution. She is also concerned about the effects on the Stephen Knolls School, and she hopes that Costco changes its mind about the station's location. Tr. 11/19/13, 39-48.

9. Laura Kervitsky (Tr. 11/21/13, 245-258):

On Day 21 of the Hearing (November 21, 2013), Laura Kervitsky testified that she lives at 3410 Farragut Avenue, in Kensington, Maryland, about a half a mile from the mall, and she has lived there for about 15 years. The rear part of her house borders Silver Creek, and last month, there was a very significant smell of petroleum coming from the creek. She is a member of Kenmont pool and has been for about five years now. She has two children, ages 13 and 15, who regularly use the pool. A few years ago, she was in a severe car accident at the intersection of University and Valley View Drive, and she avoids shopping at the Giant in that area because of the heavy traffic. She finds the Valley View Drive intersection and the parking lot along the

southern ring road to be confusing, and now she walks to the mall, but being a pedestrian up there is difficult too. She opposes the special exception because the addition of a gas station is going to exacerbate the problem with hundreds of additional vehicles. Tr. 11/21/13, 245-258.

10. Kathleen Michels (Tr. 11/21/13, 267-294):

On Day 21 of the Hearing (November 21, 2013), Kathleen Michels testified that she lives at 1701 Ladd Street, in Silver Spring, Maryland. She is a founding member of a number of the Green Wheaton and the Sligo Headwater Civic Associations, both of which are focused on Wheaton issues, and she has lived in the Wheaton area for 20 years. Although she is testifying as a lay witness, she is a neuroscientist with expertise in the public health area. She feels there are aspects of the design of this particular station that are unique and not inherent to every gas station. This station is projected to sell 12 million gallons of gasoline per year, well above any other gas station operating certainly in the area and perhaps in the county. The Zoning Text Amendment used a 300-foot minimum buffer for stations above the 3.6-million-gallon size, but of course, that text amendment doesn't really address whether stations way above that size, which the Costco gas station will be, should have an even larger buffer. Tr. 11/21/13, 267-270.

The main overarching point is that a huge number of cars will be idling in one location, and those are cars that may have been distributed to a number of other stations normally, without the existence of this station. There could be noise, but the main issue is the exhaust being generated by all those cars sitting in one place and idling, possibly spilling out onto the roadway. There may be direct and immediate health effects on nearby residents and those using the facilities at the mall, including shoppers, students at the school, and visitors to the nearby pool, from the vehicle emissions that fall in the category of airborne toxics, such as nitrogen oxides, particulate matter, benzene, and carbon monoxide. It's indisputable that as emissions rise, rates of asthma and cardiovascular disease rise. It's not really clear what levels of pollutants will be issued from this gas station because you don't normally have this level of cars idling all in one place. It's a synthetic, created situation, a huge point source of pollution not spread out over a wide area. A car, when it's idling, will release more hazardous pollutants than when it's rolling, and of course, it's in one spot. It also adds to greenhouse gasses, which Maryland has attempted to reduce in the 2009 Greenhouse Gas Reduction Act, as has the County in the Montgomery County Climate Protection Plan (Exhibit 363(f)). Tr. 11/21/13, 271-294.

11. Guy Spaid (for his Sunoco station) (Tr. 12/6/13, 139-163):

On Day 23 of the Hearing (December 6, 2013), Guy Spaid testified on behalf of his Sunoco service station business located 11249 Veirs Mill Road, in Silver Spring. It has been there since 1959, and he fears that the Costco station will put them out of business if it opens. Mr. Spaid is a master mechanic, and the station does repairs and state inspections, as well as pumping gas. It has eight pumps and a tiny snack shop. Mr. Spaid and his brother lease the facility from Sunoco, which owns it. A third party owns the ground. The Spaids have an agreement with Sunoco and can only get gas from them. According to Mr. Spaid, nationwide fuel sales are declining at a rate of two to four percent. Sunoco expects the Spaids to maintain over a 100,000 gallon sales volume each month. There just are no new gallons to be had. He could sell twice as much gallons as he does now and there probably still would not be people

waiting in line. If a Costco gas station opens and takes a million gallons out monthly, it will definitely have a detrimental impact on his business, and he will probably be one of the first casualties. Tr. 12/6/13, 139-145.

Mr. Spaid stated that he had 10 to 15 repair customers a day and that his station has an air pump available for tires 24 hours a day. His station is open for gas seven days a week, from 7 a.m. to 10 p.m., and there is a bathroom available. There are auto fluids and windshield wipers for sale too. The station gets a bonus from Sunoco if it pumps over a certain volume, and it represents about 20% of its gasoline profits. He makes a profit of about 4 to 6 cents a gallon, and about half of his profits come from gas sales. There is a Freestate station next door, and they are aggressive competitors. Mr. Spaid is concerned about the potential competition from Costco. Tr. 12/6/13, 146-158.

12. Deborah Houseworth (Tr. 2/24/14, 10-34):

On Hearing Day 26 (February 24, 2014), Deborah Houseworth testified that she lives at 2726 Blaine Drive, Chevy Chase, Maryland, and she wished to express her concern over the addition of a Costco gas station to what she considers an already dangerous parking lot serving the Costco warehouse. She recited her experiences in more than two dozen visits to that parking lot. It included many people jumping a curb and weaving between the cars and across the aisles in the absence of adequate pathways. Since there is so much congestion and a very small, inadequate loading area, pedestrians have no option but to push the large, wide carts to their cars. Carts are abandoned, and drivers weave in and out around either carts or cars waiting for spaces. In her opinion, adding additional traffic to this area will be a hazard to pedestrians. She described it as "an accident waiting to happen." Tr. 2/24/14, 10-12.

Ms. Houseworth also critiqued the entrance off of University Boulevard onto Valley View Drive, which terminates in a three-way stop sign (at Intersection 16). With the increased traffic, Valley View Drive often backs onto University Boulevard. She has seen many people pull into the middle of the intersection, question themselves, pause or stop, barely missing a collision. Ms. Houseworth also feels that a large gas station would be incompatible with various goals of the Wheaton Sector Plan regarding pedestrians and creating a walkable community. She feels the addition of a gas station will create a very unsafe environment for pedestrians and increase the volume of traffic to an unmanageable number, which seems contrary to the County's initiative called Heads Up in Parking Lots (an effort to reduce pedestrian accidents in parking lots). Tr. 2/24/14, 12-17. On cross-examination, Ms. Houseworth stated that she doesn't use the garage adjacent to the Costco because the entrance she uses is more convenient for her. She admitted that if a pedestrian path were installed along the ring road, people could use that safely. [The Hearing Examiner noted that the north-south curb line mentioned by Ms. Houseworth (in reference to pedestrians with carts jumping it) had not been previously mentioned in the hearing.] Tr. 2/24/14, 27-35.

[The Hearing Examiner mentioned that a Maryland House Bill 1383 had been brought to his attention pertaining to issues in this case (Exhibit 457). Ms. Adelman stated that she had also introduced a similar bill 631 in the Maryland Senate. Tr. 2/24/14, 50-52. The Hearing Examiner discussed changing his mind about an earlier ruling in which he had excluded traffic evidence

gathered by the Opposition during the holiday season in 2013 (Exhibit 453(b) and analysis relating to it (Exhibit 453(c)). This change in his ruling arose because the new evidence was clearly relevant, the Opposition could not have gathered it at an earlier date and the Applicant's traffic expert, Mr. Guckert, was going to be presenting evidence relating to holiday traffic, and he would also be able to respond to the new opposition evidence in his rebuttal, thereby vitiating any prejudice to the Applicant. Tr. 2/24/14, 54-77, 87.]

13. Ann Statland (Tr. 2/24/14, 78-87):

On Hearing Day 26 (February 24, 2014), Ann Statland testified that she lives at 3500 Saul Road in Kensington, Maryland, and is appearing as a concerned citizen. She cannot understand how the Council would support gas pumps in a residential area when it is such an obvious quality-of-life issue. She is concerned about the possibility that the gas fumes could contribute to chronic respiratory issues and issues such as asthma, COPD, heart ailments, diabetes, and even cancer. She questioned what would happen if a fire, such as a recent mall fire, reached the gas pumps. Ms. Statland concluded that as long as there are any unresolved issues, whether they be environmental, health, or traffic, the members-only gas station proposed by Costco will not serve the nearby residents well. Tr. 2/24/14, 78-87.

14. Doug Sims (Tr. 2/24/14, 90-109):

On Hearing Day 26 (February 24, 2014), Doug Sims testified that he lives at 2900 Peregoy Drive, Kensington, Maryland, at the intersection of Peregoy and Coronada. He introduced photos of his home and its surroundings (Exhibit 458). Mr. Sims stated that it was his understanding from Dr. Cole's report that polluted air from the gas station would flow down the slope from the ring road to the houses near the ring road, including his. He also quoted from the Technical Staff report to the effect that EPA standards and methodologies used to evaluate modeling results are not site-specific and that gas stations are considered to be hot spots for air toxics due to the concentration of emission sources. The queue of people waiting to purchase gas will create a carbon monoxide hot spot similar to those created at intersections. The proposed gas station will also create a hot spot in nitrogen oxide emissions and could be a cause for concern for the nearest residents such as himself. His understanding is that this gas station will create a unique and hazardous source of toxic air. It'll be unique not only because of the size of the facility, in terms of gas pumped per year, but also because of where it's located -- at a high point in the hills of Kensington Heights. The houses adjacent to the ring road are basically in a valley below the gas station, and it seems likely that the emissions will not dissipate like they would if the wind could clear the pollution from a flat area. Instead, because of the downslope-flow document in Dr. Cole's report, the toxic hot spot, mentioned in the Planning Department's report, will settle into the neighborhood below the gas station. The Planning Department report also states that the gas station has a much higher contribution to volatile organic compound levels, VOCs, including benzene and 1, 3 butadiene, which are known carcinogens, than emissions from mobile sources, and these VOCs come from several sources such as the refueling of the underground storage tanks, breathing of the tanks, refueling of vehicles, spillage, and idling vehicles waiting to purchase gas. The staff disagrees with the applicant's low assessment of residential exposure rates since the graphics provided show VOC emissions in the backyards of the nearest residents to be higher than stated in the analysis. Mr. Sims is therefore concerned

about the possible cancer risk from these emissions. Absent a study showing otherwise, the VOCs and gasoline and other heavier-than-air pollutants in car exhaust may create an unacceptable concentration of toxic air that will settle into the neighborhood beneath the ring road. There are young children living on Peregoy Drive closer to the ring road than his house. If the gas station was moved 300 feet from the pool, he asks why is it okay for it to be closer than that to the children who would have to breathe the bad air all the time? Tr. 2/24/14, 90-102.

On cross-examination, Mr. Sims admitted that he could not remember anything from the Sullivan reports. He agreed that a gully and lip at the edge of the hill might stop some of the pollutant flow, but felt it would overflow the lip at some point, once it builds up, and then flow back into the neighborhood. Tr. 2/24/14, 105-109.

Testimony of Those Neither Supporting Nor Opposing the Petition

1. Clifford Scharman (Tr. 7/31/13, 138-163; Tr. 9/9/13, 107-114):

On Hearing Day 10 (July 31, 2013), Clifford Scharman testified that he lives at 3707 Dupont Avenue, in Kensington, and he has been a resident of Kensington for 25 years. He lives approximately 1.1 miles from the ring road of Wheaton Plaza. He has gone to a variety of town council meetings, and the town of Kensington decided neither to oppose or support the proposed development of Costco. He was a Board member of the Kenmont Community Pool for approximately 12 years, but is speaking on behalf of himself. He neither supports nor opposes the gas station. If the gas station can fulfill the requirements of the special exception, it should be granted. If it can't, it should be denied. Tr. 7/31/13, 138-139.

Mr. Scharman noted that Mr. Guckert's analysis of traffic was limited to the streets from Lexington north on the University Boulevard corridor because that was the area identified by an M-NCPPC as being most directly affected by the development. He obtained a traffic report from the town of Kensington generated by the State Highway Administration in July of 2010 and updated in July of 2012 which provided an analysis of the traffic going on various roads including Connecticut Avenue all the way to Chevy Chase circle, but most importantly the intersections immediately south of where Mr. Guckert's analysis was, which would be the Plyers Mill and Connecticut intersection and the Knowles Avenue and Connecticut intersection. (Exhibit 218). He referenced delays along Maryland 185, which is Connecticut Avenue, caused by the firehouse preemption at the signal of Connecticut Avenue and Plyers Mill Road. Also, on Connecticut Avenue, between Plyers Mill Road and University Boulevard, the count was 56,251 cars in 2011, and then there are 21,112 cars that split off northbound on University Boulevard towards the mall. So, the vast majority of the cars that are traveling through Kensington are splitting off on Connecticut Avenue, whereas approximately 40 percent are going up University Boulevard. Mr. Scharman opined that a gas station could have the effect of encouraging some of those cars that are going to Connecticut Avenue to go onto University Boulevard and go up to the mall for a p.m. fill-up. Tr. 7/31/13, 139-146.[10]

[10] The Hearing Examiner believes that on transcript page 141, the court reporter misattributed statements by Mr. Scharman to the Hearing Examiner.

A second report produced by Mr. Scharman (Exhibit 219) is a January 21, 2003 letter from the State Highway Administration to the then mayor of the town of Kensington, relating to the request for a roundabout at Maryland 192 and Player's Mill Road. At the intersection of Connecticut and Plyers Mill in the a.m. peak hour, the level of service was rated "D,"[11] and in the p.m. peak hour, and in the p.m. peak hour it was rated at "F." There was an extra right-hand turn lane turn added afterward at the suggestion of Mr. Guckert when a Safeway was approved. Mr. Scharman stated that from personal observation, in the afternoon, traffic can back up on Connecticut Avenue to Washington Street and further, even sometimes almost to Saul Avenue. The traffic on Knowles Avenue in the afternoon can back up as far as Beach Drive. The traffic on Cedar Lane can also back up to the community pool area. On the Plyers Mill side, the back up can go beyond Nash Place, which is the first intersection beyond Metropolitan. He therefore concludes that the traffic has grown worse in the intervening seven years or eight years, but he has no objective evidence to support that. He would suspect that even one gas tanker and a few more cars going through on Connecticut Avenue corridor at that time would exacerbate the situation, even if it's only a miniscule amount. Tr. 7/31/13, 146-149.

Mr. Scharman also produced a MSDS safety sheet for gasoline produced by Amaretto Hess (Exhibit 220). He believes there is a requirement under the Emergency Planning and Community Right to Know Act for gasoline stations with 75,000 gallons of under storage gasoline to become involved with an emergency response plan. He added an EPA document outlining in summary format the requirements of the Emergency Planning Community Right to Know Act (Exhibit 221) and EPCRA frequent questions (Exhibit 222). He noted that gas stations that store 75,000 gallons of gasoline underground must report on the total gasoline or diesel fuel at the facility. He added that the volume of traffic in the mall increases during the holiday season, and his personal experience is that it increases to the point that he won't drive through Wheaton on holiday weekends. Also, on the weekends, parking in the area immediately adjacent to Costco is quite difficult. There are quite a few people, pedestrians walking, not necessarily on the crosswalks, but throughout the parking area, making turns difficult. Tr. 7/31/13, 149-162.

On *Day 12 of the Hearing (September 9, 2013),* Mr. Scharman returned to the stand to introduce some exhibits. Exhibit 261(a) is the Town of Kensington ordinance adopted in 1992 requiring that new gasoline stations must be located further than 1,000 feet from residences. The special exception site is not within the Town of Kensington. He also introduced aerial views of the six gas stations in the Town of Kensington that Dr. Cronyn discussed with regard to the comparative real estate values between the Town of Kensington housing stock and the housing stock within the 400 linear feet of the proposed special exception. Exhibits 261(b) through 261(g). According to Mr. Scharman, these aerial views show that there are fewer than 10 homes within 400 linear feet of the six gas stations that Dr. Cronyn studied in the Town of Kensington. Mr. Scharman noted that Mr. Cronyn's data appears to show more than 10 homes being sold in that 17-year period, which creates uncertainty in his statistics. On cross-examination, Mr. Scharman admitted that he had no evidence that gas stations in fact decrease the property values of a residential home. Tr. 9/9/13, 107-114.

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[11] The court reporter lists the testimony as quoting the reported level of service as "G" in the a.m. peak hour, while the Hearing Examiner recalls the testimony as level of service "D," which is what the quoted Exhibit 219 indicates.

Petitioner's Rebuttal Case

At the beginning of *Hearing Day 28 (March 11, 2014)*, objections were raised by the Opposition to some of the proposed rebuttal testimony as not being proper rebuttal. The Hearing Examiner indicated that he was inclined to be liberal in terms of what he allows in as rebuttal, to the extent that it is arguably rebuttal, so as not to unduly preclude what might be relevant evidence, as long as the other side is not prejudiced. In this case, the Opposition will have had ample time to prepare for cross-examination, so there will be no undue prejudice. Tr. 3/11/14, 18-30.

1. Wes Guckert (Tr. 3/11/14, 31-286; Tr. 4/1/14, 64-300; Tr. 4/29/14, 28-290:

On *Day 28 of the Hearing (March 11, 2014)*, Wes Guckert returned to the stand as the Petitioner's first rebuttal witness. He stated that, in his opinion, the traffic issues pointed out by Ms. Cordry and Dr. Adelman would not be different from those encountered in any other successful regional retail center. When someone goes to a mall on a Saturday or during Christmastime, the expectation is that there will be traffic and delays, and therefore it is not a nuisance. A crowded parking lot equates to a successful business. The mall has been approved, even with the construction of Costco, for another 183,000 square feet of retail space under the APF analysis by the Planning Board, and about 750 additional peak-hour trips. Whatever tests are used, whether it's an APFO test using critical lane volume, which is the preferred method here in Montgomery County, or the Highway Capacity Manual, or other simulations using Synchro and SimTraffic that Montgomery County uses, the mall is not at a breaking point. The critical lane volume test is what the County and Technical Staff uses not just for public areas, but also for traffic issues on the site. Tr. 3/11/14, 31-36.

Mr. Guckert testified that he went beyond the APF analysis in determining whether this use will be compatible. He conducted a Highway Capacity Manual, HCM, analysis of MD 193 at Valley View and the first intersection at the ring road east of Valley View (*i.e.*, Intersection 16). It is contained in Exhibit 465. He found that the Valley View/193 intersection currently operates quite nicely, with free flow during busy periods. Mr. Guckert introduced Exhibit 479(a), which is a video of the intersection of 193 and Valley View on Friday, March 7th, from 2:00 p.m. to 6:00 p.m., and Saturday, March 8th, from 10:00 a.m. to 4:00 p.m. He noted that the westbound left turn lane from 193 into the mall is not heavily used. Clearly, it's more heavily used on heavy shopping days, like Thanksgiving and Christmas and those periods of time, but for the most part, that left-turn lane can accommodate about 55 cars in it. As shown in the video, it's not currently being fully used. It was designed for peak use for the mall. Even Ms. Cordry's films showed a momentary blockage of the eastbound traffic that generally cleared in one to two-and-a-half minutes, which is to be expected approaching a successful shopping center mid-day on a Saturday. HCM analysis shows that there would be about a two-second delay per car at the MD 193-Valley View intersection with the additional cars generated by the gas station. There would be about one additional car per minute, or about two cars per signal cycle, which in his view would not be perceptible. Under normal non-holiday conditions, the double-left-turn lane westbound on MD 193 at Valley View (which holds 55 cars) clears in one light cycle and will continue to do so if the gas station is added. In Mr. Guckert's opinion, there's nothing that will make it unsafe or hazardous at all. At Intersection 16, the additional delay would be about 4

seconds, and it will operate safely, as well. Tr. 3/11/14, 38, 55-78.

Mr. Guckert further testified that he does not foresee a problem with cars exiting the planned gas station. As shown in Exhibit 456(e), there will be six different ways to exit the gas station and various alternatives for getting out of the parking lot and onto the ring road. Cars will still have plenty of opportunity to exit even if activity is going on at the Costco loading docks. He estimates that during peak times, one car will exit the station every 20 seconds or so. Tr. 3/11/14, 78-89.

Mr. Guckert also used photos of the Brandywine Costco gas station (Exhibit 456(b)) to demonstrate cars exiting, in which he said the number of transactions would be comparable to what one would expect at the Wheaton station. In his opinion, the cars at the proposed gas station would not have a problem exiting into the parking lot even if it were full, and the proximity of the station to the store really is not that important. It's a parking lot like other parking lots at shopping centers that people are used to. A car that's exiting a gas station is operating no differently from a car that may have been coming solely for the purposes of shopping and that's driving through the parking lot. Tr. 3/11/14, 90-102.

Mr. Guckert further testified that he had visited a number of Costco gas stations, and they were located in parking lots where the Costco store is located. He indicated that a car entering at the single access point of the proposed Wheaton gas station will likely gravitate to the shortest lane. Using Exhibit 456(d), Mr. Guckert stated that even with "sloppy queuing," 40 cars will easily fit into the queuing area without any issues and 96 percent of the time the queue is going to be 40 cars or less. For 76 percent of the time on Saturdays, the queue is four vehicles or less per lane. During the weekdays, the queuing is far less throughout the day, probably averaging eight to 10 cars during this nine-hour period.[12] The average queuing is one to two cars over a 15-hour period. Tr. 3/11/14, 106-119.

According to Mr. Guckert, under peak conditions a car will be making either a right or a left turn into the gas station every 20 seconds. There's a three-way stop along the ring road at the north-south drive aisle adjacent on the west side of Costco, and cars that are westbound on the ring road will stop at that three-way stop. If there's a car waiting to make a left into the gas station, that will create a natural gap that will allow that car to make a left turn in. The volume of traffic on the ring road is light enough that, in his opinion, there will be very little delay for cars waiting to make a left turn into the gas station -- one, because of the volume of traffic on the ring road; two, because of the gap that is created by the stop sign. He does not anticipate a queue lining up to turn into the gas station from eastbound traffic. Because of the speed humps that exist at various locations, cars on the ring road average 15 to 20 miles an hour. The posted speed limit is 15 miles an hour[13] along the southern ring road. Tr. 3/11/14, 122-124, 142.

As to pedestrian safety, Mr. Guckert testified he has no concerns because of the wide drive aisles (24 feet), adequate turning radiuses and lack of sight distance issues. In his opinion,

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[12] Mr. Guckert later stated that he would have to do some calculations to project average queue times. Tr. 3/11/14, 142.

[13] Mr. Guckert originally testified that the posted speed limit was 25 miles an hour, but he later corrected that to 15 miles per hour. Tr. 3/11/14, 142.

the addition of the gas station will not make the parking lot less safe than it currently is. The effect is similar to other possible uses of a pad site, such as a fast-food restaurant. Tr. 3/11/14, 125-129.

Mr. Guckert opined that there are a sufficient number of parking spaces on site to accommodate the gas station and the other retail uses. That determination was made by DPS in conjunction with the parking waiver, which was given at four spaces per thousand. There are about 800 spaces in the southwest quadrant of the mall, 400 spaces on the second level of the garage that are being used, and also about 400 spaces available in the third level (top deck) of the parking garage, which are hardly being used. Tr. 3/11/14, 129-133.

According to Mr. Guckert, increasing the number of cars on the ring road in the morning by the gas station is not an issue since there is plenty of capacity on the ring road all day long, weekdays and Saturdays. There will be two to four gas deliveries to the station per day, but they will not create a problem because the 24-foot-wide drive aisle leaves plenty of room. There's a 30-foot area between the curb line and the parking area where the fuel trucks would park. Assuming 10 feet of fuel truck, you're still left with a 20-foot-wide drive aisle, which actually meets Montgomery County standards for a parking drive aisle. Tr. 3/11/14, 134-138.

Mr. Guckert further testified that the proposed gas station would have almost no impact on the CBD roadways outside the mall. The gas station will generate about 50 new cars in the peak hour on all of the major roads in the CBD, from MD 193 to Veirs Mill to Georgia Avenue, coming from all the different directions. The impact from 50 cars an hour on roadways that are carrying 100,000 cars a day is going to be imperceptible. He does not believe cars will be deflected into local roadways and feels it is unrealistic to project that this facility will generate so much traffic that cars cannot get up and down Georgia Avenue and therefore they'll divert to Mount McComas. Tr. 3/11/14, 139-141.

On cross-examination, Mr. Guckert explained the HCM terms used in Exhibit 480. The table includes not just the inputs from observations of traffic but also inputs which Mr. Guckert projected for the gas station addition. Mr. Guckert admitted there were physical differences between the Brandywine station layout and that planned for Wheaton, and that it is possible that there would be very little parking near the Brandywine station since there was little evidenced on the busy shopping day just before Christmas. The volume of gas sold per year may also differ. Tr. 3/11/14, 144-208.

Mr. Guckert admitted that the reported testimony he gave on May 6, 2013 (Tr. 5/6/13, 117-118) was incorrect in that it purports to say that 90 cars in an hour on the ring road amounts to one every four or five minutes. He also admitted errors in his supplemental traffic analysis (Exhibit 128) which was prepared by a former employee of his firm. The error resulted in an underestimate of transactions per hour. Errors in Exhibit 56(b) also resulted in an apparently inaccurate reflection of the total average queue at the Sterling Costco station, [and Ms. Cordry pointed out that the Wheaton projections were based on Sterling]. Mr. Guckert admitted that it appears to be an error by the same former employee, and he said he would investigate the apparent discrepancy. Mr. Guckert further admitted that when he testified that no more than two cars on average would be queuing up at the Wheaton station, he was basing that on the Sterling

numbers which could change if corrections are made in the calculations discussed above. Tr. 3/11/14, 209-233.

Mr. Guckert confirmed that the original queuing table done for Sterling was just simply adjusted down by 14 percent to be the Wheaton one because Wheaton was projected to sell 14 percent less gas than Sterling. If it sells as much as Sterling, it would have the same number of cars in line as at Sterling. He noted that Costco would have an attendant who's going to be there for those minute numbers of times when the queue is exceeding or getting even close to 40 cars. He admitted that the layout at Sterling is completely different from the station proposed for Wheaton. Tr. 3/11/14, 274-281.

[On *Day 29 of the Hearing (April 1, 2014)*, the Hearing Examiner ruled that he would not consider the potential impact of an improvement to Intersection 16 as part of his analysis of traffic flow for evaluating this case in that it is being proposed initially in the applicant's rebuttal case and it's too late to change the plans of everything in terms of evaluating the case and in terms of the fairness to the Opposition and the orderliness of these proceedings. The Hearing Examiner also ruled, however, that he would allow evidence regarding the proposed changes to Intersection 16 to allow an evaluation of whether or not it makes sense as a condition for a road improvement if the special exception is granted. SCGC objects to any such condition. Tr. 4/1/14, 14-42.]

Wes Guckert then returned to the stand for further direct examination to clear up some issues and resumption of the cross-examination resumed. He testified that the error on Exhibit 56(b) and (c) (concerning queues at the Sterling gas station) were not in the data but in the formula used. He substituted Exhibit 509, a vehicle queue summary at Sterling Costco gas station on January 11 (a Friday (Exhibit 509(b)) and January 12 (a Saturday (Exhibit 509(a)), 2013. The average total queue for Saturday is calculated at 24.8, and the average total queue for Friday is calculated at 8.2. The uncorrected exhibit listed the queues as 2.1 for Saturday and 1.5 for Friday. The minute-by-minute queuing didn't change. It was the average that changed due to the formula not grabbing the entire day. However, Mr. Guckert stated that the mistaken average wasn't used for the analysis and the testimony and it didn't change the input for any other calculation; nor did it change Exhibit 456(a). He used the Sterling data as the base and multiplied Sterling data times a factor of .86 to arrive at the Wheaton data. This yielded a projection of about 21 cars average <u>combined</u> queue inside the Wheaton special exception area on Saturdays. The average is 2.7 cars <u>per lane</u> in the eight lanes (*i.e.*, two to three cars per lane of the eight lanes average per hour over the day). The peak one minute out of 12-and-a-half hours was in the 46 to 48 car in the peak one minute. The average queue length per lane on a weekday over 15 hours would be less than one car. The combined queue inside the special exception area over 15 hours would be about seven cars. The peak one minute on a weekday would be 33 or 34 cars. Tr. 4/1/14, 64-76.

Mr. Guckert also introduced Exhibit 510 (Costco Wheaton projections of queue lengths based on Sterling data). He projects that 240 cars could be handled in Wheaton in one hour, assuming a four minute fill for each. He also projects that 210 cars would be serviced on a weekday at the peak hour. On a Saturday, he projects 220 to 225 cars would be serviced in the peak hour. Although the capacity is 240 cars per hour, the random arrivals create queues. Tr. 4/1/14, 78-81.

With regard to the HCM analysis, Mr. Guckert testified that the HCM data originally that submitted on Exhibit 465 was revised in Exhibit 504. When he redid these figures, there weren't any changes for the weekday morning peak hour and the weekday evening peak hour. When he redid the highway capacity analysis, he revised the Saturday peak hour, and that's in the extreme right-hand column. It shows that for Maryland 193 and west access signalized, instead of 37.1 overall seconds delay per vehicle passing through, it would be 29.4 seconds (characterized as operating at a C level of service). It becomes 30.1 seconds of delay with the gas station added in. That is actually a reduction in the number of seconds from the previous estimates. Then with the Ring Road just below that, the roads that are labeled Ring Road and west access, No. 16 unsignalized, the Saturday peak hour figure of 44.85 seconds is unchanged, and that's functioning at an E level. Mr. Guckert estimated in the previous submission, that with the gas station added, under the current configuration of Intersection 16, there would be 48.5 seconds of delay, and now, the highway capacity analysis says the delay would be 50.63 seconds, which is characterized as an F level of service. At the very bottom of the exhibit, Mr. Guckert added a new row which is labeled "Total with Gas" (with EB standing for eastbound and SB, for southbound). Using the highway capacity analysis, Mr. Guckert estimates that modifying Intersection 16 would result in a net delay, with the gas station, of a 16.77 second delay at that intersection which level of service C. The impact in terms of the delay if the gas station is added to the existing intersection would be a five to six second added delay per vehicle going through the intersection, which he characterized as barely perceptible during the peak hour. The F LOS kicks in at a 50 second delay, and the projected delay here is barely over that, at 50.63 seconds. According to Mr. Guckert, the County deems the F LOS as acceptable in all the Metro station policy areas in Montgomery County, including Wheaton. He explained that the County's LATR used to define 1600 CLV as LOS F, but it no longer attaches the letter designations. Nevertheless, the County says an 1800 CLV is acceptable in the Metro station policy areas, with no improvements required. Wheaton Mall is within a Metro station policy area. The County guidelines do not specify the HCM, which uses the letter designations. He believes that the County allows the higher level of delay in Metro station policy areas in order to encourage development. Tr. 4/1/14, 81-91.

In Mr. Guckert's expert opinion, the intersection operating at an F LOS is not a nuisance because heavy traffic is expected by the Council in a high-density Metro station policy area. It is "a lot of traffic," but in his opinion, it is not a nuisance, especially inside a shopping mall, on a private road where people have a choice of going or not go to the mall. One would expect to have traffic, and Intersection 16 does not currently constitute a nuisance; nor would the extra five second delay from the gas station be a nuisance. It would not be perceivable to the driver. Nuisance is really not defined in traffic engineering parlance, but he feels that if gridlock occurred day after day, where cars are literally blocking intersections for an hour or more, on an ongoing basis, that would be a nuisance. Tr. 4/1/14, 92-94.

Mr. Guckert further testified, over KHCA's objection, that proposed improvements to Intersection 16, as outlined in Exhibit 507(a) and described in his testimony, would improve traffic flow and would change the level of service from the 50.63 second delay (LOS F) all the way down to a level of service C, as detailed on Exhibit 504(a). He stated that there is one pedestrian every five to eight minutes. Tr. 4/1/14, 97-102.

According to Mr. Guckert, Costco will have two attendants at the Wheaton gas station during the mid-day hours on a Saturday and Sunday. The second attendant will be there for queue management, and his sole job will be to direct customers during busy times, getting them to move forward and to move around into lanes that have extra space available. Mr. Guckert stated that traffic studies are not undertaken by the peak minute or the peak five minutes. They analyze traffic based upon a one hour increment because there are so many fluctuations within a one hour period that to try to take it down to that fine a point is unrealistic. Tr. 4/1/14, 111-114.

On resumed cross-examination, Mr. Guckert admitted there was a mistake in Exhibits 56(b) and (c), but said that he didn't personally do the calculations and didn't notice the error at the time. The calculation error led to the average total queue figures on a Saturday being listed as 12 times less than it should have been (2.1 v. 24.8) and on a weekday 1.5 v. the new figure of 8.2. Mr. Guckert does not know whether the erroneous information was given to Mr. Sullivan. Tr. 4/1/14, 115-128. [Ms. Cordry pointed out (based on her Exhibit 503(b)) that mathematically, Mr. Guckert's estimate (Tr. 3/11/14, 117) of approximately 4 vehicles in each lane queue at Wheaton, 76% of the time on Saturdays should have been 6 cars, but she was unable to say whether that difference was material to the case; rather she argued that it went to Mr. Guckert's credibility. Tr. 4/1/14, 129-146.]

Mr. Guckert was also asked about his statement (Tr. 3/11/14, 232) that 50 percent of the time the station is open, you'd expect there to be two cars or less in line. He could not say exactly how he derived that figure, and he did not have any information to contradict Ms. Cordry's assertion that it should actually be 4 cars in line. Tr. 4/1/14, 147-157. Viewing a video of the Costco station at Elkridge, Mr. Guckert admitted that cars were backed up out of the box, even though the numbers did not exceed the theoretical box capacity of 34; however, he noted that the reason for the extra attendant proposed for Wheaton is to help manage the queue. Costco's policy is not to let any cars idle on the ring road. Tr. 4/1/14, 158-186. Mr. Guckert stated that cars fueling at Wheaton would take about the same amount of time as cars fueling at Sterling. Tr. 4/1/14, 187-206.

When questioned as to whether the number of pedestrians crossing the parking lot near the station would interfere with the cars exiting, Mr. Guckert opined that pedestrians would not delay the cars exiting. Pedestrians will give way to cars and vice versa. Costco will be building a pedestrian path east-west halfway across the parking lot. Tr. 4/1/14, 213-225. When asked whether locating the Costco station where it was originally planned in the southwestern corner of the mall would have been preferable from a traffic movement and pedestrian safety perspective, Mr. Guckert replied that it would have been better. He also opined that under traffic regulations (Article 66-and-a-half), a car leaving the gas station would have to yield to the car on the east-west driveway. He noted that when you exit from a gas station on an arterial, you're typically at about a 50/60 degree angle, and you have to look over your left shoulder, which makes it much more difficult for the driver exiting to see the pedestrian. In the proposal for Costco, drivers exit at a 90 degree angle and it makes it a whole lot easier to see pedestrians if they happen to be walking in front of the exit to the gas station. Tr. 4/1/14, 229-252.

Mr. Guckert does not consider parking lots to be danger zones. Accidents happen, but

the important thing is whether the parking lot is safely designed. [Ms. Cordry introduced exhibits discussing pedestrian accident data, although there have been virtually no studies of parking lot safety (Exhibits 512 and 513)]. Tr. 4/1/14, 255-274. Mr. Guckert did not take issue with Ms. Cordry's suggestion that the other uses on page 4 of Exhibit 500(a) would generate less traffic than the gas station. Tr. 4/1/14, 286-287. Mr. Guckert's HCM analysis dated 3/12/14 was introduced as Exhibit 514. Tr. 4/1/14, 299-300.

[On *Day 30 of the Hearing (April 29, 2014)*, the Hearing Examiner noted that Exhibit 519 is an order granting Part 1 of the joint motion of KHCA, KVCA, and SCGC to postpone Mr. Sullivan's testimony and denying Part 2 for reconsideration of the Hearing Examiner's decision not to strike Mr. Sullivan's rebuttal report of February 21, 2014. The Hearing Examiner also ruled on KHCA's objection to the Sullivan rebuttal testimony based on an argument that it is inadmissible as employing a methodology not acceptable in the scientific community. He overruled the objection, stating that he will not preclude Petitioner from having Mr. Sullivan testify as to his use of the ozone limiting method (OLM) during his rebuttal testimony since it is responsive to Dr. Cole's testimony; however, he will consider the admissibility issue again after Mr. Sullivan has the opportunity to present his scientific justification for applying the ozone limiting method during his rebuttal testimony. If he decides to preclude this substantive portion relating to the OLM method based on the cases that were cited -- Frye-Reed and Chesson -- or based on Daubert, it will then be in the record as proffered but not admitted testimony, available for review by subsequent forums. If he admits it, the Opposition's expressed concerns relating to the scientific acceptability of the methodology will go to the weight that he gives it. Tr. 4/29/14, 6-9.]

[The Hearing Examiner also outlined his general approach to the question of admissibility of exhibits in this type of administrative proceeding. He sees little reason to strike learned treatises in this type of proceeding when the applicant has had every opportunity to rebut anything said in them. It seems to him that that is the kind of hearsay the Administrative Procedures Act and OZAH's own rules were contemplating when it said that hearsay could be admissible in this type of proceeding if it is otherwise reliable and probative. Certainly, the fairness aspect has been satisfied by having these learned treatises produced in advance and by giving the opportunity to respond. They won't be given the weight of live expert testimony because the declarants are not here to be cross-examined, but they would be admitted. The same is true of signed letters to OZAH by folks who have not testified. Traditionally, OZAH has accepted signed letters from members of the community, even though the person is not here to be cross-examined. They do not get the weight of a witness who has testified under oath and who has been cross-examined. That has been the practice for many years, to receive community submissions in that fashion. OZAH does require that they be signed. The Hearing Examiner considers newspaper articles to be a different story. They have an inherent unreliability built into them, and he is not inclined, as a general rule, to just admit newspaper articles that are objected to, but he will go through them one at a time to see if particular ones have some indicia of reliability that would allow them in a particular case and vice versa. Tr. 4/29/14, 12-13.]

[The Hearing Examiner noted that he had denied Applicant's motion to for reconsideration of the April 1, 2014, ruling that proposed modifications to Intersection 16, introduced for the first time during rebuttal testimony, would not be admitted in evaluating

traffic impacts in the case (Exhibit 548). In addition to being late, it is a change proposed for an area outside of the special exception site and is therefore outside of the direct control of the litigants and the Board of Appeals. It also appears that resolving the concerns of the parties regarding the advisability of the proposed changes and their acceptability to the community would involve evaluations beyond the scope of this special exception hearing. Also, the second question is whether a condition should be allowed that dealt with this, and after seeing the concerns raised, the Hearing Examiner thinks it would probably be unwise. Instead, he would propose some alternative language for the Board of Appeals, essentially saying that they're not expressing an opinion about what happens to Intersection 16. If Westfield and the community and the Technical Staff decided that it was advisable to reconfigure that intersection, then that would be up to them to determine it. It wouldn't be precluded by anything that the Board of Appeals would be saying. That would be the Hearing Examiner's recommendation given the input from various sides on the concerns about changing the intersection. It may still be advisable, but it appears to be beyond what can really be ordered for a property outside of the subject site in this type of proceeding. Tr. 4/29/14, 17-20.]

[The Hearing Examiner also ruled that Cindy Holland would not be allowed to testify because the Applicant was already in its rebuttal case, and she had had ample opportunity to come in and testify in the Opposition's case-in-chief during a year of hearing dates. Tr. 4/29/14, 21-27.]

On *Day 30 of the Hearing (April 29, 2014)*, Mr. Guckert returned to the stand for further cross-examination. He admitted that his analyst had used three-and-a-half feet per second as the estimated pedestrian walking speed, not four feet per second as he previously testified, but the difference is inconsequential and four feet per second is what traffic analysts have used on a fairly regular basis for the last 40 years. [Ms. Cordry introduced Exhibits 550 and 551 to demonstrate that the County and the US DOT now use three-and-a-half feet per second pedestrian speed for timing traffic signals.] Tr. 4/29/14, 31-43. Mr. Guckert also admitted that he was unaware that Article 66 and a half, which he had repeatedly referenced, had been repealed in 1977 per Maryland Transportation Code Annotated Section 21-101 (Exhibit 552). Tr. 4/29/14, 43-49. Mr. Guckert asserted that his testimony about pedestrian v. car right of way was practical traffic analysis, not legal conclusions. [Ms. Cordry argued that the Maryland Transportation Code puts right-of-way restrictions on pedestrians as well, and parking lot right-of-way is more chancy than exiting gas stations on main roads, where cars have a requirement of yielding to a pedestrian on a sidewalk.] Tr. 4/29/14, 50-54.

Mr. Guckert admitted that his spreadsheet counts of pedestrians (Exhibit 128(a)) contained mathematical errors that understated the pedestrian count in the totals column, but he asserted that the intersectional chart (Exhibit 128(b)) had the correct figures because he worked off of the data, not the totals on Exhibit 128(a). He explained that his prior testimony was that there was one pedestrian every five to eight minutes crossing any leg of Intersection 16, not the entire intersection pedestrian count. [Ms. Cordry argued that the sense of the question was for the count at the whole intersection, and she pointed out that the total from all legs actually would be one pedestrian every two minutes.] Tr. 4/29/14, 54-84.

Mr. Guckert admitted that his Exhibit 128(b) showed level of service A at all

intersections based on critical lane volume analysis, which he had equated with minimal to no delay in his testimony, while Exhibit 465 (as revised in Exhibit 504), using HCM analysis, shows delays at Intersection 16 of over 50 seconds. He noted, however, that the impact of the gas station would only be to add a five-second delay, which he characterized as an almost imperceptible difference. Tr. 4/29/14, 85-108.

Mr. Guckert admitted that the gas station would add a car or two, momentarily, to the queue at the intersection of Valley View and University Boulevard, in the eastbound direction, turning right onto Valley View and on Valley View itself. He agreed that if there are delays taken at non-holiday times, he would expect them to be higher during the holidays. Tr. 4/29/14, 110-136. Mr. Guckert admitted that he had no idea whether a small number of trips results in a greater proportional increase in delay since he had not done that analysis. His testimony that the gas station would add four to five seconds of delay to Intersection 16 was just an estimate. Tr. 4/29/14, 183-187. When questioned about how the HCM analysis was done, Mr. Guckert stated that he did not know the answer because he doesn't work with this program. Tr. 4/29/14, 194-197. Mr. Guckert stated that for the mall, the weekend traffic is going to be higher than the weekday traffic. He did not suggest to Mr. Sullivan what numbers to use, but just made sure he had the latest (April 2013) numbers. Tr. 4/29/14, 208-210.

In Dr. Adelman's cross examination of Mr. Guckert, Mr. Guckert agreed that the parking areas of Brandywine's Costco station and the planned one at Wheaton were roughly the same size, but the sites are not comparable in a number of ways. Tr. 4/29/14, 213-232. Approximately the same number of cars (3) would leave both stations each minute, but the parking lot at Wheaton serves a number of stores, while the one at Brandywine serves only Costco, and the Brandywine station is located so that cars do not have to exit into the major part of the parking lot. Tr. 4/29/14, 233-250. Mr. Guckert further testified that adding a few more cars in a parking lot means more traffic but doesn't necessarily mean more congestion. Congestion arises when demand approaches or exceeds capacity. He does not believe that the proposed Wheaton gas station would create congestion within the parking lot, with one car exiting the gas station every 15 or 20 seconds, and with many of them going back out to the ring road; nor is there currently congestion in the parking lot in his opinion. Tr. 4/29/14, 256-259.

On redirect, Mr. Guckert testified that there are currently four exits from the parking lot onto the southern ring road, and there will be three if the gas station opens. In his opinion, that reduction of four to three will not cause any type of congestion for people exiting the parking lot. Typically garages and parking lots allocate one gate for each 400 to 600 cars. In Mr. Guckert's opinion, the majority of the pedestrians won't in any way interfere with cars exiting from the gas station because the gas station is at the southern third of the parking lot, and the pedestrians from the mall entrance to the north of the Costco store come out into the northern three-fourths section of the parking lot. Mr. Guckert stated that potential traffic from background development (approved but not yet built) near the mall is not included in any calculation about the increased potential traffic on the mall once the gas station is built because whether or not those future residents will drive to the mall is too speculative. Tr. 4/29/14, 266-272.

Mr. Guckert opined that even with the gas station operating, Intersection 16 will not operate as a nuisance or a hazard. With the additional cars, there could be an additional delay of

four to five seconds. In his opinion, that doesn't create a nuisance because it will be barely perceptible from day to day, from hour to hour, and that projected delay is really a worst-case scenario, based on his analyst's assumption of 40 heavy vehicles going through that intersection. The videos show that it's more likely to be seven to eight heavy trucks going through that intersection. Relaxing that assumption would cause the delay to fall back to about a 49-second delay. In Mr. Guckert's opinion, a traffic problem needs to be sustained for several hours, and not just for minutes, to be a nuisance, and it needs to be sustained out on the public street system versus on the private street system. In his professional opinion, the proposed gas station will be compatible with the mall site and the surrounding area, in that it is similar to 360 Costco stores and Costco gas stations in parking lots, as well as Sam's Club, Safeway, Giant Food, and BJ's, where they have gas stations in parking lots. Having that type of facility in a parking lot is compatible with all the other uses that are in a regional mall or within a parking lot. Tr. 4/29/14, 272-278.

On re-cross-examination, Mr. Guckert stated that in determining the level of anticipated traffic congestion, Technical Staff does not look at private roadways interior to malls for the most part, so he did not assume that people in anticipated developments adjacent to the mall would drive there to shop. However, he admitted that if you build hundreds of apartments and condos nearby, it's likely that some of those people are going to go shop at the mall. He also admitted that just because other people have gas stations in parking lots does not prove that this station would be compatible – you need to examine each individual case. Tr. 4/29/14, 284-289.

2. David Sullivan (Tr. 5/1/14, 12-174; Tr. 5/8/14, 18-311; Tr. 5/12/14, 8-238:

On *Day 31 of the Hearing (May 1, 2014),* David Sullivan returned to the stand as the Petitioner's second rebuttal witness. He testified that he prepared his rebuttal report (Exhibit 466) to clarify some of the statements that Dr. Cole had made during his direct testimony, and to also show the results of applying the ozone limiting method (OLM), as Dr. Cole requested. The report also responds to some past requests by the Opposition that the Applicant show concentration maps inside the mall area using urban dispersion coefficients. Using OLM, he found that the concentrations to be much lower than the concentrations he showed in his August 2013 report and more consistent with findings nationwide. In his August 2013 report, he showed peak concentrations of NO_2, one hour, 98th percentile, in the order of 160 microgram per cubic meter. The actual 98th percentile values being measured even near major highways are lower than that. Relatively local data, as well as more distant data round the country, show that the levels even near major highways, are generally in the order of 85 to 90 micrograms per cubic meter at the 98th percentile. When he redid his calculations for the rebuttal report, using a more refined (*i.e.*, more accurate but less conservative) approach (*i.e.*, OLM), his stage 3 numbers are down to 120 micrograms per cubic meter. That is because it relaxes the assumption that all NO_X is NO_2. For cars that are in motion, ratio of NO_2 to NO_X is 5 to 10%. Tr. 5/1/14, 12-20.

Mr. Sullivan stated that even 120 or 121 micrograms per cubic meter is still high compared to data measured next to highways. I-95 is a busy highway, with a lot of congested traffic. The state of Virginia's air quality regulatory agency, the Department of Environmental Quality, has a monitor near I-95 in Richmond. The 2013 98th percentile value was 86 micrograms per cubic meter. Another example would be in Las Vegas. Las Vegas has a monitor

for NO_2 that is approximately 100 feet from a major highway. They have measured 92 micrograms per cubic meter. Even on Los Angeles's Interstate 710, which has 190,000 cars and trucks a day, 32,000 of which are heavy-duty diesel trucks, and with a monitor located right next to the roadway (*i.e.*, 15 meters from the highway, downwind of the flow), in the most recent year, it measured 153 at its 98th percentile. Mr. Sullivan suggested that ring road emissions would logically be much lower than highway emissions, even 10 times lower than emissions near I-710 in Los Angeles. Tr. 5/1/14, 20-23.

EPA set the 98th percentile data point as the standard for NO_2 one hour measurements. Mr. Sullivan explained that there are 8,760 hours in a year (365 X 24). The 98th percentile would be the hour 2 percent from the highest, which is the 175th highest hour (.02 X 8,760 = 175.2). Tr. 5/1/14, 23-26. Background levels of NO_2 have dropped over the years, and the update of the background levels in the rebuttal report caused the levels of one-hour NO_2 to decline. Also, when he modeled the gas queue considering the fact that the maximum queue wasn't at the gas station every hour the station was open, that reduced the projected NO_2 numbers; however, the main reason the projected one-hour NO_2 declined was the change in how he treated NO_2 versus NO_X. He stated that he still maintained conservative assumptions. For example, he assumed that 25 percent of NO_X is NO_2 in idling vehicles at the gas station, while 20% would be more accurate. He also assumed the 25% level on the ring road and other roadways, even though in free flowing traffic, the NO_2 level is closer to 5 to 10% of NO_X. He is also continuing to use 2012 NO_2 background levels even though those are continuing to decline. While there may be some fluctuation in the measured background levels at some monitors, the overall trend is down because of the decreasing NO_X and NO_2 emissions from vehicles. In Mr. Sullivan's opinion, the projected numbers for one-hour NO_2 are probably at least 20 micrograms too high. He does not recommend monitoring because none of the model values approach the standard, and nobody else in Maryland is required to monitor, according to David Krask, the manager of air monitoring programs for the Maryland Department of the Environment. Tr. 5/1/14, 26-38.

Mr. Sullivan disagreed with Ms. Cordry's criticism of his selection of monitoring stations for background data. He didn't look for the highest, but in the monitoring protocol, he identified locations that would be conservatively representative of a suburban location such as Wheaton, Maryland. If the objective had been to be representative of the core central business district, he would have used a site that represented that type of location, but this gas station was located in suburban Maryland, so he identified a more suburban location. He distinguished the subject site from the District of Columbia and Alexandria. The goal is to be representative; not to identify the highest model concentration possible. That applies to all pollutants. He selected Beltsville and Rockville because they were the closest suburban locations with $PM_{2.5}$ data available. Tr. 5/1/14, 38-41.

Mr. Sullivan further testified that Dr. Cole had indicated that the land use conditions on the mall would be classified as urban, but Dr. Cole also stated there was a transition going on between rural and urban, and that using 50 percent urban and 50 percent rural was how he elected to do his calculations. Mr. Sullivan disagrees with that approach. He agrees that when air flows from one land use to another, there is a transition zone since it takes time for the air to adjust; however, in Mr. Sullivan's opinion, the air conditions would be best described by urban modeling by the time the air gets to the queue area. In this gas station, the urban area begins at

the start of the paved area near the ring road. There are approximately 50 to 70 feet to travel over the paved area before the air even gets to the start of the queue. The pollutant sources are all low-level sources, and the air will have adjusted to urban at the level of concern with this model (1.5 meters above the ground, which is five feet). According to Mr. Sullivan, the typical rule of thumb in a transition zone is that the air adjusts about 1 foot up for every four feet travelled. Therefore, the air would be way past the point of transition up to 1.5 meters by the time the start of the queue was encountered. It's going to be urban modeling by the time it gets to the queue area because these emissions are affected by urban dispersion characteristics, not rural. Urban characteristics have a greater degree of dispersion than rural due to the heating of the sources. The urban treatment will provide lower pollutant concentrations than the rural treatment will. Tr. 5/1/14, 41-47.

When questioned about Dr. Cole's testimony that the rate at which NO_X is converted to NO_2 is a matter of seconds, Mr. Sullivan said that Dr. Cole was correct only in a sense that the reaction is fast, but in order for the reaction to happen, there has to be contact to the molecular level. That takes a lot of time. Atmospheric turbulence does not mix things molecularly right away; atmospheric turbulence is moving chunks around of exhaust gas, in this case, and it's spreading it around, but it's not mixing it to the molecular level until it gets into really fine-scale turbulence and atmospheric diffusion, which is an extremely slow process. Tr. 5/1/14, 47-49.

Mr. Sullivan described the ozone limited method (OLM), which he said is a procedure that's acknowledged in the modeling community to be very conservative. It allows the conversion of NO to NO_2 by first inputting the initial ratio of NO_2 to NO_X from the point of release in a stack, or the exhaust pipe in this case, and then assuming conversion of the remaining NO on a one-to-one basis with how much ozone is in the air. It assumes that there's complete mixing right away of the plume and the ozone, which doesn't happen, and that makes it a conservative procedure. But if there's less ozone than NO, it can't convert it all, and so it will convert what's available in the atmosphere at that point in time. There is a tiered process, starting with tier 1, which assumes 100 percent of NO is converted to NO_2. OLM is commonly accepted in the air modeling community. The EPA has put that option into the AERMOD dispersion model, accepting it as a tier 3 approach. He cited the March 1, 2011, memo of Tyler Fox, leader of EPA's air quality modeling group, to regional air division directors. Tr. 5/1/14, 49-53.

Mr. Sullivan further testified that in his rebuttal report, he needed to deal with a situation where there were receptors [*i.e.*, people] inside the source [*i.e.*, the subject site]. He opined that it would not be feasible to have complete mixing to the molecular level between the outside ozone and the NO_2 from the source itself. So he applied the OLM, and set a very conservative boundary of 40 meters outside the gas queue where the OLM would begin. In his judgment, it would actually be a kilometer or more before there would be molecular contact. He cited Janssen 1986 and a British environmental agency as references. He noted that it's not standard procedure to model inside transient areas like a loading dock or a gas queue and that people would only be there for about 20 minutes at a time. In response to Dr. Cole's criticism that the EPA one-hour standard should not be applied by dividing the exposure into one third for a 20 minute exposure, Mr. Sullivan replied that he didn't apply it that way; he actually just made the observation, but his actual figures were based on the full one-hour standard. It is Mr. Sullivan's

expert opinion, within a reasonable degree of scientific certainty, that the proposed Costco gas station will not violate any applicable federal or state ambient air quality standards. The one-hour NO_2 EPA national ambient air quality standard is a 98th percentile value of 190 micrograms per cubic meter. His most accurate assessment would be his Stage 3 [not to be confused with Tier 3] NO_2 one-hour evaluation in his rebuttal report, which showed a maximum of 121 micrograms per cubic meter. Tr. 5/1/14, 53-60.

When asked about Dr. Breysee's testimony advocating error analysis such as the "Monte Carlo" method to show a range of possible outcomes in modeling, Mr. Sullivan testified that EPA does not require or even recommend that uncertainty be part of the analysis. Their procedure is to run the dispersion model, such as AERMOD, and put in appropriate emissions information, representative meteorological data, and rely upon that result. [The Hearing Examiner noted that this is a special exception hearing, not an EPA application, and that EPA standards are a guideline, but not the precise Zoning Ordinance standard, which talks about adverse impacts on health. He therefore asked wouldn't uncertainty, in terms of the projection, be a factor he would have to consider, as well as Mr. Sullivan's earlier higher projections?] Mr. Sullivan responded that the actual uncertainty in his modeling is at the upper end of his projections, and the realistic number is likely to be much lower than 121 micrograms per cubic meter of NO_2 and certainly lower than 160 micrograms per cubic meter of NO_2. In his estimation, the actual data from I-710 in L.A., the highway in Las Vegas, and I-95 in Richmond, Virginia, indicates that the best fit number for the proposed gas station would be in the order of 80 micrograms or less of on-hour NO_2 at the 98^{th} percentile. The higher projections are just the result of the very conservative assumptions he used. Moreover, using standard EPA procedures, his more refined Tier 3 analysis revealed lower numbers. Tr. 5/1/14, 60-70.

Mr. Sullivan replied to Dr. Breysse's suggestion that the Hearing Examiner should consider the synergistic effects of the chemical pollutants on health by stating that EPA has no procedures for considering combined effects. [The Hearing Examiner pointed out that Dr. Breysse was referring to effects on health not on what effects the combinations of molecules would have on each other.] Tr. 5/1/14, 70-72. When asked about Dr. Cole's suggestion that the $PM_{2.5}$ levels off the mall were not likely to be excessive, but levels on the subject site would be, Mr. Sullivan stated that neither off-site nor on-site levels would exceed the EPA standards. The highest concentration of $PM_{2.5}$ is 10.77 micrograms per cubic meter at the gas station, and 9.8 micrograms of the 10.77 is background. The background was based upon the higher of the Rockville or Beltsville monitoring site. The maximum is occurring right in the gas queue itself, and the total model value there, using urban dispersion rates, is 10.8 micrograms, which is under the one-year standard. Of course, no one would spend a year in the middle of a gas queue. The values shown towards the neighborhood are quite a bit lower than that; in fact, they're under 10 micrograms per cubic meter. The EPA one-year standard for $PM_{2.5}$ is 12 micrograms per cubic meter. The maximum total contribution toward that from the gas station is .92 micrograms in the middle of the gas queue itself. Tr. 5/1/14, 73-76.

The model concentrations of $PM_{2.5}$ from ring road traffic is only 0.028, or about .03 micrograms per cubic meter. Even adding the extra 23% of traffic indicated by Mr. Guckert's new figures (from 639 vehicles on the southern ring road to 783 plus added traffic all around, including the parking lots), the increase in NO_2 would take the maximum projection up from 121

to only about 123 micrograms per cubic meter (*i.e.*, not a significant increase). The bottom line is that Mr. Guckert's changes did not have a material effect on his bottom line estimates for NO_2, $PM_{2.5}$, or for carbon monoxide because the peak Saturday value occurs for an hour or two, and the mall is open for15 hours every day. Generally, for five days of the week, the numbers are significantly lower than that peak value. Tr. 5/1/14, 76-81.

Mr. Sullivan agrees with Dr. Cole that Mobile6 estimates of $PM_{2.5}$ are 10 times lower than that MOVES model, but he opined that MOVES overstates NO_2 for this gas station because it uses an average fleet estimate which includes heavy diesel trucks, which would not be filling up at this station. Mobile6 results are higher than MOVES by 30 to 40 percent for this proposed gas station at the gas queue. Tr. 5/1/14, 81-86.

Mr. Sullivan admitted that before he did the more refined treatment, but just corrected his earlier error in computing background levels, the NO_2 one-hour levels were above the maximum standard in his August 2013 report; however, he noted that he had treated all NO_X as NO_2 and had used higher background values. That's an example of factors that would tend to make it an overstatement. Also, at the loading dock, which is a significant source of NO_2, in the initial modeling of the delivery trucks, he had a tremendous overstatement of their emissions. He had 72 trucks a day in the model going there, but there will only be 10 heavy-duty diesel trucks going there a day. Also for the cars traveling along the ring road and other roadways, he had 25 percent as initial ratio of NO_X to NO_2; literature shows it's more like 5 to 10 percent. The trend in background is also going down, and when the gas station is open, it'll be lower still. Tr. 5/1/14, 90-95.

On cross-examination, Mr. Sullivan explained how he arrived at his figures for No_2 and $PM_{2.5}$ background levels in his rebuttal report of February 21, 2014 (Exhibit 466). He modeled every hour of every day from January 1st, 2006 to December 31st, 2010. Each year, he computed the average of the background, roads, and gasoline at the 98 percentile concentration. The data is paired in time, so when modeling January 1, 2006, at 1 o'clock in the morning, he will have meteorological data for that period, a representative ozone concentration for that period, and a representative NO_2 value for that particular hour. For the Beltsville monitoring information, he showed the background in two ways. First, he showed the average at Beltsville 1 and 2, which are the reference method monitors; and he also showed the average of Beltsville 1, 2, and 3 where one of the monitors was called a TEOM, which is not a reference method monitor, it's an alternative method monitor. EPA has what they define as reference monitors that are the definitive monitors that relate to the standards. In the case of the TEOM versus the filter approach used for the reference method, they're quite different, and in some cases, the TEOM has data that's in conflict and incorrect. In this case, there were dual reference monitors in Beltsville that matched, and there was a TEOM that had very different values for some of the years that were investigated. In his judgment, the TEOM was not representative because it conflicted with two gold standard methods at the same spot. Tr. 5/1/14, 97-117.

When asked how he arrived at his assumptions for applying the OLM to NO_X to NO_2 conversion, Mr. Sullivan replied that the OLM method was devised primarily for evaluating emissions from stacks. Here it needed to be applied to a ground-based area source. One of the constraints of the OLM method is that there needs to be enough plume travel time to produce

complete mixing to the molecular level between the ambient ozone that's outside the plume with the NO that's inside the plume. Since he was modeling an application where there are receptors inside the source, by definition, there would not be complete mixing of the ambient ozone. He reviewed the literature (especially Janssen 86) and looked at the travel times to produce significant conversion for the plumes of various locations, and the literature shows that usually a kilometer or more is required before there is substantial conversion because it has to mix at the molecular level, not just dispersion. There's no significant conversion happening in 40 meters, so he used 40 meters as an extremely conservative distance from the edge of the queue to start applying the OLM for this ground-based source. Tr. 5/1/14, 118-125.

Mr. Sullivan testified that the modeling process he used was AERMOD, which is EPA approved. He noted that Dr. Cole mentioned the ozone limiting method, which is a tier 3 process of the three tiers mentioned in EPA's guidance document for modeling NO_2. [Ms. Rosenfeld disputed that Dr. Cole ever testified that Applicant should use the OLM in this case, and the Hearing Examiner said that Dr. Cole's transcript reference to OLM (Tr. 12/6/13, 130) would speak for itself.] Tr. 5/1/14, 126-136. [It was discovered during this cross-examination that the Opposition had not been given the final version of Mr. Sullivan's February 2014 rebuttal report. That omission was corrected, and Applicant's counsel agreed to produce a line by line comparison of the draft the Opposition had been given and the actual final version that had been filed as Exhibit 466. The Opposition complained of this and other errors in the documents presented by Applicant, but it was pointed out that the Opposition also had to submit some corrections in its exhibits, and the Hearing Examiner concluded that the Applicant's errors were unintentional. The cross-examination of Mr. Sullivan then continued. Tr. 5/1/14, 137-160.] On Mr. Sullivan's August 2013 report, he noted that Figure 9 on page 24 is based on a background of 98 micrograms, not 90 as erroneously written. Tr. 5/1/14, 166-167. [Mr. Silverman raised an objection to possible conditions of any special exception that might not be enforceable against Westfield, such as those pertaining to the proposed green wall and pedestrian path, both of which are not on Costco's subject site. The Hearing Examiner noted that Westfield had agreed to these conditions on the record, and sanctions could be imposed on Costco, the special exception holder, if all conditions are not carried out. Tr. 5/1/14, 168-173.]

On Hearing Day 32 (May 8, 2014), the Opposition raised the specter of the potential effect on climate change of the proposed gas station. The Hearing Examiner responded that it would not be appropriate for him to evaluate the impact of a gas station on climate change in the context of this zoning application. That's more of a legislative kind of evaluation. The Hearing Examiner stated that he was not about to start evaluating evidence on climate change as it pertains to this gas station in the context of a quasi-judicial proceeding, as distinguished from a legislative analysis, which is where it belongs. It's just not something that's within the purview of this kind of evaluation. Not everything can be resolved in a special exception hearing. There's a difference between considering the potential adverse effects of the gas station and considering something as broad as climate change. It's such a different area that it just doesn't make sense to go into it at a special exception hearing. Tr. 5/8/14, 9-12.

The cross-examination of Mr. Sullivan then resumed. Mr. Sullivan stated that his figures on vehicles queuing to purchase gas have changed since his initial November 2012 report. In 2012 the one-hour was set at 40 cars. It's still 40 cars in the February 2014 rebuttal report. For

eight hours he previously used 20 cars, and that's been updated to 32 cars in the February 2014 report. For the 24-hour, he had in 2012, assumed 10 vehicles. That's been updated to 20 vehicles. These updates are based upon the January 2013 traffic queuing analysis at Sterling that Mr. Guckert's company provided. The annual average was and is 10 cars. Tr. 5/8/14, 18-21.

Ms. Cordry's efforts to ascertain where Mr. Sullivan obtained the traffic data for his emissions at each intersection led him to say that the actual basis for his emissions for each of the intersections is to be found in the data disks and the spreadsheets, but he could not reconstruct each one on the stand, and he noted that those numbers haven't changed since he provided them a year and a half ago. Tr. 5/8/14, 22-51. When asked to whether Dr. Adelman's observations of traffic about 15% higher on the southern ring road than reported by Mr. Guckert would affect Mr. Sullivan's projections of emissions, he replied that he would have to analyze the representativeness of their analysis, how much the emissions would go up it depends how much of their figures are intersection emissions versus southern ring road emissions. The significance of some sources isn't very large, and so it likely would not affect his analysis proportionately. Tr. 5/8/14, 52-55.

Mr. Sullivan recalled that according to Mr. Guckert, the peak traffic hour during the weekend, which occurs around noontime, was higher than the peak value that occurs in the evening during the weekdays. Because the weekend peak occurs during midday, around noontime, when there are excellent dispersion conditions, with higher wind speeds, there is less impact per gram emitted to the atmosphere than in the evening peak during the weekdays, which happens around 7:00 p.m. when there are much more restricted dispersion conditions. The southern ring road during the peak weekend has 23 percent higher traffic volume than the peak weekday value, but the fact is that the peak that's happening during the weekdays, which happens five out of seven days of the week and occurs during a time when there's much more restrictive meteorological conditions in general, would more than compensate for that 23 percent higher traffic on weekend peaks. The 175th worst hour (to get to the 98th percentile in one-hour NO_2 measurements) refers to the 175th worst modeled pollution hour, not the 175th worst traffic hour. Tr. 5/8/14, 56-61.

Mr. Sullivan further testified that he didn't recall testimony about traffic backups at Intersection 16. He indicated that if there are in fact 20, 30, 40 cars lined up at Intersection 16, going through at a couple miles an hour and not free-flow traffic, that theoretically would affect his analysis, but even if traffic were substantially increased on Intersection 16 and University and the rest, it would have a minor effect on the results. The southern ring road, gas station operations, in some cases the warehouse, are the more significant sources, but the roadways, in general, are not a big contributor to the modeled concentrations. By using a peak 639 cars all the time (*i.e.*, keeping that number high all the time), 18 hours a day, seven days a week, he has much more than compensated for some variable factors. Tr. 5/8/14, 66-78.

Mr. Goecke introduced his revised list of objections to exhibits (Exhibit 563). Ms. Cordry had exhibits relating to EPA monitor readings marked (Exhibits 564(a) – (e)). Tr. 5/8/14, 88-95. She then referenced Mr. Sullivan's report of January 2013 (mislabeled "January 2012"), which is Exhibit 56(a). In that report, he said that EPA and MDE and all other regulatory agencies in the U.S. rely on conservative background methods to maintain a tractable analysis

when evaluating new or modified facilities; however, he added that EPA and MDE allow for modifications of the most conservative method because many times, if an analysis is done that way, there will be an on-paper violation which is not real, and they therefore allow various ways to reevaluate background in less conservative ways for air quality permits. What was modeled in January 2013 was the most conservative method that EPA uses. Tr. 5/8/14, 96-102.

Ms. Cordry questioned Mr. Sullivan's statements that he used the highest measured concentrations of pollutants in Montgomery County for his background inputs, and Mr. Sullivan explained that he was referring to the highest background measurements fairly representative of Montgomery County's suburban development, and that urban monitoring sites, such as the District of Columbia, were higher, but would not have been representative, and so he did not use them. Tr. 5/8/14, 102-134. Mr. Sullivan insisted that he use the most applicable dispersion coefficients in his modeling. Initially his modeling was larger scale, going way beyond the ring road. That was when the discussion was focused on the pool, the school, and the closest home, and for that scale of analysis, rural was appropriate. After that, he started talking about the gas queue and the loading dock, and inside the ring road was the focus, and inside the ring road is urban. His changes in subsequent analysis resulted not just because of the correction in the background conversion factor for NO_2 , but also because the $PM_{2.5}$ standard changed; the issue with the conversion factor happened; the background values changed; Dr. Cole mentioned that if less than 100 percent conversion for NOx were assumed, a method like OLM should be used. [The Hearing Examiner noted that he recalled Dr. Cole testifying that OLM was one of the methods that could be used for Tier 3 analysis, but he would have stuck with a Tier 1 approach.] Tr. 5/8/14, 134-142.

[Ms. Cordry introduced readouts of EPA monitors (Exhibits 565(a)-(d)), numbers from which she represented were reflected in her Exhibits 564(a)-(e). Tr. 5/8/14, 142-156.] Mr. Sullivan admitted that it was possible that in some areas in D.C. there could be readings higher than next to I-95, but in his judgment, the concentrations at Wheaton are going to be lower than the concentrations next to a monitor located in close proximity to I-95 or the other two locations he mentioned, including Los Angeles I-710. Tr. 5/8/14, 157-159. Mr. Sullivan noted that whether or not the third monitor is a TEOM, there are three monitors in Beltsville, two of which are in agreement with each other and one that is way higher than the other two, and standard monitoring practice is you don't rely on outliers. Monitor 3 at Beltsville is an outlier. He would not be surprised if it turned out to be a BAM Monitor (a beta-attenuation mass monitor) because it would also give an hourly value that would be block averaged, but it's not the gold standard, while the reference monitors are. The BAM and the TEOM are two equivalent methods; they're not reference methods. Nevertheless, at one point, as a compromise to Dr. Cole's position, he included the hourly monitor in an annual average of all three monitors to show trends. That was in the agreed-upon protocol. According to Mr. Sullivan, the standard changed in January of 2013, and the approach of using an extremely conservative value was not appropriate at that point in time. In response to Park and Planning staff and in his professional judgment, he provided an EPA methodology, with averages appropriate for that time. In the more recent analysis, he used the only the two standard reference monitors because the third monitor was way out there and not representative. He did not get any agreement with Dr. Cole about changing that methodology. Tr. 5/8/14, 160-180.

[In response to a question from the Hearing Examiner, Ms. Cordry stated that KHCA's contention is that it would have been reasonable for the modeling to use only the BAM readings and that the highest reading (*i.e.*, the ones from the BAM) should be used as opposed to an average excluding that BAM monitor because its readings diverged markedly from the EPA standard reference monitors. The Hearing Examiner asked whether Dr. Cole supported that viewpoint and asked that KHCA have him address that issue when he testified. Tr. 5/8/14, 182-185.]

In response to a question from Ms. Rosenfeld, Mr. Sullivan testified that EPA guidelines permit three tiers of analysis for determining NOx conversion to NO_2. His "Stage 1" results in his rebuttal report (p. 11, Figure 1) reflects a Tier 1 analysis because 100% of the NOx is converted to NO_2. He has followed EPA guidance in this case, but he is not required to submit the data, the reports, and the protocols to EPA for review and approval because they're not involved in the special exception process. The OLM method is characterized in the Tyler Fox memo of June 28, 2010 (Exhibit 391(a), p. 16), as non-regulatory default option within the EPA-preferred AERMOD dispersion model. If you were doing a modeling analysis for a permit under the Clean Air Act, because of their non-regulatory default status, pursuant to Sections 3.1.2c, 3.2.2a, and A.1a(2) of Appendix W (Exhibit 285), application of AERMOD with the OLM option is no longer considered a preferred model, and therefore requires justification and approval by the regional office on a case-by-case basis. While it's not a regulatory default guideline method, Mr. Sullivan stated that OLM is certainly an allowable method that can be used. He added that part of EPA's guidance also says that the most accurate modeling methodology to the case at hand should be applied. That's the overarching guidance on air quality modeling from EPA, and for this site-specific matter here, he has used judgment to apply them in an accurate and appropriate way. Tr. 5/8/14, 203-216.

Mr. Sullivan further testified that he is using AERMOD in this option without any modification and OLM, without modification. Therefore peer review is not required. The peer review requirement does not apply to the application of a model. Tr. 5/8/14, 217-225.

[After hearing numerous questions from Ms. Rosenfeld regarding whether Mr. Sullivan had sought EPA approval for use of the OLM method in this case, the Hearing Examiner stated that he wanted to hear about whether the OLM method has been scientifically accepted because that's a part of KHCA's objection. On the other hand, the question of whether or not Mr. Sullivan has gone through all of the EPA processes is irrelevant here. The OLM method is not going to be rejected here just because he hasn't gone to the EPA to get it approved. The Hearing Examiner does not expect the EPA to be directly involved in the review of this special exception because that's not part of its governmental role. That's different from saying that Mr. Sullivan can apply the OLM method even if it's not scientifically acceptable. That's the direct question that needs to be addressed. The Hearing Examiner looks to EPA guidance and regulations to better understand the thought process in analyzing this case, but that's not the same as requiring Mr. Sullivan to get everything reviewed by EPA. The Hearing Examiner also noted that Appendix W (page 68236, Item d, on that first column) states:

> d. For Tier 3 (3rd level) analysis, a detailed screening method may be selected on a case-by-case basis. For point source modeling, detailed screening techniques such as the Ozone Limiting Method may also be considered.

The Hearing Examiner stated that this language indicates EPA is saying one can consider using the OLM method. The question that KHCA has raised is whether or not that's a scientifically acceptable method. Evidence on that point can be adduced, and Mr. Sullivan should be asked his opinion on the subject. Tr. 5/8/14, 227-230.]

Mr. Sullivan testified that he did not have his application of the AERMOD model with OLM option peer reviewed because that is not a requirement of the EPA Guidelines nor the 2011 Fox memo (Exhibit 407), nor would there be time to do so. Moreover, he provided probably 10 peer-reviewed references on the topic in an appendix to his rebuttal report. Mr. Sullivan admitted that the OLM method was developed for stack sources, primarily power plant stacks, and the proposed station is not a power plant; however, he considered the underground tank vent (which is about 10 feet high) to be a stack, and he treated the loading dock truck emissions (8 to 10 feet high) as a pseudo stack. He also indicated that this case was not a standard application of the OLM methodology, which is primarily used for stack sources that have substantial time for the plume to mix with the ozone and the ambient air. A stack would be where emissions are coming out of one clearly defined point with a known area. Also, he is modeling inside a source (*i.e.*, inside a gas queue source itself), which, by definition, can't have complete mixing between the outside ambient air, the ozone, and the material inside the source. So in that context, it's not a typical application of the model. Tr. 5/8/14, 230-240.

Mr. Sullivan further testified that he has seen the OLM method applied by others in the literature, but he has not recently done it himself. These applications are referred to by the EPA in the Tyler Fox, March 1st, 2011 memo (Exhibit 407), and Mr. Fox also mentions the application in Atlanta, Georgia, applied to roadway networks and an example in Alaska for a power plant that had fairly short stacks. [The Hearing Examiner noted that on page 7 of Exhibit 407, the first full paragraph begins with: "These preliminary model evaluation results also serve to highlight a point worth emphasizing, which is that PVMRM option in AERMOD is not inherently superior to OLM option for purposes of estimating cumulative ambient NO2 concentrations." The Hearing Examiner then asked Ms. Rosenfeld what the evidence is that this is not a scientifically acceptable method, since it appears that the EPA does accept the use of that methodology.] Mr. Sullivan added that the methodology has been applied to short stacks, such as the power plant in Alaska, which had very low stacks (perhaps 30 feet high), and the application in Atlanta was for cars on roadways. [The Hearing Examiner read from Exhibit 407, p. 7, "Furthermore, the OLM option with OLMGROUP ALL was used to estimate NO2 concentrations from mobile source emissions modeled as area sources for the Atlanta area as part of the EPA's Risk and Exposure Assessment . . . for the most recent NO2 NAAQS review . . . Results of model-to-monitor comparisons from the REA show generally good performance, suggesting that use of OLM with OLMGROUP ALL is appropriate for modeling such emissions.] Mr. Sullivan explained that OLMGROUP ALL looks at all the sources together -- in the ring road, the loading dock, and the rest, while OLM will evaluate each source separately to see how much ozone is available. He tested both methods, but he used OLM rather than OLMGROUP ALL because the OLMGROUP ALL option produces substantially lower impacts than OLM, and thus OLM is more conservative. Tr. 5/8/14, 241-252.

On being questioned as to whether he applied EPA standards, Mr. Sullivan replied that he followed the guidance in Appendix W, p 68230, section d:

> d. The model that most accurately estimates concentrations in the area of interest is always sought. However, it is clear from the needs expressed by the States and EPA Regional Offices, by many industries and trade associations, and also by the deliberations of Congress, that consistency in the selection and application of models and data bases should also be sought, even in case-by-case analyses. Consistency ensures that air quality control agencies and the general public have a common basis for estimating pollutant concentrations, assessing control strategies and specifying emission limits. Such consistency is not, however, promoted at the expense of model and data base accuracy. The Guideline provides a consistent basis for selection of the most accurate models and data bases for use in air quality assessments.

He summarized, stating that if you look at EPA guidance, and you ensure that you're following the overarching goal of not sacrificing accuracy at the expense of conformity, in his opinion, application of the ozone limiting method in this case is not a deviation from EPA guidelines. [The Hearing Examiner noted that he viewed the EPA guidelines as a first step in evaluating this case, but he did not consider the NAAQS benchmarks necessarily binding in this case, in the sense that something could affect health that goes beyond those standards.] Tr. 5/8/14, 253-266.

Mr. Sullivan further testified that the Stage 1 results in his rebuttal report were the equivalent of Tier 1 because they assumed 100% of the NOx was NO_2. He did not employ Tier 2 because he was modeling inside the source. Both Stage 2 and Stage 3 results employed Tier 3 type of analysis. Stage 2 applied OLM, while Stage 3 did not. In Stage 3, Mr. Sullivan applies a methodology that's consistent with OLM, but it's an adaptation making judgments of extremely conservative ratios of NO_X to NO_2 based upon the review of the literature that's contained in Appendix B of his rebuttal report. Stage 3 was less conservative, but more realistic than Stage 2 because Mr. Sullivan set upper boundaries of 50% for the conversion of NO_X to NO_2 at the ring road, and 25% at the gas queue, based the short travel distance from the source. Tr. 5/8/14, 280-290.

Mr. Sullivan admitted that Appendix W, at p. 68246, states that "The accuracy of the model estimates varies with the model used, the type of application, and site-specific characteristics." He listed the uncertainty range of AERMOD to "between 50 percent to a factor of two." For applied modeling, EPA does not require any kind of uncertainty analysis. The standard is treated as bright lines. When questioned by the Hearing Examiner, Mr. Sullivan stated that the accuracy factor for AERMOD is plus or minus 50 percent, but that does not apply to the background monitoring results, just to the modeled projections. For example, looking at Stage 3 in his rebuttal report, the total projection is 121 micrograms, but most of that (76 micrograms) is background and approximately 45 micrograms is projected. The 50 percent plus or minus factor would be plus or minus 22 to 23 micrograms; however, Mr. Sullivan believes his projections are quite conservative, so the error factor would be much more to the lower end. Mr. Sullivan was asked how he complied with Section 9.3.1b of Appendix W, which provides, "The analyst is responsible for recognizing and quantifying limitations in the accuracy, precision, and sensitivity of the procedure." He responded that he did not put "error bounds" in his modeling because what he did was typical of a permit application. Tr. 5/8/14, 299-309.

On Day 33 of the hearing (May 12, 2014), the cross-examination of Mr. Sullivan in rebuttal resumed. Mr. Sullivan testified that he made changes in his reports for a number of reasons, including EPA's change to the $PM_{2.5}$ standard; corrections for the mistaken NO_2 conversion rate; shifting of the focus from the neighborhood and school to the gas queue and loading dock; and Dr. Cole mentioning OLM method. The rebuttal report of February 2014 is less conservative than the August 2013 report, but it is still very conservative in his opinion. Even the early reports covered the entire mall and beyond with 8,100 receptors. Tr. 5/12/14, 8-13.

Mr. Sullivan stated that everything inside the ring road he treated as urban, as did Dr. Cole. In his February 2014 rebuttal report, Mr. Sullivan used urban dispersion coefficients, even in the area just south of the ring road because he was concentrating on the mall area, which is urban. The 2012 reports clearly had urban and rural, shown in the tables for the school, the pool, and the homes. The actual isopleth maps done in 2012 were based on rural conditions. Tr. 5/12/14, 18-23. Looking at Mr. Sullivan's January 2013 report (Exhibit 56(a), p. 35), Mr. Sullivan admitted that if the reading of 175 Micrograms of NO_2 at Veirs Mill Road were corrected for his conversion error, mathematically the number would be above the NAAQS standard, but he argued that you can't look at the older reports that were done with extremely conservative assumptions, because it would not give you a number that could be reproduced by measurement. Tr. 5/12/14, 23-30.

Mr. Sullivan responded to questions about the EPA permitting process, stating that the State, with EPA oversight, would have reviewed the modeling protocol and would approve all options, including whatever decisions are made on NO_2 modeling, but they do not have witnesses come in to testify under oath, subject to cross-examination, nor opposing expert testimony. [The Hearing Examiner noted that the process is different, but each process has its own methodology of achieving some approximation of truth. The process here is to have a hearing examiner listening to evidence, and both sides have cross-examination of what's been presented. Both sides have their own expert witness on these points, and all that gives a level of security. When it's done by the EPA or the State, they have a different process. The County has the special exception process it has.] Tr. 5/12/14, 31-37.

Mr. Sullivan further testified that his February 2014 rebuttal report didn't modify the MOBILE6 versus MOVES choices, but he did factor some things up, as he had stated. For the gas queue, he increased the $PM_{2.5}$ emissions by a factor of 10, to address the fact that MOVES is higher. He did not scale up the loading dock, for various reasons, as he had described earlier. The actual running of MOBILE6 was not repeated for the February 2014 report. He did not change his modeling based on Opposition testimony that there would be more traffic and congestion on the mall parcel than originally shown. He scaled down for NO_2 impact in Mobile 6 at the gas queue because MOVES included diesel trucks which would not be present at the gas queue. Thus, while $PM_{2.5}$ went up, NO_2 went down a little bit. Tr. 5/12/14, 38-45.

Mr. Sullivan stated that the basis for his analysis of the transition between the rural dispersion characteristics south of the mall parcel and the more urban on the mall parcel was Panofsky and Dutton, a 1984 book on Atmospheric Turbulence, and other literature he relied on, but did not cite in his report. Tr. 5/12/14, 46-49. He explained that he used a conservative in-

stack ratio of NO_2 to NOx of 25%, meaning that the assumption is that for all tailpipe emissions in his models, he assumed that 25% of the NOx starts out as NO_2. Thereafter, the remaining NOx gets converted to NO_2 as determined by his analysis in Stage 2 or Stage 3 in his rebuttal report. He used the 40 meter box around the gas queue and loading zone as a conservative measure of an area where very little mixing of NO and Ozone would occur, and therefore little conversion of NOx to NO_2. He used the formula in Janssen '86 to show that at 40 meters the conversion would still be at only six percent. He cited other studies and said that the common pattern is it takes kilometers at a time for that conversion to take place. In his Stage 2 analysis, for all the receptors that are inside that are either inside the source or within 40 meters and just for the loading dock and the gas queue, he strictly used 25 percent because there's nowhere near enough time to convert. Outside the box, he applied OLM to determine the conversion rate. Stage 2 is all based on old NO_2 background data, 2006 to 2010, to match the meteorological data set he used throughout this project before. The results therefore give higher final results than Stage 3. Stage 3 is done differently, but the treatment of the queue and the loading dock inside the box is the same. Outside the box, he assumes a 50 percent conversion ratio, which is more conservative than the OLM method, but he also used a more recent (*i.e.*, lower) background level of NO_2 making the final result show lower levels of NO_2. Tr. 5/12/14, 50-70.

Mr. Sullivan stated that it takes a long time for molecular diffusion in the atmosphere to create intimate contact between ozone and NOx at the molecular level to allow conversion of NO to NO_2. In a smog chamber, it is quick, but not instantaneous. But in the atmosphere, and the literature really is clear on this point, it takes a long time. Tr. 5/12/14, 74-76. Mr. Sullivan obtained his ozone level data for his Stage 2 analysis from a monitor in Rockville for part of the year and from Beltsville for part of the year because the Rockville monitor doesn't measure ozone for the full year. He input NO_2 levels from a monitor in Arlington. He believes his approach is consistent with the Fox 2011 memo. Tr. 5/12/14, 77-84.

[Ms. Rosenfeld renewed KHCA's objection to consideration of the stage two and stage three analysis of Mr. Sullivan's rebuttal report. She stated that these methodologies should be reviewed on a case by case basis by the appropriate governmental authority, and she argued that the rebuttal report does not satisfy the fundamental requirements for admissibility under Maryland law. She contends that under Maryland law courts and non-expert administrative agencies are not supposed to be the arbiters of developing novel scientific approaches, and that the administrative agencies are supposed to make decisions based on judgments that are well within the mainstream of accepted scientific analysis. The discretion that's been conferred upon the EPA to allow for these non-preferred and non-default methodologies rests within their expertise. Therefore, she asked that those two methodologies be stricken from the record, and that evidence and testimony be excluded. The Hearing Examiner stated that he would hear from Dr. Cole on these points and from Petitioner before he ruled on the renewed objection. Tr. 5/12/14, 85-86.]

Mr. Sullivan stated that his rebuttal report expressed no direct opinion as to whether there will be adverse health effects on the residents, workers, and visitors within the mall parcel as a result of the pollution concentration levels shown by his analysis; however, in each case the model maximum, based upon conservative modeling, is less than the EPA standard. So if it's less than the standard, according to EPA, there should not be health effects to the worker, people

visiting, or anyone else. When pressed on that point, Mr. Sullivan responded that his opinion, based on the Stage 3 analysis in his rebuttal report, which he believes is the most accurate, is that the maximum 98th percentile value for one-hour NO_2 on this parcel will be in the range of 75 to 100 micrograms per cubic meter, less than half of EPA's standard of 190 µg/m3. Following EPA's lead that sets the standards for the country, his conclusion as a meteorologist interpreting EPA's standards, not a toxicologist or a medical doctor, is that there will not be adverse health effects. Mr. Sullivan admitted that the maximum projection in his Stage 3 analysis was for 121 micrograms per cubic meter, which is more than half of the one-hour NO_2 standard, but he said he was basing the "less-than–half" statement on the fact that his assumptions were very conservative and the worst locations in California in 2013 measured only 145 micrograms per cubic meter, based on EPA monitors. Tr. 5/12/14, 87-94.

In Mr. Sullivan's opinion, as he said in his rebuttal report, Dr. Cole was in error when he stated that the gas queue would be located in a transition zone between rural and urban conditions, and when Dr. Cole concluded that the most appropriate dispersion rate would be intermediary between urban and rural. Mr. Sullivan explained that he derived the formula on page 35 of his rebuttal report from Panofsky and Dutton, 1984 textbook. It shows the distance (x) required for wind to achieve equilibrium with the new surface. Combined with another formula, Mr. Sullivan produced a chart on page 38 of his rebuttal report showing the distance required for the wind to attain equilibrium at different heights when transitioning (from the neighborhood to the mall area). He did not recall the EPA addressing this topic. His conclusion was that the air travelling from the rural area south of the ring road would transition to urban conditions at 1.5 meters height well before it reaches the gas queue, under any conceivable surface roughness values. Tr. 5/12/14, 100-117.

Mr. Sullivan testified that page 5 of Exhibit 407, which is the March 1, 2011 Tyler Fox memo, the second bullet states that there is general acceptance of .5 is the default in-stack ratio of NO_2/NOx for input to the PV, MLM, and OLM options within AERMOD, in the absence of more appropriate source-specific information on in-stack ratios. But, he had source-specific information for using something other than the .5 ratio, the California Air Pollution Control Officer's Association guidance document (CAPCOA 2011), which is a reference relating to modeling NO_2. It shows that for gasoline and diesel, light and medium duty vehicles, the recommended ratio is .25, and for heavy duty diesels, it's 11 percent. He used .25 for both categories, and he used that not only for idling but also for running vehicles. Several tunnel studies show that in moving vehicles, the NO_2/NOx ratio is typically in the range of five to 10 percent, sometimes three percent. Tr. 5/12/14, 120-124.

When being cross-examined by Mr. Silverman, Mr. Sullivan testified that it was his understanding that for NO_2, Montgomery County was in attainment of the NAAQS standards. Mr. Silverman introduced fact sheet from the EPA web site with air quality designations for 2010, primary NO_2, NAAQS (Exhibit 570). It shows that all areas of the country have been classified as in attainment, but some areas have also been designated as unclassifiable attainment. Mr. Sullivan interprets that to mean that EPA is going to expand its network of monitors to get more complete coverage of large urban areas. [Mr. Silverman argued that the term suggesting that the term "unclassifiable attainment" means there's some uncertainty as to what the actual NO_2 concentrations in the air are. He noted that Montgomery County is listed as

being in unclassifiable attainment.] Tr. 5/12/14, 147-162. Mr. Sullivan testified that the EPA uses the designation "unclassifiable\attainment," for initial designations to mean that available information does not indicate that the air quality in these areas exceeds the 2010 NO_2 national ambient air quality standards. Tr. 5/12/14, 183.

Mr. Sullivan testified that he was not aware of any specific activity in the last five years with the Ports of Long Beach and Los Angeles, to curb emissions from vehicles going back and forth to the ports. [Mr. Silverman argued that every situation is sui generis, and the fact that the Port of Los Angeles is not even exceeding 100 parts per billion at this point does not mean that the subject site is not. The Hearing Examiner stated that he would be governed by the evidence regarding the subject site.] Mr. Sullivan responded that he was trying to provide perspective for the record for the entire country. If there are 822 reporting monitors in the U.S, and the highest one shows 156 [micrograms per cubic meter of NO_2], he questions whether the loading dock at Costco could produce higher values than that. The measurements around the country show for much busier places than the subject site, affected by power plants, highways and the like, levels above 156 are not being seen. That comes from the EPA's AIRDATA database. Tr. 5/12/14, 164-174, 183-184.

Mr. Sullivan admitted that the presence of a wall could make a difference in levels, and that AERMOD cannot model the effects of a wall. However, the [proposed green] wall is simply going to add extra dilution, and rather than flowing down the hillside, which he believes won't happen anyway because of the fact that it's so hot on the mall, the wall would act as a blocking mechanism, much more at night than the daytime. At night, the air could flow around the wall. Tr. 5/12/14, 175-176.

According to Mr. Sullivan, the parking lot is a hot source relative to the rest of the environment. It's urban and has heat, so it's not going to get the stable nighttime conditions that a rural area would get. It's a big mall with a parking lot and a ring road and a gas station queue. It's an urban kind of a warm surface that's going to produce mixing, unlike a rural designation would. Tr. 5/12/14, 185-186. Mr. Sullivan agreed that he had earlier said that the margin of error for the modeling (not the monitor results) was plus or minus 50 percent, but the EPA actually says plus or minus 10 to 40 percent in the Appendix W. He also admitted that there may be some margin of error for the monitoring results because each monitor has a plus or minus tolerance range. However, he could not quantify that error possibility as applied in this case, nor would it change his projections because they are, in his opinion, very conservative. Tr. 5/12/14, 188-193.

On redirect, Mr. Sullivan testified that the Clean Air Act was developed with the intent and stated requirement to have a margin of safety incorporated into the standards themselves. Moreover, many of the steps in his model that are conservative, and adding a 40% error factor to his results could take one out of the range of realism. Mr. Sullivan read from Section 9.1.2.a. of Appendix W:

> (1) Models are more reliable for estimating longer time-averaged concentrations than for estimating short-term concentrations at specific locations; and (2) the models are reasonably reliable in estimating the magnitude of highest concentrations occurring sometime, somewhere within an area. For example, errors

> in highest estimated concentrations of ± 10 to 40 percent are found to be typical i.e., certainly well within the often quoted factor-of-two accuracy that has long been recognized for these models. However, estimates of concentrations that occur at a specific time and site, are poorly correlated with actually observed concentrations and are much less reliable.

Mr. Sullivan stated that his analysis shows, in a distributional sense, the highest 98th percentile, that you'd expect to see a certain concentration at some place near the gas queue, and on some day, without saying which day and which spot. From the EPA perspective, such a model hits the distribution and general location within 10 to 40 percent. In his opinion, there's conservatism remaining in modeling, and there is a greater likelihood of over-predicting rather than under-predicting. He noted that Section 9.2 of Appendix W provides that "No specific guidance on the quantification of model uncertainty for use in decision-making is being given at this time. . . . For the present, continued use of the ''best estimate'' is acceptable . . ." Tr. 5/12/14, 200-206.

Mr. Sullivan testified that in the Stage 2 and Stage 3 analysis in his rebuttal report, he paired his modeling with the 98th percentile background one-hour NO_2 figures from Arlington, and that tends to overstate the results, hour by hour. Paired background means the use of concurrent background, where results are matched on an hour by hour basis, with the NO_2 concentrations from Arlington being matched up with the corresponding meteorological data set being modeled. Tr. 5/12/14, 207-208.

Mr. Sullivan described his conversation with Mr. Krask of the MDE. Mr. Krask told him that the EPA allows states the discretion of whether to rely on the BAM monitors (which are also known as Federal Equivalent Monitors (FEMs)) or just the reference standard ones, since the BAM monitor results are consistently higher than the EPA standard monitors. The EPA uses the standard monitor readings because all of the health studies leading to the NAAQS standards were based on the reference standard monitors. (On re-cross, Mr. Sullivan admitted that he did not know what monitors were used in specific health studies. Tr. 5/12/14, 236-238.) However, Maryland has chosen to follow a conservative approach of counting the BAM results in with the reference standard results when there are no readings from the reference standards, which is about two thirds of the time. That has raised the Maryland results, but not past the point of attainment. Mr. Sullivan does not choose to do that because the results would not be as accurate. He relies on the reference standard monitors. Mr. Sullivan introduced an EPA publication entitled "Display of Bias of Federal Equivalent Monitors (FEMs) in comparison to reference methods." and summary of EPA position on the use of such equipment (Exhibit 572). Tr. 5/12/14, 208-215. Mr. Sullivan did not use the highest monitor readings (*i.e.*, the BAM results), although he did average the monitor results in 2012. He stopped doing that because of the bias after that point in time, and Mr. Krask clearly indicated that it would not be appropriate to use the BAM site exclusively as a basis for a background location. Tr. 5/12/14, 216-219.

Mr. Sullivan further testified that even if traffic were 15% greater than Mr. Guckert's estimates, that would not increase his projections 15%, nor significantly change his bottom line because the contribution of the additional traffic to the result is small and because the assumption he already made in his model was that peak hour traffic happened all the time, every hour the mall was open, Monday through Sunday. Mr. Sullivan also did an OLM analysis inside the 40

meter box and found that if you use straight OLM, doing each source separately, it showed a maximum of 172 micrograms. When he used the OLM group approach, which for multi-sources is more accurate and less conservative, the result was 149 micrograms. In both cases, the results were well under the standard. Tr. 5/12/14, 220-223.

On re-cross examination, Mr. Sullivan explained that culpability analysis is a way of showing what sources contribute to the total results. He stated that he had not done anything in terms of adjusting his results based on Mr. Guckert's traffic numbers possibly being higher because there was no need to do so. In his professional opinion, it would be extremely unlikely that the peak, 98th percentile one-hour value for NO_2 would be beyond the range of 75 to 100 micrograms. His best estimate is that it would be less than 77 micrograms. Moreover, the trend is down because of government efforts to cut tailpipe emissions. Tr. 5/12/14, 224-235.

Opposition's Surrebuttal Case

1. Karen Livornese (Tr. 5/20/14, 16-45):

On Day 34 of the hearing (May 20, 2014), Karen Livornese testified on behalf of KHCA in surrebuttal. She lives at 2811 Peregoy Drive, Kensington, Maryland, which is just below the ring road, in the southwest corner of the mall. Her house is at the dead end of the road, right on the edge of the buffer zone, next to the ring road. When she moved in the Costco Warehouse was not yet open, and traffic was very light, both during the week and on weekends. Since Costco opened, traffic on the ring road is constant. It is frustrating now to drive in the mall. On Saturdays, it's too crowded. Cars actually park around the ring road, and she could see them from her house. There are shopping carts everywhere and people everywhere, so it's hard to find parking. She tried to walk to the mall on two or three occasions. Two times she was almost hit by a car, crossing the ring road at Intersection 16. She expects traffic will get worse if the gas station opens. Tr. 5/20/14, 16-24. Ms. Livornese hears trucks idling in the early morning (around 4:00 to 5:00 a.m.). Two or three times a week, she has observed trucks idling in the evening. She does not know whether the trucks were actually idling or running an internal generator, or whether they had new diesel technology. The longest amount of idling of trucks she ever heard at the mall in a given day was about 30 minutes. Tr. 5/20/14, 29-45.

2. Brendan McGarry (Tr. 5/20/14, 46-57):

On Day 34 of the hearing (May 20, 2014), Brendan McGarry testified on behalf of KHCA in surrebuttal. Mr. McGarry lives at 2815 Peregoy Drive, Kensington, Maryland, two houses down from Karen Livornese. Traffic was noticeably heavier after Costco opened, in subsequent weeks and months. He has heard the same idling as his neighbor testified about, and at night, it is sometimes sustained for a couple of hours. He does not know whether the trucks were actually idling or running an internal generator, or whether they had new diesel technology. Pedestrian safety walking through the mall on weekends is sometimes "dicey" because of the high traffic volume. Tr. 5/20/14, 46-57.

3. Karen Cordry (Tr. 5/20/14, 71-318):

On Day 34 of the hearing (May 20, 2014), Karen Cordry returned to the stand to testify on behalf of KHCA in surrebuttal. She began with an effort to contrast the Brandywine station with the proposed Wheaton station to suggest that they are not comparable, in response to Mr. Guckert's testimony discussing traffic flow at the Brandywine station. [The Hearing Examiner denied an objection to this testimony.] Ms. Cordry testified that the Stephen Knolls School is half the distance to the proposed Wheaton site than that the closest homes are to the Brandywine gas station, and she produced an aerial photo showing that the nearest homes are over 1,600 feet from the Brandywine station. She also compared the population densities of the Waldorf area where the Brandywine station is located with the Wheaton area (Slide 8 of Exhibit 483(a)), and concluded that the lower population density would result in a smaller number of proposed sales per pump, which makes Brandywine a less busy station. Ms. Cordry noted that the Brandywine gas station is located away from where the cars are parked. The gas station is on the far side of the parking for the Brandywine Costco store. She also recalled that Mr. Guckert's video showed that there were very few cars parked there, even on December 21st, which he agreed was one of the busiest days of the year, and yet there was no driving back and forth and no streams of pedestrians walking back and forth. Slide 9 of Exhibit 483(a). Ms. Cordry contrasted this observation with the already busy Wheaton parking lot at the subject site. She also recalled Mr. Guckert's observations at Brandywine of the actual sales volume for four hours on December 21st (Exhibit 456(c)) showed roughly 180 transactions per hour. Dividing that by 60 yields three transactions a minute. Thus, the 12-pump Brandywine station had about three car transactions per minute, while applying the same math to a 16-pump station like what is planned for Wheaton yields 240 transactions per hour, which would result in four cars a minute exiting the station. Tr. 5/20/14, 71-83.

Ms. Cordry further testified that the Petitioner based its projected volume at Wheaton of 12 million gallons a year on an assumption that Wheaton would pump 86 percent of the actual volume at Sterling, which is approximately 13.9 million gallons per year. She argued that whatever the volume of cars, the rate of transactions for a 16 pump station would be the same, and that there will be as many cars coming out per hour at Wheaton as at Sterling, maybe not for as many hours, and maybe not every minute. Tr. 5/20/14, 99-110. Ms. Cordry pointed out that, because drivers do not line up perfectly, people are not going to be able to have 46 cars in the Wheaton queue before they will start to spill out and block traffic on the ring road. Tr. 5/20/14, 111-122. Ms. Cordry also questioned the assumption that Wheaton will actually sell only 86 percent of Sterling. Based on census data, Wheaton has a larger population and the housing units are roughly comparable. The Sterling store has about 141,000 square feet, and the Wheaton store is listed at 152,000 square feet. The calculations on traffic for stores is based on square footage, which would suggest that there would be more trips coming to the warehouse because it's clear that gasoline station sales are very highly correlated with people coming to the warehouse. There is also more parking at Wheaton. She concluded that by several objective factors, Wheaton might very well sell more than Sterling. Tr. 5/20/14, 123-128.

Based on the number of cars exiting north of the proposed station and the amount of traffic, parking and pedestrians in the parking lot, Ms. Cordry suggested cars are likely to back-up into the area just north of the pumps shown in Exhibit 482. [The Hearing Examiner stated

that it would be speculative to reach that conclusion based on the evidence.] Tr. 5/20/14, 129-155. Ms. Cordry also disagreed with Mr. Guckert's testimony that it is safer for cars to exit at 90 degrees into a parking lot, as they do from the proposed Costco station, than it is for them to exit at 60 degrees and have to cross a sidewalk looking backwards for pedestrian. She felt that given the crowded nature of this parking lot, and the number of pedestrians who may be popping up from behind cars, it would be less safe. She referenced the County's briefing on the dangers of parking lots (Exhibit 513). Tr. 5/20/14, 156-160.

Ms. Cordry further testified that the traffic congestion around the subject mall (*e.g.*, at Intersection 16, down from the ring road, on the ring road and back onto University Boulevard) was unusual for malls. Tr. 5/20/14, 161. Ms. Cordry suggested that the Hearing Examiner should consider possible future residential development of the Wheaton Mall. [The Hearing Examiner declined to do so because such development was too speculative if not already in the pipeline, given the current C-2 zoning of the mall. He will take the same approach used by Technical Staff in traffic analysis – they look at the present traffic; then they look at what they call background, which includes developments that have been approved and are in the pipeline; and then they look at what's proposed for the site, and those three factors are added together. Beyond that, it's too speculative.] Tr. 5/20/14, 162-171.

Ms. Cordry stated that the Highway Capacity Manual analysis and Critical Lane Volume (CLV) analysis don't necessarily tell the same thing. The critical lane volume counts cars but it doesn't necessarily reveal delay, and the Highway Capacity Manual is meant to reveal delay issues. She opined that the notations of Level of Service A on the CLV charts in Exhibit 128 from April 2013 probably do not mean little or no delay if one were to do the Highway Capacity Manual analysis. Ms. Cordry argued that Mr. Guckert understated traffic on the southern ring road because everybody coming to the station is essentially a new trip on the ring road beyond what they would make otherwise, whether it's before they enter the gas station or after they visit the gas station. Tr. 5/20/14, 173-180.

Ms. Cordry observed that Mr. Sullivan based his testimony on traffic without considering the effects of delays, such as at Intersection 16. All of his estimates assume free-flowing traffic, and the amount of emissions are quite different for free-flowing traffic than for cars that are idling. She feels that Mr. Sullivan's claimed conservatism does not sufficiently account for the effects of the delays, and he repeatedly relaxed his conservatism. The busier the road, the bigger the delay under the HCM analysis. Referring to Exhibit 504(a), Ms. Cordry noted that in the morning, when Intersection 16 is not crowded, a 15% increase in traffic causes only a 5% increase in the delay; however, in the evening, an increase of the 71 trips for the gas station, which is a 2% increase in traffic volume, causes a 7.5% increase in the delay. A 13.6% increase in volume yields a 20% increase in the delay. She added that Mr. Guckert erroneously assumed that people leaving nearby apartments would not be going to the mall. She feels that some will go to the mall and add to the background traffic. With only 48 new trips added to Intersection 16, bringing the count from 1899 to 1947 (a 2.5% increase), the result is a 13% increase in the delay, which takes Intersection 16 form an E LOS to an F LOS, even allowing for Mr. Guckert's assumption that some of the trucks should not be counted in the traffic there. Her point is that it doesn't take very many additional cars at all to make a difference in the intersection. Tr. 5/20/14, 181-205.

Ms. Cordry questioned whether the traffic inputs Mr. Sullivan used for his model sufficiently estimated actual traffic volumes given the heavy weekend traffic. [The Hearing Examiner noted that Mr. Sullivan's testified that he used the highest peak traffic hour during the week and counted that for every hour, including the weekends, and therefore was much conservative than if he had taken the weekend hours.] Ms. Cordry admitted that she could not show that adding all of the weekend hours together would outweigh counting the peak weekday hour as the measure. However, she noted that Mr. Sullivan's calculations did not take into account Dr. Adelman's observations of traffic that was 15% higher than Mr. Guckert's observations and that Mr. Sullivan did not take into account pollution from trucks (whether or not Costco trucks) idling in the area that were not at the loading dock, as some witnesses testified. Tr. 5/20/14, 220-250.

Ms. Cordry further testified that all of these idling vehicles will create greenhouse gasses which is a violation of federal, state and County policy. She responded to the Hearing Examiner's point that control of greenhouse gases, in general, is a matter for legislative resolution, not for the Hearing Examiner to be evaluating in terms of an individual special exception, by stating that this station would create a non-inherent effect. Ordinary gas stations do not create these gases because cars do not sit idling waiting for gas. This type of station is essentially unique. If the station is approved, these gases are going to be created, and they absolutely create adverse effects. [The Hearing Examiner responded that the question is whether or not it is within his purview to look at the broad question of greenhouse gases in a gas station when the County Council has authorized a special exception which allows large gas stations.] Ms. Cordry responded that the Council allows large gas stations, but it also says to look at non-inherent adverse effects. There are other stations in this County that have as many pumps as this station does but that do not have the volume of cars sitting there, idling. It is the idling cars that are the problem, and it is not inherent in a gas station, and it is an adverse effect. She referenced a Council bill that passed regarding greenhouse gasses (Exhibit 546) and one that had not yet passed (Exhibits 591 and 592). 5/20/14, 251-274.

On cross-examination, Ms. Cordry stated that her traffic delay estimates were based on Mr. Guckert's numbers, and that she did not do an independent HCM analysis. She has never done an HCM analysis, nor has she done a CLV analysis before this case. She has had no training in estimating how traffic would affect delays for cars involved in the traffic, but she has made many observations in the area of the site. Ms. Cordry admitted that she did not know whether the signals on the weekend are the same as the signals during the week, although she noticed changes in timing during her observations. 5/20/14, 275-289.

Regarding her videotaping of traffic in the parking lot at the Westfield Wheaton mall, Ms. Cordry stated that the congestion she observed was not typical at this mall before the warehouse opened, and it was not as crowded at Montgomery Mall. She averaged a speed of four to five miles an hour, but indicated that the congestion can get worse. As to exiting the gas queue at the proposed station, Ms. Cordry stated that although cars may have six options when they're exiting the queue, as soon as they exit and go 80 feet, four lanes are getting dropped into the same East-West Drive aisle and they are all interfering with each other once they get there. 5/20/14, 290-300.

[The Hearing Examiner noted on the record that the controlling provisions of the Zoning Ordinance -- §§59-G-1.2.1 and 59-G-1.21(a)(5) and (6) – address adverse effects "at the subject site" and "on nearby properties and the general neighborhood," not globally. The potential health effects at the site and at nearby properties and the general neighborhood are the subject of the direct evidence in this case, and it is that evidence upon which the Hearing Examiner relies in making his findings. The broader effects of greenhouse gasses on the County, the state, the country, and the world are the proper subject of legislative analysis, not a quasi-adjudicatory proceeding by a Hearing Examiner regarding a single special exception application. If the County Council elects to do so, it can legislatively address the potential effects of greenhouse gasses. At the present time, the Zoning Ordinance calls for the more limited examination of local effects described above. The statutory directions are very specific to the subject site, the properties nearby, and the general neighborhood. That's what it says in the Code. That's what the standard is in this case. Tr. 5/20/14, 301-305.]

Finally, Ms. Cordry admitted that, based on her own figures, 3.7 cars per minute would exit the Wheaton gas station in a peak hour (*i.e.*, about one every 15 seconds), the cars, if evenly distributed in the six exiting lanes, would result in one car exiting per lane every 90 seconds (*i.e.*, every minute and a half). Tr. 5/20/14, 305-306.

[The Hearing Examiner stated that after the final evidentiary hearing session, the record would be closed except for closing briefs, closing oral arguments and a discussion of possible conditions if the Board of Appeals were to grant the special exception. He would not thereafter accept new evidence or, in general, take official notice of additional facts. However, he added that if the County Council were to act on a zoning matter while this case is pending, the nature of the case law regarding legislative zoning actions is that it's effective, even on cases that are pending. He would then have to go back and look at what specifically the legislative action was to determine whether to take official notice of it. Tr. 5/20/14, 307-309].[14]

Petitioner introduced two additional exhibits, Exhibit 593, showing NO_2 One-Hour 98th Percentile Monitor Values Using 411 Individual Monitoring Stations Across the United States During 2013; and Exhibit 594, a 2009 article by Hesterberg, Bunn, etc., reviewing human data on short-term NO2 exposures, and evidence for NO_2 no-effect levels. Mr. Silverman also introduced an article about air quality at the Port of Long Beach (Exhibit 595). Tr. 5/20/14, 313-316.

[14] As it turned out, the Hearing Examiner did find it necessary to take official notice of two actions after the final evidentiary hearing date of May 29, 2014. On July 15, 2014, the Council approved District Map Amendment G-956, as amended, with an effective date of October 30, 2014. When this action goes into effect, it will change the present C-2 Zone of the subject site and Wheaton Westfield mall to the GR 1.5 Zone. The Hearing Examiner informed the hearing participants on the day of the Council action that he would take official notice of it and gave them an opportunity to comment (Exhibit 617). On August 6, 2014, the Hearing Examiner took official notice of the Planning Board votes which determined that the developer of the Mt. McComas property would not be required to build the sidewalk connection to the Wheaton Mall property as had been stated in condition of approval of Preliminary Plan No. 120110170 and Site Plan 820140040, but must provide a public access easement in its place adequate to accommodate the future construction of a sidewalk connection on the "Mt. McComas" pedestrian path. The Hearing Examiner gave the hearing participants an opportunity to comment (Exhibit 627).

4. Dr. Henry Cole (Tr. 5/22/14, 7-186; Tr. 5/29/14, 34-154):

[*On Day 35 of the hearing (May 22, 2014),* the Hearing Examiner noted that the following additional exhibits relating to the health effects of NO_2 had been proffered at the last hearing, and were now identified as exhibits: Exhibit 596, Comments of the American Lung Association on EPA's integrated science assessment for oxides and nitrogen health criteria; Exhibit 597, Short-Term Exposure to Air Pollution and Lung Function at the Farmingham Park study; Exhibit 598, Nitrogen Dioxide and Mortality Review and Meta-Analysis of Long-Term Studies; Exhibit 599, Review of the Primary NAAQS for Nitrogen Dioxide CASAC Review; Exhibit 600, EPA Review of the Integrated Science Assessment for Oxides and Nitrogen and Other Criteria First Externally Graphed, March 12-13, 2014. Petitioner's attorney noted that Petitioner is prepared to submit additional scientific articles into the record in lieu of having Dr. Jison, Dr. Bunn, or Dr. Chase testify further in the case. Tr. 5/22/14, 5-6.]

Also, on Day 35 of the hearing (May 22, 2014), Dr. Henry Cole returned to the stand to testify on behalf of KHCA in surrebuttal. He stated that in his opinion, Mr. Sullivan has not performed the analysis necessary to justify the use of the ozone limiting method (OLM) in achieving his new, lower NO_2 emission levels on the mall parcel. Dr. Cole opined that OLM is an appropriate tool, but one must meet many criteria and provide justifications for the way in which that tool is used. In his judgment, Mr. Sullivan has not provided the justification for many of the choices that he made, and in one case, the case of the so-called tail pipe box or 40 meter zone, he departs from the ozone limiting method in a substantial way by fixing the percentage and assuming that there is no ozone conversion in that zone from sources in that zone. In Dr. Cole's judgment, that's a substantial departure from EPA's guidance. And so in, in the very zone where NOx concentrations are highest, Mr. Sullivan does not recognize any conversion to NO_2. According to EPA's guidance, and according to his own use of this model, there's no exclusionary zone where the ozone reaction with nitric oxide doesn't take place. In other words, there's no assumption that there's a zone where there's no chemical reaction between NO and ozone. Dr. Cole believes Mr. Sullivan is scientifically incorrect in his statement that for the conversion to take place from NO to NO_2, there has to be contact at a molecular level with ozone and there is a time element involved, so that within the 40-meter box there isn't that time for that to occur. Tr. 5/22/14, 7-10.

According to Dr. Cole, he met with Mr. Sullivan to discuss modeling protocols in 2012, which resulted in Mr. Sullivan's modeling protocol document for November of 2012. The ozone limiting method was not discussed in that meeting and is not referenced in Mr. Sullivan's November 2012 and August 2013 reports. Dr. Cole stated that EPA's guidance on how modelers should estimate one hour NO_2 concentrations is contained in Appendix W of the modeling guideline (Exhibit 285) and in two memoranda that came out of EPA; first in June of 2010 (Exhibit 391(a)) by Mr. Fox, who was the head of the modeling section there, and second, in March 2011, Mr. Fox issued a further enhancement and clarification (Exhibit 407). Dr. Cole characterized the purpose of EPA's guidance by quoting from page 68230 of Appendix W: "In all cases, the model applied to a given situation should be the one that provides the most accurate representation of atmospheric transport, dispersion, and chemical transformations in the area of interest. However, to ensure consistency, deviations from this guide should be carefully documented and fully supported." Tr. 5/22/14, 10-13.

Dr. Cole described "transport of emissions" as the flow that dictates where the pollutants will go. He stated that "dispersion" comes from turbulence in the atmosphere, turbulence of different scales. At the surface there are obstacles. The wind flows over the obstacles and that imparts swirls and whirls and changes of direction and changes of speed. Tr. 5/22/14, 13.

The most important chemical transformation regarding pollutants in this case is the reaction between ozone and the NO, and the product of that reaction is a criteria pollutant, nitrogen dioxide, or NO_2. The modeling guidance does not address chemical reactions for $PM_{2.5}$. Dr. Cole stated that the first time Mr. Sullivan considered chemical transformations as part of his model and assessment was in his rebuttal report. The EPA modeling guidance for NO_2 mentions three tiers of analysis. The first is total conversion, which is the most conservative method. And this assumes that all of the NOx that's emitted into the atmosphere becomes NO_2 from start. Second is a retreat from that conservatism, which is the 80 percent conversion default that they give if the modeler wants to take a step back from the Tier 1. So, Tier 2 allows for the conversion and assumes that 80 percent of what's emitted in terms of the oxide nitrogen becomes NO_2, which is the pollutant of concern. The third tier includes the ozone limiting method and a second model called the plume molecular volume. Mr. Sullivan did not choose to use the PMV method. Mr. Sullivan applied the ozone limiting method in his rebuttal report. He described the OLM, stating that the two pollutants, NO and ozone interact. If there's more NOx than there is ozone, then the ozone limits the amount of NO that can convert to NO2. If there's a lot of ozone, more than the NO, then all of the NO can convert to NO_2. That's the basic assumption of the ozone limiting method. In order for the conversion to occur, there must be an available oxygen molecule to combine with the NO. In addition to the NO_2 that becomes converted in the presence of the ozone, there is also other NO_2 present in vehicular emissions. There's what is called in-stack NO_2, which is actually formed in the hot exhausts of a stack. In the case of a car exhaust, he would call it the tailpipe NO_2, or primary NO_2. It comes right out of the stack or tailpipe, so it doesn't require the ozone reaction to have that NO_2 present. Thus, two things contribute to the NO_2 – the in-stack or tailpipe NO_2 and whatever remaining NO is converted by ozone. Tr. 5/22/14, 14-17.

Dr. Cole attacked Mr. Sullivan's Stage 3 (as distinguished from Tier 3) analysis. Stage 3 is not the ozone limiting method, and is not a method that is included in the EPA's guidance. Stage 3 simply assigns arbitrarily two conversion ratios beyond the inbox. [Although Dr. Cole, stated that Mr. Sullivan had set a 50 percent conversion ratio within the close-in box (*i.e.*, the 40 meters zone around the queue and loading dock) and a 25 percent conversion ratio in the remaining modeling domain, Dr. Cole accidently flipped those numbers; Mr. Sullivan actually applied a 25 percent conversion ratio within the close-in box and a 50 percent conversion ratio in the remaining modeling domain.] Dr. Cole criticized the assignment of these conversion ratios, stating that doing so is not something that's mentioned in the EPA guidance, which talks about 80 percent conversion (in Tier 2), and that would apply both within the tailpipe box and outside of the tailpipe box equally. Dr. Cole also opined that Mr. Sullivan's Stage 2 analysis barely "squeaks in" as the ozone limiting method because he does not think there is a basis for assigning an arbitrary 25 percent NO_2 to NOx conversion ratio in the 40-meter close-in zone, and certainly it's not something that's mentioned in the EPA guidance. Tr. 5/22/14, 18-19.

Dr. Cole further testified that the data which Mr. Sullivan relies on to show that the

mixing down to the molecular level happens at great distances, perhaps a kilometer away, are studies that are for power plant plumes, and it is absolutely inappropriate to use that information from power plants in this case because what happens at the surface of the earth is very different from what happens several hundred meters aloft. There's a lot more small-scale turbulent mixing at the surface due to surface roughness elements than there is aloft where you don't have a surface. Tr. 5/22/14, 20-21.

Dr. Cole stated that the Tyler Fox memo from March 1, 2011 (pp. 5-6), specifically characterizes the status of the Tier 3 PVMRM and the OLM approaches as available "non-regulatory-default options within the AERMOD model," and their use requires justification and approval by the regional office on a case-by-case basis pursuant to Sections 3.1.2.C, et cetera, et cetera of Appendix W. He also read from page 12 of the March 2011 Fox memo:

> The goal of the cumulative impact assessment should be to demonstrate with an adequate degree of confidence in the result that the proposed new or modified emissions will not cause or significantly contribute to violations of the NAAQS. In general, the more conservative the assumptions on which the cumulative analysis is based, the more confidence there will be that the goal has been achieved and the less controversial the review process will be from the perspective of the reviewing authority. As less conservative assumptions are implemented in the analysis, the more scrutiny those assumptions may require and the review process may tend to be lengthier and more controversial as a result . . .

In Dr. Cole's opinion, Mr. Sullivan has not satisfied the requirement that deviations from EPA guidance be carefully documented and fully supported in his rebuttal report. With every successive report that Mr. Sullivan has issued, he finds it necessary to use less and less conservative analyses, such as retreating from total conversion in the work from November 2012. In his stage three, for example, he uses a non-regulatory approach which he says is more refined but, in fact, is less conservative and produces lower concentrations. So this progressive retreat from conservatism, particularly in a complex situation like this one where there are so many variables that there's a strong need for conservatism. Dr. Cole admitted that there is a kind of a tension in the regulations between the touchstone goal of accuracy and the need for conservatism to reduce uncertainty in the results; however, in his opinion, what this guidance says is that when the issue is compliance with the standard and protection of human health, that you look at the upper error band; that's where the conservatism comes from, because with so many uncertainties you've got to be more cautious. That's the gist of this regulation. Tr. 5/22/14, 21-33.

Dr. Cole further testified that if this were an EPA permit review process and Mr. Sullivan selected a non-regulatory default method, deviations from EPA guidance would have to be reviewed and approved by the EPA. Such a review could include selection of background monitors, use of paired hour-by-hour analyses, selection of an urban versus rural dispersion coefficients, selection of meteorological data and other variables to ensure compliance and protect human health. Tr. 5/22/14, 33-40. Dr. Cole stated that modeling contains many uncertainties, and he referred to EPA's guidance for handling the issue of uncertainty in Section 9.1.1 of Appendix W (page 68246). Choice of model, choice of parameters and what is

measured all have uncertainties. Examples of uncertainty in Mr. Sullivan's rebuttal report include his arbitrarily cap of the NO_2 to NOx ratio at 0.5. Another uncertainty would be the cap in the close end box of .25 and the fact that he's not allowing ozone conversion for the sources in the box, such as the queue. Also, his choice of background monitors and the way that he handled NO_2 background. In his opinion, Mr. Sullivan's use of paired hourly measures rather than the more conservative method of the 98th percentile averaged over several years introduced a great deal of uncertainty to the analysis. He said that EPA guidance has a great deal of caution and concern about that particular choice, citing Page 21 of Exhibit 407.

> Since several applications have come to our attention proposing to combine monitored background and modeled concentrations on an hour-by-hour basis, using hourly monitored background data collected concurrently with the meteorological data period being processed by the model, we feel compelled to include a discussion of the potential merits and concerns regarding such an approach. On the surface this approach could be perceived as being a more "refined" method than what is recommended above, and therefore more appropriate. However, the implicit assumption underlying this approach is that the background monitored levels for each hour are spatially uniform and that the monitored values are fully representative of background levels at each receptor for each hour. Such an assumption clearly ignores the many factors that contribute to the temporal and spatial variability of ambient concentrations across a typical modeling domain on an hourly basis. Therefore we do not recommend such an approach except in rare cases of relatively isolated sources where the available monitor can be shown to be representative of the ambient concentration levels in the areas of maximum impact from the proposed new source.

Dr. Cole said that the Fox memo does give some further guidance on the criteria necessary to justify hour-by-hour pairing, but Mr. Sullivan has not come near to meeting those criteria. For example, he has not shown that the Arlington monitor is representative of the site on an hour-by-hour basis. Dr. Cole notes that Mr. Sullivan gets his background data for NO_2 from Arlington and his ozone data from Rockville and sometimes from Beltsville. The criteria would be to pick sites that are closer, number one, on the same side of the Metro area. Number two, that they look about the same mix of urban, suburban parkland, as the Westfield Wheaton site. Tr. 5/22/14, 40-47. Dr. Cole also indicated that the March 2011 Fox Memo specifies on page 21 that the EPA would not approve the hour-by-hour pairing method unless it can be shown that the site is "isolated." The evidence from Mr. Sullivan's report shows that the site is not at all isolated. If it were an isolated source, it would have much lower background levels attributed to other sources. An urban area is not an isolated source such as a power plant located on a prairie. An urban area has many, many sources, including many vehicles and sources outside of the modeling perimeter, and so it cannot be called an isolated source. Tr. 5/22/14, 88-94.

Dr. Cole agreed that the chosen background monitor location should be the most representative of the site, but he could not name the monitoring site that he feels should have been used. Tr. 5/22/14, 47-55.

Dr. Cole strongly disagreed with Mr. Sullivan's testimony that there's more ozone mixing at the higher atmospheric levels than at the lower levels. He also disagreed about travel distance from the source being a factor in mixing. For car exhausts, the dissipation takes place in a matter of meters, 10 meters, five meters. The rate at which mixing occurs down to the molecular level is a matter of scale. If there is a very small source with a smaller plume, that is going to disperse and mix a lot faster than the giant plume of a power plant, such as the one from the Jansen study and the environment agency graphs which Mr. Sullivan has referenced. It takes less dissipation to get these smaller plumes to mix down to the molecular level. Slide 10 of Dr. Cole's Exhibit 581, shows the amount of turbulence that's occurring very close to the exhaust from the cars. In a parking lot, on a cold morning when there's a lot of traffic going on, there will be turbulence at the scale of these particular exhausts with a lot more mixing because of the roughness of the surface. The greater the surface roughness, the lower the wind velocity in the lower layers. One of the most basic premises of air pollution meteorology is that pollution concentrations are inversely proportional to wind speed. So with these elements slowing down the wind speed, pollution concentrations will be increasing. Tr. 5/22/14, 58-67.

A Summary of Results from Near Road NO_2 Monitoring Pilot Study, prepared by STI, (Sonoma Technology, Inc.) for the EPA was marked as Exhibit 602. The Hearing Examiner asked, "[When] the EPA applies its NAAQS standards, if it has a standard of 100 parts per billion for a particular pollutant, does it apply that across the board or does it have some sort of metric where it lowers it in applying it further away from the road? In response to that question from the Hearing Examiner, Dr. Cole admitted that he had not seen the EPA apply a lower standard based on distance from a roadway. Tr. 5/22/14, 70-73.

According to Dr. Cole, there's a theoretical limit to the amount of NO_2 that will be converted, and that ratio of NO_2 to NOx ratio is .85. When everything comes into equilibrium, the ozone, the NO, the effect of sunlight, the ratio will get to the .85. In his opinion, if there is going to be an upper bound in my opinion, it should be the photo stationary state which is not too different from what EPA has picked as its 80 percent default in its tier 2 method. He noted that in a study cited by Mr. Sullivan from the British Environmental Agency (Reference No. 1 on p. 21 of the Sullivan Rebuttal Report), it states that at rural sites, NO_2 is frequently 60 percent or more of the NOx and the NO_2 to NOx ratio tends towards its daytime equilibrium value associated with the photo stationary state of .85. At urban sites, such as central London, NO_2 to NOx ratios average .47 in winter and .59 in summer. Dr. Cole concluded that there are indications in the literature for higher values than the 50 percent level that Mr. Sullivan uses in his Stage 3 analysis. Tr. 5/22/14, 79-83. In addition, EPA's Appendix W, Section 8.3.1.2 (at page 68244) specifies that five years of representative meteorological data should be used when estimating concentrations within an air quality model unless readings are taken from an on-site monitor. The reason is that in a three year period you don't really know whether you're looking at a trend, at something that's representative. Mr. Sullivan used only three years of background data. Tr. 5/22/14, 83-85.

Dr. Cole challenged Mr. Sullivan's application of the Panofsky and Dutton formulas to determine mixing of the air because they have not been specifically approved by the EPA and there are qualifications in their use, such as the change of wind speed due to the terrain which were not factored in. If you have enhanced turbulence, then you have to look at the other

impacts of enhanced turbulence. You have to look at the decrease in speed which inversely affects concentrations and, secondly, you have to look at the effect that that enhanced mixing has on the rate of reaction between NO and ozone. Page 43 of the British Environmental Agency report specifies that the Environment Agency has rejected the Jansen method for use on smaller plumes. Given the amount of turbulence expected with the rough surface, one must consider the expected enhanced mixing and the fact that an ozone reaction is more likely to occur. In Dr. Cole's opinion, the ambient ozone will come into molecular contact with the NO much faster than Mr. Sullivan suggests. Dr. Cole also disagrees with Mr. Sullivan's conclusion in both Stage 2 and Stage 3, that there will be no chemical mixing within the tailpipe box. He believes the evidence is to the contrary, and there be that chemical mixing within the tailpipe box above and beyond the .25 ratio. Tr. 5/22/14, 94-101.

Exhibit 593 shows the distribution of points which represent 411 nation-wide reporting-site monitors for one hour NO_2, looking at the 98th percentile monitor values. Mr. Sullivan testified that Exhibit 593 suggests that the highest NO_2 levels don't exceed EPA standards, even though some of the monitors were located next to congested super highways. Dr. Cole noted that five or six monitor values in Exhibit 593 were above the NAAQS standard, but he admitted that they fell outside the 98^{th} percentile. Nevertheless, in Dr. Cole's opinion, the subject site, with all of its peculiarities, could result in an NO_2 one hour reading above what has been monitored adjacent to a congested super highway. The subject site would have a mega gas station with queues, in an area with ring roads, with congestion, with back-ups, and with the non-linear or synergistic effect of increased traffic and lowering of vehicle speeds. Also, there's another unique factor about this site, which is that this particular site has a building to the north, a building to the east, and a proposed wall to the south, all of which may impact on wind speed and circulation. It is hard to model, and hasn't been addressed in his opinion, but it speaks to a need for conservatism. Tr. 5/22/14, 104-114.

Dr. Cole further testified that he disagrees with Mr. Sullivan's testimony regarding MOVES v. Mobile 6. Previously, Mr. Sullivan agreed that the MOVES model showed twice the level of NOx as the Mobile 6 one, but in his rebuttal report, he analyzed further, citing the Ozguven report, and he shows Mobile 6 coming up with an NOx value 30 to 40 percent higher than MOVES for this proposed gas station at the gas queue. The difference, according to Mr. Sullivan was based on the MOVES assumption being based on fleet averages, which includes heavy diesel trucks, while the proposed gas station would not be fueling diesel trucks. Dr. Cole felt that this change was a further retreat from conservatism and was not justified by the evidence. He introduced a study called Emission Inventories Development Using Moves Model, a Dallas-Fort Worth, Texas area case study and North Central Texas COG (Exhibit 603), which purports to show MOVES NOx results at twice the level of Mobile6 NOx levels. Tr. 5/22/14, 116-130.

Dr. Cole summarized stating that, in his opinion, if Mr. Sullivan had used a more conservative approach in his Stage 2 analysis, in line with EPA guidance, there is a significant likelihood, though not a certainty, that the outcome would show a maximum level above the national ambient air quality standard one hour NO_2. He also feels that Mr. Sullivan's Stage 3 analysis is the least reliable and departs the furthest from any of EPA's recommendations or default options and is, in fact, at odds with the guidance. Stage 1 analysis was essentially

included in the 2013 report which assumes a 100% conversion of NOx, and even though a more nuanced approach such as Tier 2 80% might be okay, the other problems with the 2013 report remain. Tr. 5/22/14, 138-142.

Dr. Cole stated that he doesn't think there's anything wrong with going to the OLM, but many mistakes were made and there are many judgments by Mr. Sullivan with which doesn't agree. Tr. 5/22/14, 141-142.

On cross-examination, Dr. Cole admitted that the March 2011 Fox Memo (Exhibit 407), does permit use of the hour-by-hour pairing of modeled and monitored values in another situation, ". . . where the model of emission inventory clearly represents the majority of emissions that could potentially contribute to the cumulative impact assessment." He noted, however, that the same paragraph then repeats that, "Except in rare cases of relatively isolated sources, a single ambient monitor, or even a few monitors, will not be adequately representative of hourly concentrations across the modeled domain to preclude the need to include emissions from nearby background sources in the modeled inventory." Dr. Cole feels that this other situation does not apply here. It should be used only rarely and with EPA approval. [The Hearing Examiner observed that EPA approval is not available in this case.] Tr. 5/22/14, 142-148.

Dr. Cole further testified that Exhibit 602 of the Sonoma Technology report, at Pages 3-18, graph 3-3 on 3-18, reflects NO to NO_2 ratios within 40 meters of the roadway, not where Mr. Sullivan has used an assumption that it's .25. These are week-long averages, not hourly data, and it would include not only NOx coming from emissions from the roadway itself, but also from other background sources. Dr. Cole admitted that when Mr. Sullivan used the .25 ratio, he did not include additional NO_2 from background levels. Also, he admitted that the hourly measurement takes into account other factors in terms of timing, how fast it's converted, whereas the weekly monitoring would not. Tr. 5/22/14, 149-155.

Dr. Cole agreed that from the standpoint of meteorology, the regimes of air masses, temperature, wind distribution, Baltimore would be more representative of Wheaton than Tampa would. When you talk about temperature, there are many variables that temperature affects, some of which may lower conversion ratios and some of them may raise conversion ratios. Tr. 5/22/14, 156-159. The Hearing Examiner pointed out that, in his Stage 3 analysis, while Mr. Sullivan kept the conversion ratio at .25 within the box (*i.e.*, for sources within the 40 meters), he adds in the .50 for the other sources (Page 33 of the Rebuttal report). The Hearing Examiner asked whether that makes the overall modeling estimate consistent with what Dr. Cole said would be appropriate? Dr. Cole responded that it's inconsistent because the largest emissions are going to come from the queue area in terms of what's modeled, even if you add in those diffused sources of NO_2. He rejected the assumption that the NOx at the point of emissions would have no ozone to allow conversion. Dr. Cole agreed that the OLM without the group is a more conservative treatment than using OLM with the group. Tr. 5/22/14, 160-165.

Petitioner introduced a 1983 study of NO_2/NOx ratio and emissions from gasoline-powered cars by Lerner and Lindquist (Exhibit 604), which Dr. Cole agreed established that for a

car operating at 40 kilometers an hour, the NO_2 to NOx tailpipe ratio is no higher than 3.7 percent. When it is idling for 21 minutes, the ratio is 24.1 percent. Tr. 5/22/14, 166-185.

[*On Day 36 of the hearing (May 29, 2014),* the Hearing Examiner established a briefing and oral argument schedule agreeable to the parties. At the end of the May 29, 2014 session, the record will close for everything except for closing oral arguments, briefs, and a discussion of conditions to be recommended, and the hearing will resume on August 14, 2014, just to hear oral closing argument and discuss possible conditions if the Board grants the special exception. Tr. 5/29/14, 16-20.]

[KHCA and the Petitioner agreed to allow the introduction of additional scientific articles from both sides on health issues in lieu of additional rebuttal or surrebuttal relating to those health issues. KVCA and SCGC objected, mostly because the additional scientific article from the Petitioner had not been testified to by any of the expert witnesses. After hearing argument, the Hearing Examiner noted that many scientific articles had been introduced by the Opposition without being specifically discussed by their experts, and he ruled that the new articles by both sides would be allowed, in lieu of additional live testimony regarding health issues. He observed that live expert testimony, subject to cross-examination, is given a certain weight, and there's a lesser weight given to articles which are from scientific sources but have not been subject to, in effect, the cross-examination process. Given the nature of the proceeding, those scientific articles are being allowing into evidence for the weight that they deserve, in fairness to both sides. Tr. 5/29/14, 7-15;30-32.]

[The Opposition once again raised the question of global warming. The Hearing Examiner responded that that is a public policy matter, but it is not something he can address in this proceeding. The zoning ordinance limits the scope of his responsibility, and global warming or climate change is not included. He is not charged with making legislative decisions regarding things that affect the world, in general. The Zoning Ordinance provides a narrow scope of review in this case – to deal with the potential adverse effects on the site, the immediate neighbors, and the general neighborhood. That's the limited scope. Tr. 5/29/14, 33-34.]

Also, on Day 36 of the hearing (May 29, 2014), the cross-examination of Dr. Henry Cole in surrebuttal resumed. Initially, Dr. Cole amended an answer he had given earlier in his testimony. He had stated the criteria for selection of a monitoring site for background on-hour, NO_2 concentrations, but he had not selected a preferred monitoring site. He now testified that the monitoring site he would have chosen to get the background data would have been the First Street Northwest, D.C., site. He explained that the following criteria should be used in choosing a site. 1. It should have a continuous record for a number of years; 2. It would have both ozone and NO_2 monitored at the same site; 3. It should have at least suburban density so that it's representative of the level of traffic; and, 4. It should be as close to the subject site (*i.e.* Wheaton Plaza mall) as possible, so it will have the same basic relationship to the metropolitan area. When he looked at those criteria, only two stations stood out, and those were the two District of Columbia sites. One was 34th Street Northeast, and the second was First Street Northwest. Those sites meet all the criteria, and their readings are consistently about 10 parts per billion higher than the Arlington monitor, which is located a great distance from the site. Of those two, he picked the closest to the mall, which would be the First Street Northwest monitoring site. It is

located to the north of the metropolitan area. Prior to today, he had not selected the First Street Northwest, D.C., site as the most appropriate for the background monitoring of NO_2, and he had no recollection of discussing NO_2 monitoring sites in his protocol discussions with Mr. Sullivan. He saw the draft protocol report that identified Arlington as the monitoring location that was going to be used for NO_2 background levels, but at that point, it was his impression that NO_2 was not going to be a hot-button issue. Dr. Cole admitted that, prior to today, he had never voiced any criticism of the Arlington monitoring location for NO_2 or suggested an alternative location. Tr. 5/29/14, 34-44.

Dr. Cole testified that the two D.C. locations he preferred have a continuous, multiyear record (although the Arlington site meets that criteria as well). The second criterion is that ozone and NO_2 monitors should be co-located, and the two Washington sites meet that criteria, but the Arlington site does not have an ozone monitor. The third criterion is that they have a combination of suburban and urban development to be representative of the Wheaton site, and he agreed that Arlington meets that minimum suburban development threshold, but he feels that it doesn't meet the fourth criterion of proximity to Wheaton. Dr. Cole admitted that Appendix W is more focused on representativeness than proximity, but in his opinion, a site location entirely on the opposite end of the metropolitan area and subject to much different source-receptor relationships, depending upon wind direction, is not representative. Dr. Cole also opined that Beltsville has a lot of rural area, so it's not necessarily representative of Wheaton. He does not agree that the two monitoring locations in D.C. are more developed than the Wheaton location. Tr. 5/29/14, 44-50.

Mr. Goecke introduced an article entitled "Ambient Ratio Method Version 2 (ARM2) for Use with AERMOD for 1-HR NO2 Modeling – Development and Evaluation Report," dated 9/20/13 (Exhibit 609). [The Opposition objected that ARM2 was a beta test and should not be admitted and that it's beyond the scope of Mr. Sullivan's and Dr. Cole's testimony. They cited an EPA May 2014 Addendum to User's Guide for the AMS/EPA Regulatory Model – AERMOD, specifically pp. 17-18 (Exhibit 610). The objection was later withdrawn since the ARM2 article was sited only for three sentences quoted below.] Dr. Cole was asked whether he agreed with the following statement from Exhibit 609:

> As a plume containing NOx is transported downwind over time, there is increased plume dispersion and entrainment of ambient air. The increased entrainment brings additional ambient ozone into the plume, which causes additional conversion of NO to NO_2 through the fast oxidation reaction. These processes result increased NO_2 to NOx ratios and decreased NOx concentrations with the plume's increased dispersion over time.

Dr. Cole responded that he didn't disagree, but that it wouldn't apply here because the evaluation studies that are listed in this report are for point sources or industrial sources, not for roadways or traffic areas. Distance is a factor, but the ground-level sources (the vehicle exhausts) are going to dilute down to the molecular level both faster in time and in a shorter distance because when you have much smaller plumes close to the surface, surface roughness creates turbulence at a smaller scale in relationship to the plume that's coming out. So the NO_2 will affect receptors that are much closer to the vehicles than it will in a power plant plume. Thus, the time and distance required to convert NO to NO_2 would be different for a plume coming from the gas station queue as compared to a power plant tall stack plume. The conversion process will

happen more quickly in the gas station queue than it would in a plume emitting from a power plant stack. Tr. 5/29/14, 50-70, 99-100.

The November 2007 British Environmental Agency review of methods for NO_2 conversion in plumes at short ranges was introduced by Mr. Goecke as Exhibit 611. He read from page 47:

> Work by Janssen of 1988 suggests that for large plumes there is a near-source region with a low conversion, but that is rapidly asymptotic to the photostationary state after a modest travel time of perhaps 200 seconds . . . As such, it bears an unexpected but welcome similarity to our understanding of urban NO_2 data. Hence we suggest that the Janssen method may be more applicable to smaller plumes than has been recognized hitherto, provided care is taken to use appropriate, conservative values of alpha [a constant that takes into consideration the plume height, the wind speed, the ozone background, and the NO plus O3 rate constant.]

Dr. Cole responded that somewhere else in the EA document they say that this agency doesn't accept the Janssen method for small plumes for urban sources. Nevertheless, one can use the same framework to look at turbulence at different scales, but they're very careful in how they qualify this because they recognize that there's a difference in the turbulence from a plume that's way up in the air to something that's close to the ground and that's a smaller source. So that's why they're talking about an appropriate, conservative value of alpha. Tr. 5/29/14, 70-75.

Dr. Cole explained a formula for calculating wind speed, showing that the choppier the air at the surface, the bigger the surface roughness elements, the slower the wind speed is going to be at any particular level, at least for the first 10 meters. Mr. Goecke introduced page 655 of the 2000 Glossary of Meteorology (Exhibit 612) for the definition of roughness coefficient as a measure of the roughness of a surface over which a fluid is flowing. Dr. Cole reiterated his opinion that there is a distinct possibility or probability that the 98th percentile one-hour NO_2 concentrations at peak periods near the gas station could exceed the NAAQS standard of 100 parts per billion for one-hour NO_2. Dr. Cole admitted that he did not use the inputs supplied by Mr. Sullivan to run the AERMOD model himself, and his opinion is not based on any model that he had run himself. Had he done so, he could have used different background inputs and done an uncertainty analysis. Tr. 5/29/14, 76-111.

On surrebuttal redirect, Mr. Cole testified that he raised a concern about selection of the Arlington monitor when he testified in December 2013 because it was not until Mr. Sullivan used the ozone limiting method (OLM) in his rebuttal report that the NO_2 issue became particularly critical. He reiterated his critique of the monitors Mr. Sullivan chose to use. Tr. 5/29/14, 112-118.

When asked whether EPA guidance factors in time or distance when computing that NO and Ozone mixing under the ozone limiting method, Dr. Cole responded that the ozone limiting method doesn't get into that. It just simply assumes that all of the ozone is available for conversion without any delay time or lag time. So, if you are following that guidance for the OLM, there's no consideration of lag time between the emission and the mixing to the molecular level. He also characterized Mr. Sullivan's assumption of no ozone reaction within a 40 meter

box (*i.e.*, 130 feet in all directions from the queue and the loading dock as another departure from EPA guidance on the ozone limiting method. Dr. Cole observed that Mr. Sullivan, in his rebuttal report, presented information suggesting that it would take a very long time and a very long distance for the ozone and NO to mix at the molecular level but that's not covered at all in the ozone limiting method. The studies upon which he drew those conclusions were for power plant plumes and do not apply to ground-level sources, where there's a lot more turbulent mixing at the scale that would disperse tailpipe emissions into the air. Tr. 5/29/14, 118-120.

Dr. Cole summarized the factors that support his opinion that there is a distinct possibility that there would be an exceedance of the 100-parts-per-billion NO2 one-hour NAAQS standard. First of all, he disagrees with the choice of background site because Mr. Sullivan could have used the closer First Street site, and the values would have been about 10 micrograms per cubic meter higher. Secondly, Mr. Sullivan used this paired hour-by-hour matching, which EPA cautions against without a great deal of demonstration that it's appropriate. In Dr. Cole's professional judgment, Wheaton is not an isolated site and did not meet the criteria for hour-by-hour matching. By looking at background and moving away from EPA's more conservative OLM and getting into this paired matching, the values in Figure 2 of their rebuttal report show a background concentration in the range of 60 to 70 parts per billion. Had Mr. Sullivan used the 98th percentile value from the First Street station, the background number would be around 90 to 100 parts per billion. Thirdly, Dr. Cole finds it unbelievable that Mr. Sullivan actually used a down-scale factor in his Stage 2 and Stage 3 analyses to get from MOBILE6 to MOVES based on one study, a non-published paper. [Dr. Cole attempted to introduce another study, the Texas Implementation Motor Vehicle Emission Simulator Model, dated September 2010, which was marked as Exhibit 613, but was not admitted because it was not previously supplied to Petitioner's counsel and also had limited relevant information.] Tr. 5/29/14, 120-140.

Dr. Cole further testified that there were a lot of pollution sources which, in his judgment contribute to NOx emissions and concentrations that were not included in the source inventory, such as other commercial establishments in the mall which have loading docks and which also have parking lots. Dr. Cole feels those sources are not subsumed in general background data, and should have been added to the model as local sources. He also believes that to the extent that traffic was underestimated by Petitioner's evidence and thus by Mr. Sullivan, the emissions would be underestimated. In addition, added congestion would result in slower speeds, and that would increase the emission rate for things like oxides of nitrogen and other pollutants as well, including particulate matter. These factors would be additive, and some of these effects interact in a synergistic fashion, compounding the impact. Tr. 5/29/14, 149-152.

[Following the completion of Dr. Cole's surrebuttal testimony, the parties and the Hearing Examiner discussed admission of exhibits into evidence. Ms. Cordry withdrew Exhibits 367(b) and (e). Petitioner withdrew all the objections to Opposition exhibits it had previously raised in Exhibit 563, and Mr. Goecke stated, "We're content to allow the documents into the record and trust you to give them the weight they deserve with one exception." Tr. 5/29/14, 154-155. The one exception was Exhibit 353, which is a portion of a study entitled, "Building Prosperous Places in Michigan -- Understanding Placemaking Values, Perceptions, and Barriers." Instead, Petitioner wanted the entire study to be introduced by adding a summary as

Exhibit 353(a) and the full narrative portion as Exhibit 353(b), which was done without objection. Tr. 5/29/14, 155-169.]

[The Hearing Examiner then heard argument and ruled on the Opposition's objection to Mr. Sullivan's rebuttal report of February 21, 2014 (Exhibit 466) and his testimony relating thereto, as set forth below. Tr. 5/29/14, 170-181.]

Ms. Cordry argued for the Opposition that Mr. Sullivan's Stage 2 and Stage 3 analyses in his rebuttal report employed a methodology that has not yet obtained EPA approval or general scientific reliability, which is the standard in Maryland for both court hearings and agency proceedings (*Frye* and *Reed* cases). She argued that the Stage 2, it is not an EPA method of using the OLM because he did not apply it in all areas, and Mr. Sullivan has no justification for the Stage 3 methodology, which arbitrarily cuts off the NO to NO_2 conversion ratio at .50. Tr. 5/29/14, 171-174.

Petitioner (Mr. Goecke) argued that EPA could not have approved Mr. Sullivan's methodology because that agency is not involved in the special exception process. There is also no requirement for a peer review to allow in scientific evidence. There has been ample time and opportunity for them to cross-examine Mr. Sullivan and for their expert to opine on his methodology. He noted that the OLM method is discussed in Appendix W, the EPA guidance on air modeling and in the two Tyler Fox memos. This methodology has been reviewed and analyzed by the EPA as something that can be used when the circumstances are appropriate, and Mr. Sullivan very methodically, in his rebuttal report, stated all the scientific literature upon which he relied to apply the methodology to this situation. Everyone agrees that it was typically created to deal with power plant plumes and stacks, but there's no literature that says it cannot apply here. It has not been rejected by the scientific community in this context. Tr. 5/29/14, 175-180.

The Hearing Examiner ruled that the rebuttal report and related testimony should be admitted. He explained that he was satisfied, looking at what the EPA has had to say and listening to the testimony of Mr. Sullivan and Dr. Cole, that the methodology of OLM is accepted by the EPA, as indicated in their literature; moreover, their touchstone, as they have said in their literature, is that the most accurate model possible be developed. The question of whether or not Mr. Sullivan's model is the most accurate model or not is a question of legitimate controversy between the experts here. The Hearing Examiner did not find that this is a situation under which the case law in Maryland should bar the rebuttal evidence and the rebuttal report by Mr. Sullivan. This is a legitimate argument as to how this model, or a version of it, should be applied to most accurately model the situation. He did not find that this is a new scientific technique; rather, this is an application to the particulars of this particular situation. One can argue about the merits of that application, but that's what it is – an argument between the experts as to the merits of the application. The Hearing Examiner therefore overruled the objection. Tr. 5/29/14, 180-181.

[A corrected version of Exhibit 431(b) was introduced as Exhibit 431(c). Tr. 5/29/14, 185-188. A February 2012 research report on allergic inflammation in the human lower

respiratory tract affected by exposure to diesel exhaust was introduced as Exhibit 606(c), and an article entitled "Non-cancer health effects of diesel exhaust," dated February 2012, was introduced as Exhibit 606(d). Tr. 5/29/14, 190-192. Mr. Goecke indicated he would provide a full copy of Exhibit 352, the LUST report, which he had used in cross-examining Mr. Core. Tr. 5/29/14, 195-196. Except as previously noted, all exhibits (Exhibits 1 through 613) were then received into evidence, without objection. The Hearing Examiner announced that there would be no additional evidentiary submissions except for the two items that were agreed to be submitted and had already been labeled. He thanked the parties and the court reporter, and the hearing adjourned. Tr. 5/29/14, 196-198.]

At the End: Day 37 (September 19, 2014) Closing Arguments

On Day 37 of the hearing (September 19, 2014), the parties gave oral closing arguments and discussed possible conditions if the Board of Appeals elected to grant the special exception. [SCGC did not offer or agree to any proposed conditions.] Tr. 9/19/14, 1-129. During the course of the final hearing, the following exhibits were identified:

633. Donna Savage's request to record the oral closing arguments
634. Renee Kamen's comments on the Hearing Examiner's possible conditions (circulated in Exhibit 632(a)) if the Board of Appeals grants the special exception.
635. Received at hearing 9/19/14: Costco's proposed modifications of possible condition numbered 6.
636. Received at hearing 9/19/14: Response of KHCA to the Hearing Examiner's comments regarding a potential condition requiring signs prohibiting idling in the queue.
637. Received at hearing 9/19/14: KVCA statement requiring possible conditions as to entrances to the mall.

Costco's closing argument was delivered by Michael Goecke. Tr. 9/19/14, 11-37; 61-63. Mr. Goecke noted that Costco had modified the special exception proposal a number of times to address some of the Opposition's concerns and voluntarily agreed to conditions that would further mitigate some of their concerns. For example, Costco agreed to an elevated five foot pedestrian walkway along the ring road to enhance the pedestrian experience. It agreed to expand the east-west walkway within the parking lot itself to make it safer and more useable. It agreed to dedicate employee parking in the parking lanes adjacent to the gas station to minimize the ingress and egress, thereby reducing traffic and congestion in that area. Costco has posted signs in its warehouse directing people to the garage because parking spaces in the garage were not being fully utilized. Costco has agreed to construct a green screening wall so that the gas station will not be visible from nearby homes; to monitor any accidents that might occur; to collect valuable information both on pedestrian and traffic levels; and to enhance vegetation and landscaping. Even though these zoning proceedings have no formal discovery process, Costco has tried to be very responsive to the Opposition's requests for information. Tr. 9/19/14, 11-14.

Mr. Goecke stated that Costco's Director of Gas Operations, Tim Hurlocker, testified about the steps Costco would take to ensure safety and to avoid potential environmental problems. He noted that Costco has an impeccable safety record over the past 20 years operating their now 400 gas stations throughout the country. Mr. Goecke agued that there are several non-

inherent physical and operational characteristics that enhance this gas station that make it superior to other gas stations. In addition to the trained attendants, there are various technological devices used by Costco, such as the arid permeator device, which will attach to the underground storage tanks and capture nearly 100 percent of volatile organic compounds that would otherwise evaporate into the atmosphere and expose the community. Its underground storage tanks and its piping are all double hulled, further reducing the risk of an underground storage spill. They have extensive internal and external monitoring systems so that if a spill or a leak should occur, it's going to be detected quickly. And, they run regular maintenance checks to make sure that those operations are working, and that they're doing their job. Tr. 9/19/14, 14-16.

Mr. Goecke stated that this case is about whether the County should allow Costco to create, install and operate a gas station in the parking lot of a regional mall. He argued that Costco meets its burden for all of the general requirements in the code, the specific requirements applying to gas stations, and the need requirements as well. He argued that, contrary to what the Opposition has asserted, there's no obligation that this gas station provide benefits to the community; however, it will provide undeniable benefits to the Costco members that it serves. More than 4,000 members come to the warehouse every day, and by law, are part of the general neighborhood. Mr. Goecke added that it may also have effects of benefiting non-Costco members by driving down prices at other competing gas stations. He argued that Costco has met its burden of establishing that the station will meet the code requirements, that the gas station will be compatible with the neighborhood, and that there will be no non-inherent adverse effects. Mr. Goecke asserted that the station will be harmonious with all the surrounding activities because it's going to be in a parking lot of a regional mall. It's a highly commercialized area, and more than 100,000 cars travel every day on the major arterial roads that surround the gas station site. The sector plan specifically designates the Wheaton Westfield Mall as a regional shopping mall. By definition, this regional mall attracts people from the region, and they drive there. This is auto centric and there's more than 6,000 parking spaces. Even on the most crowded days, there's still hundreds and hundreds of parking spaces that are unused. Thus, there's capacity for this gas station. It is undisputed that there are adequate public facilities to develop not only this gas station, but additional development at the mall, and Westfield has testified that they have the right to do additional development. Tr. 9/19/14, 17-19.

Mr. Goecke further argued that, to the extent that there's going to be an incremental increase in traffic, it's going to be virtually contained on the mall property itself. As Mr. Guckert testified, any delays on the public roads are going to be imperceptible to the driver – a delay of five seconds, in the worse case scenario, for example, at Intersection 16. The only people who are going to experience the incremental increase in traffic caused by the gas station are people who choose to go there. There's no intrusion on anybody's property rights. People expect a certain amount of traffic and congestion at the mall. It's not out of the norm. And, to the extent that they find it inconvenient or irritating or they don't like it, that doesn't mean it's a traffic nuisance. People who don't like it can decline to go there or they can go there when the mall is less crowded. He asserted that it can't be a traffic nuisance if it doesn't impose any burden on any one against their will. The subject site and the residential neighborhood are totally separate and physically isolated. There is a sloped, forested buffer physically separating the mall property from the residential community. Costco has agreed to install the green screen wall further segregating the two uses. Mr. Goecke argued that people in the residential community will not

be able to see the gas station; they won't be able to hear it; they won't be able to feel it; it will be imperceptible to the senses. It's not going to have any effect on their daily lives. Mr. Goecke pointed out that what's happening at the Costco warehouse, such as noise from delivery trucks, is not the responsibility of the gas station, and is outside the analysis for the special exception itself. Tr. 9/19/14, 20-21.

Mr. Goecke admitted that Costco has the burden to show that the emissions are not going to cause any adverse health effects, or any adverse impact on the environment. Since the Zoning Ordinance doesn't say how to prove that, Costco held itself to federal law standards – the EPA's National Ambient Air Quality Standards. He argued that this is the appropriate standard to apply here because the Clean Air Act, federal law, requires the EPA to set standards that are protective of the public health, including sensitive populations. He cited *Lead Industries Association v. EPA,* a case from the United States District Court for the District of Columbia, which analyzed the legislative history of the Clean Air Act and stated that the goal of the air quality standards must be to ensure that the public is protected from adverse health effects, which is the standard in the Zoning Ordinance. The NAAQS are derived from a robust discussion among the experts, and the standards allow an adequate margin of safety to protect against effects which have not yet been uncovered by research, and effects whose medical significance is a matter of disagreement. Neither Maryland nor Montgomery County has imposed a higher standard. He argued that to apply a subjective or a discretionary standard would be arbitrary and would not be supported by the record. Tr. 9/19/14, 22-24.

The Hearing Examiner asked whether the standard here is the National Ambient Air Quality Standards, or the Zoning Ordinance requirement of showing that the proposed use will not adversely affect health in the community, with the National Ambient Air Quality Standards as a measuring tool? Mr. Goecke replied that the modeling is the measuring tool, and a showing of compliance with the NAAQS meets the burden of showing that there are no adverse health effects. The Hearing Examiner noted that there was testimony here from Opposition expert Dr. Breysse, and echoed by Ms. Cordry, that suggests that the NAAQS standards themselves actually provide a lower numerical standard for one-hour nitrogen dioxide at a location away from the actual source. They cite a final rule establishing the NAAQS standards for nitrogen dioxide February 9, 2010, Part III, pages 6479 to 6494 (Exhibit 424(b)). There, the EPA administrator stated that the formal standard of one hundred parts per billion for one-hour NO_2 in the EPA NAAQS corresponds to a 98th percentile concentration of 85 parts per billion in area-wide concentrations in order to provide an adequate margin of safety. She added that a standard level at or below 100 parts per billion would be expected to limit peak area wide NO_2 concentrations to approximately 75 parts per billion or below. When asked whether the Hearing Examiner had to consider that evidence along with Costco's evidence in determining whether or not the applicant had met its burden of proving that there will not be adverse health effects, Mr. Goecke replied that it's fair to consider all evidence in the record; however, he argued that the evidence shows that the gas station will be far below even those standards. Mr. Sullivan's Stage 3 analysis shows a concentration of 63-64 parts per billion. He admitted that Mr. Sullivan's final analysis was not as conservative as when he began, but he asserted that there were still numerous conservative assumptions. Tr. 9/19/14, 24-28.

Mr. Goecke pointed out that the emissions dispute really came down to two emissions -

$PM_{2.5}$ on the annual standard and the one-hour NO_2 standard. Using Exhibit 95(c), he showed that the background level of $PM_{2.5}$ is 10.8 micrograms per cubic meter against a NAAQS standard of 12 micrograms. The incremental increase from the gas station would be very small and thus it will clearly not be a violation of the $PM_{2.5}$ standard. It's what the EPA considers de minimis. And, as Mr. Sullivan testified, since he prepared this information, the background levels have dropped even further, they're now about 9.8 micrograms per cubic meter. So, when you add the anticipated incremental increase with what's there, there's no risk. It doesn't even come close to violating the $PM_{2.5}$ standard, as confirmed by Dr. Cole, the Opposition's expert, for property off the mall. The other standard at issue is the one-hour NO_2 standard. Mr. Goecke referred to Mr. Sullivan's February 2014 rebuttal report (Exhibit 466), stating that it shows that the maximum concentrations are going to be 121 micrograms per cubic meter, which is about 63-64 percent of the overall standard of 190 micrograms per cubic meter. The highest concentration point is in the gas queue itself, and folks are going to be in this location on no more than a transient basis. This is not where people live or play. And even at that 121, it falls off quickly. Even if you talk about the attendants working at the gas station on long shifts -- they don't live there, but they're there for longer than the average person, it's still far below the EPA max, and it's not going to create any adverse health effects to them. Tr. 9/19/14, 28-31.

Mr. Goecke noted that Mr. Sullivan did a great deal of modeling of this gas station, but no modeling was done by the Opposition. He argued that there's no support for Dr. Cole's conclusion that there is a significant risk that the standards may be exceeded because he has not run the models himself, and may be unable to do so. He also pointed to evidence that in a chart showing every monitoring station measuring one hour NO_2 levels in the United States, all of the measured concentrations are below the standard. Tr. 9/19/14, 32-34.

Mr. Goecke argued that the Opposition's arguments are fatally flawed for a few reasons. Either they apply the wrong legal standard, or they conflate the significance of inherent and non-inherent effects. Their concerns are based on speculation, but have no real proof that something is going to happen, or they focus on inconsequential, insignificant events that either individually, or when assembled together in the aggregate, do not establish a violation of the code or any basis to deny the special exception. For example, he argued that the need requirement does not call for a showing of absolute necessity as suggested by the Opposition. As to the Sector Plan, the Opposition argues that Costco must affirmatively promote all the Sector Plan goals. That's not the standard. The law requires mere conformity or consistency with the Sector Plan goals. The Opposition argues that the location of a gas station on a private ring road mall is non-inherent adverse effect. There are many benefits to having the gas station at the subject site where Costco customers are already present. The Opposition speculates that the gas station is going to drive down property values, but they provide no evidence to support this. He suggested that the popularity of Costco gas stations, if anything, could be a boon to real estate values. The Opposition mischaracterizes several things about the new GR zone, and he noted that it's not required to put those residential uses there. Mr. Goecke summarized saying that Costco met its burden regarding the general conditions, the special conditions and the need conditions. He argues that this is a good gas station; it's going to be safely run; it's going to meet a need for the people who are already in the general neighborhood; and it's going to be a good use and a good location, perhaps the best location. Tr. 9/19/14, 35-37.

Mr. Goecke disagreed with the Opposition's characterization of the need standard. He noted that since the Code has changed, the courts have not addressed it, but the *Walter Johnson* case did, and that reinforced the earlier *Lucky Stores* application and held that there is no absolute necessity standard. The *Brandywine* case enforced a PG County Code. That's distinguishable because it was a totally different Code, and it doesn't apply here. Mr. Goecke stated that the trucks are getting to the warehouse and are able to access it, and only two to four trucks are going there each day. There's no evidence that they're going to cause any damage. Tr. 9/19/14, 61-63.

The Opposition's closing argument was made by KHCA's attorney Michele Rosenfeld on behalf KHCA, SCGC and KVCA. Tr. 9/19/14, 37-61. Ms. Rosenfeld noted that the burden of proof is on the applicant to prove by a preponderance of the evidence that it has met all of the general and special conditions that would be required under the special exception application. Moreover, this is an administrative proceeding, and there are relaxed standards of evidence, giving the hearing examiner broader authority to consider the weight to be given the evidence. Tr. 9/19/14, 37-39.

Ms. Rosenfeld argued that the threshold finding under 59-G-1.24 of the Zoning Code is that the applicant prove by a preponderance of the evidence that a need exists for the proposed use to serve the population in the general neighborhood, considering the present availability of identical or similar uses to that neighborhood. She emphasized that the Code does not say available <u>in</u> that neighborhood, but rather available <u>to</u> that neighborhood. And, if the applicant can't show that there is a need for the station, then the application must be denied, and the remaining findings necessary to support approval of the petition become moot. Ms. Rosenfeld argued that Mr. Flynn's need study does not make the required finding. His report concludes that "the proposed automobile filling station addresses a need for convenient and useful service that is not presently available in the area." This conclusion sidesteps the finding required by County law, whether the same service is available to the neighborhood (Exhibit 3 at p. 32). Costco's own need study proves that the identical use, a Costco gas station in Beltsville, is available to the Wheaton neighborhood and currently used by its residents. When asked by the Hearing Examiner whether the logical extension of that argument is that you can never find need in any case because anyone could always go to another gas station, Ms. Rosenfeld replied that there is a very distinct set of facts in this case. Tr. 9/19/14, 39-41.

Ms. Rosenfeld stated that the second issue with respect to need is whether it is an absolute need must be shown, or merely a matter of public convenience. Under the governing County Code, and case law, Costco must prove by a preponderance of the evidence that there is an actual need for the proposed automobile filling station. Before 2002, the Zoning Ordinance neighborhood need standard allowed approval if a need existed for "the public convenience and service." In 2002, the Montgomery County Council amended the Zoning Code, and the County Council deleted the phrase "for public convenience and service." Ms. Rosenfeld argued that the Court of Special Appeals interpreted the remaining language in the Montgomery County Code in the *Brandywine Enterprises* case because the Prince Georges County statute being interpreted there contained language similar to the current Montgomery County Code, and the court held that a showing of necessity was required. Under the holding of Brandywine in Montgomery County, need now means that there must be an absolute need for an automobile filling station

that is available to the Wheaton neighborhood. Ms. Rosenfeld added that Wheaton has the highest concentration of gas stations in the County, and there is no evidence in the record whatsoever that Wheaton residents cannot readily purchase gasoline or purchase some from a Costco gas station. There is no evidence at all of queuing in existing gas stations, that there is ever a shortage of gasoline at existing gas stations, or that Wheaton residents are compelled to seek gasoline outside of the neighborhood because gasoline is not available to them. Tr. 9/19/14, 41-43.

Ms. Rosenfeld stated that another issue is that a Costco gas station is a members only station. The only people who can use the station are people who have paid membership dues to Costco. The members only component of this station is a non-inherent operational characteristic of the station. In *Lucky Stores*, which was a members only gas station, the applicant in that case argued that its members wanted the station, and that membership interest satisfied the County's need test. The court concluded otherwise, stating that it does not establish a need by the population in the general neighborhood. Tr. 9/19/14, 43-45.

Ms. Rosenfeld cited Zoning Ordinance §59-G-1.21(a)(4) which requires that the special exception will be in harmony with the general character of the neighborhood considering "the intensity and character of activity, traffic and parking conditions." The neighborhood in this case has been defined to include the mall parcel as well as a perimeter surrounding residential homes. She argued that the proposed gas station cannot satisfy this standard for numerous reasons. First, the Zoning Code provides that the non-inherent adverse effects of the special exception can be created by unusual characteristics of the site itself. In this case, the site is a very busy regional mall parking lot. It is a non-inherent characteristic. Moreover, the special exception site itself immediately abuts the four-bay warehouse loading dock for the Costco warehouse itself. There are some stunning operational conflicts that arise from the location of this special exception use at this location. The truck turning radiuses are inadequate and there are potential conflicts with pedestrians and other vehicles. There is two way traffic, parking spaces, and pedestrians in a very busy parking lot. Ms. Rosenfeld described the confluence of pedestrians, tractor trailers, parking lot and two-way traffic as “mind boggling.” Costco’s attempted remedy of adding bollards will not suffice. She argued that it cannot possibly be an acceptable level of intensity, given the character of the activity, the traffic and the parking conditions. They are putting too much in too small of an area, and the County Executive has officially determined that parking lots are dangerous places for people. The proposed use is not compatible with the number of pedestrians on the mall site. Tr. 9/19/14, 45-53.

The special exception requires that there be a finding that the proposed special exception will not be detrimental to the economic value of surrounding properties. Mr. Cronyn, the applicant's expert on property values, testified, “I'm not an appraiser. I don't testify on valuation.” Tr. 8/2/13, 34. Ms. Rosenfeld argued that he looked at appreciation, not value, and that Mr. Cronyn himself confirms that his testimony did not go to the economic value of surrounding properties. Moreover, he could not support his conclusion with respect to appreciation. Mr. Cronyn admitted that he could not rule out the possibility that the announcement of the gas station, which occurred in 2010, caused a price differential, and it could have been be a factor. Tr. 8/2/13, 265-267. Mr. Cronyn failed to evaluate was whether introducing a new mega gas station into an established neighborhood only 118 feet from the closest property would have a

negative effect on the current value of those homes. Would the presence of the gas station be a material consideration to a prospective purchaser? Mr. Cronyn, himself, testified that he would be obligated to disclose the gas station to a long distance purchaser. He testified that some purchasers simply would not buy a home next to a gas station. When asked if he evaluated when where a new gas station is introduced into an existing neighborhood to determine if the new gas station would have an effect on the sales prices of existing homes, he said he didn't try to make an evaluation that way. Tr. 8/2/13, 265-269. Ms. Rosenfeld asserted that there is in the record credible evidence in the form of studies that show that there can be an affirmative decrease in the value of homes proximate to gas stations. On that point, she asserted that Costco failed to provide any evidence, let alone credible evidence. Tr. 9/19/14, 53-56.

With regard to health issues, Ms. Rosenfeld pointed to Mr. Sullivan's first report in November of 2012, which was the report that was reviewed by the Planning Board, which concluded that there would be no adverse health effects based on clear compliance with the NAAQS, National Ambient Air Quality Standards. At the time, he testified that he could double the NO_2 number and still be well low within range. As it turns out, that wasn't in fact the case. Mr. Sullivan then did another report in August 2013, and after Dr. Cole testified, produced a rebuttal report (February of 2014), which the Opposition argues should be stricken as not being premised on scientifically accepted methodology (especially his "Stage 3" analysis). However, even if accepted, the fact is that Mr. Sullivan has stepped back over and over again from the conservatism in his original reports. Each time his conclusions were challenged, he revised his base assumptions in order to derive a report that would fall within the National Ambient Air Quality Standards. Given that pattern of stepping back from conservative analysis and conservative assumptions, Ms. Rosenfeld argues that alone raises significant credibility issues with respect to his reports. Tr. 9/19/14, 56-58.

Ms. Rosenfeld also stated that the $PM_{2.5}$ standard was reduced from 15 to 12 micrograms per cubic liter because the EPA found that at 15 there were adverse health effects, not because the background levels were dropping. So, adverse health effects are the issue that the Hearing Examiner needs to consider. She asserted that Costco has conveniently overlooked the impact of these pollutants on the people in the mall parcel itself – the workers, the residents, the visitors to that parcel, the people in the queue in the hot spot. The people in that queue, as testified by the community when they came in to speak, included people with asthma, with cardiology problems, and with other lung issues. It included some of the most sensitive populations. They need to be protected. She also raised concerns about the medically fragile children at the Stephen Knolls School, who also are at risk, and need to be protected. Tr. 9/19/14, 58-59.

The Hearing Examiner asked whether the Opposition had abandoned its argument that the BAM monitor should have been counted in addition to the standard monitors because Dr. Cole did not address that issue in his testimony. Ms. Cordry could not recall. Ms. Rosenfeld finished her argument by stating that the Opposition had introduced exhaustive factual information and detailed cross-examination, and had provided significant volumes of legal analysis. On behalf of KHCA, SCGC and KVCA, she urged denial of the application, and she noted that the Montgomery County Planning Board had likewise recommended denial of this application.
Tr. 9/19/14, 59-61.

The remainder of the hearing addressed the wording of possible conditions that the Board of Appeals should consider if it were to grant the special exception. Tr. 9/19/14, 63-129. First, the Hearing Examiner discussed the changes recommended by Technical Staff to the conditions he was considering (Exhibit 634), and he incorporated those changes into the possible conditions. These changes included (Tr. 9/19/14, 63-66):

- in condition 2(f), substituting the words "a screening wall," rather than "an acoustical wall."
- in condition 19, changing the language in the second sentence to indicate that a path extending from the property at 2609 McComas Avenue (Mount McComas) was possible , not required.
- in condition 21, DEP was substituted for M-NCPPC as the reviewing authority for landscaping on stormwater management ponds.

Ms. Harris raised issues as to a number of proposed conditions (Tr. 9/19/14, 66-81):

- Condition 4. She asked that the hours of operation be 6:00 a.m. to 9:30 p.m. weekdays and 7:00 to 7:00 on weekends.
- Condition 13. She asked for the language to specify "no more than five fuel deliveries will occur per day including weekends." The parties agreed that it was to coincide with the operating hours of the gas station (Tr. 9/19/14, 107-108).
- Condition 22. She noted that the condition might have to be modified to allow monitoring activity in the buffer. [This point and a discussion about getting permission from property owners (other than "Westfield) for monitoring on their properties was mooted by later agreement of the parties that if monitoring were ordered, it would be located on Westfield property.]
- Condition 27. She asked that it be clarified that Petitioner would maintain a list of all problems or complaints reported to the station contact person.
- Condition 6. She proposed revised language in Exhibit 635. Ms. Harris noted that it was highly unusual to require on-site monitoring of a pollution source; that restricting sales to six million gallons in the first year would defeat the monitoring purpose; and that it was necessary to have a standard to assess the results, and the NAAQS standard is the appropriate one. She did not feel it was necessary to monitor $PM_{2.5}$.
- Condition 7. It was agreed that if the monitoring was a condition, then sales of gasoline in the first year would not be limited to six million gallons; rather the twelve million gallon per year limit would apply to all years (Tr. 9/19/14, 106-107).

Ms. Rosenfeld argued that the proper place for the monitoring site itself is within the special exception boundaries because under the EPA standards you measure at the source. After some discussion, it was agreed that the monitoring, if any, should be in one location, adjacent to the subject site, on Westfield property, if Westfield agreed in writing before the record closed. The monitoring equipment would be too large (the size of a shed) to put on the subject site itself. Since measurements would be made adjacent to the source, the NAAQS standards would be the appropriate reference standard. The Hearing Examiner summed up what he would suggest, based on the discussion – data would be monitored and maintained for both the 24 hour and the annual for $PM_{2.5}$, and both the one hour NO_2 and the annual NO_2 because it's just a calculation from the same data collected. Mr. Silverman raised questions about whether six months was

long enough to establish a baseline reading and whether the monitoring could be done by an independent agency. Ms. Harris noted that an independent validating company would review the results, and she argued that if the monitoring was to be done at the site, the standard should be the NAAQS, not 75% of it. The question was also discussed as to whether Costco would automatically be excused from further monitoring if the results were within the standard or whether it would require action by the Board of Appeals. Another question was the timing of any emergency Board hearing if the monitoring revealed exceedances. Tr. 9/19/14, 81-103.

The Hearing Examiner gave the Petitioner until September 29, 2014 to file a letter from Westfield agreeing to monitoring adjacent to the subject site. He also gave the Opposition until September 24, 2014, to file a response to the monitoring proposals (including comments from Dr. Cole) and gave Petitioner until September 29, 2014 to respond to any such submission from the Opposition. Monitoring results will be available to the public. Tr. 9/19/14, 104-106.

Ms. Cordry requested clarifications to possible Condition 25, and to include reports of bicycle accidents. She also suggested an additional condition regarding sidewalks and crosswalks. Finally, she submitted a response to the Hearing Examiner's concern about having a condition requiring signs telling people to turn off their engines while in line (Exhibit 636). The Hearing Examiner asked, "Was there evidence in the record that turning engines on and off every couple of minutes was not a problem in terms of emissions?" Ms. Cordry answered that she was not sure there's evidence that says it's not a problem; however, one of the DOE reports, which is, for instance, Exhibit 365(k), talks about advances in vehicle technology have eliminated the need for idling. The catalytic converter works better. It says drive through lines are common places for vehicles to idle. If the line at the drive through restaurant or bank is long, you should consider turning off your car while you wait. It suggests that signs be posted to remind patrons not to idle, which she feels is a very comparable situation. Ms. Harris argued that the record does not have clear evidence on the subject. The Hearing Examiner invited the Petitioner to respond to Exhibit 636 by September 29, 2014. Ms. Cordry suggested another condition to require trucks making deliveries to the Costco warehouse to turn off their engines, but the Hearing Examiner said it was outside the parameters of the special exception case. Tr. 9/19/14, 109-120.

Ms. Duckett offered some proposed conditions on behalf of KVCA and a statement received as Exhibit 637. She stated that there are five entrances to the mall from two state/public highways, yet Costco does not control any of those entrances, nor do they control any of the current traffic patterns. Ms. Duckett also noted that Mr. Guckert's testimony about traffic was premised upon the five entrances to the mall, but even with all of those, at times cars are already blocking traffic on University Boulevard as they try to enter the Valley View entrance and Intersection 16 currently has problems. She also observed that Costco has no control over this intersection, nor over the parking lot. Ms. Duckett argued that, as a minimum traffic pattern condition, maintenance of the access to the mall and traffic patterns within the mall should be listed as a condition for approval. KVCA has great concerns that any change in the Costco gas station traffic patterns could not only adversely effect the residents of Kensington View, but also the businesses that currently exist on University Boulevard between East Avenue and Valley View. She argued that the Board of Appeals has the authority to impose conditions regarding traffic patterns, even when those traffic patterns are currently controlled by someone other than

the applicant. She cited the OZAH report in S-2816, *T-Mobile & Gibson*, at. P. 13, for the holding that the Board can impose a condition on a special exception applicant even if it does not have control over the property where action must be taken. Ms. Duckett noted that while the additional traffic for this gas station appears to satisfy the current APF agreement, the APF only deals with access into the mall. It does not deal with internal vehicular access to any one portion of the mall, *i.e.* the gas station, and if Westfield decides to cut off the entrance by CVS or make changes so that it's more difficult to use the Valley View entrance, there would be absolutely nothing any government body could do. Therefore, KVCA does not believe this application should be approved without some conditions that require the Costco gas station to retain vehicular access to the five entrances on which they have based all of their traffic testimony. Tr. 9/19/14, 121-127.

Ms. Harris responded that it was in Westfield's interest to keep the entrances that exist there, and the data shows that the impact of the gas station on those entrances is *de minimis*. She added that it's really outside the scope of the special exception. Ms. Cordry suggested that Costco's lease provisions may answer this question, but the point is that any condition would be on Costco, not Westfield, to guarantee that it had access, so it is within the Board's purview. The Hearing Examiner gave Petitioner until September 29, 2014 to respond to Ms. Duckett's concern. Tr. 9/19/14, 127-129.

At the end of the hearing, the Hearing Examiner stated that the record would close on September 29, 2014. Tr. 9/19/14, 129.

APPENDIX II - S-2863, COSTCO

Conditions to Consider if the Board of Appeals Grants the Costco Special Exception Petition

During the Hearing in the *Costco* case, the Hearing Examiner asked the parties to submit proposed conditions to be considered if the special exception were granted. The Hearing Examiner suggested at the time that if he recommended approval, some form of the proposed conditions would be part of his recommendation, and if he recommended denial, he would attach a list of proposed conditions as an appendix to his report for consideration by the Board of Appeals, should it decide to grant the special exception, contrary to his recommendation.

The Petitioner and some members of the Opposition (KHCA and KVCA) did submit proposed conditions (Exhibits 475 and 492-496). The Hearing Examiner considered these submissions, along with conditions recommended by M-NCPPC Technical Staff (Exhibit 70), as modified by the Planning Board (Exhibit 83), and came up with a list of conditions, which were discussed with the parties and submitted to Technical Staff for its review.

Technical Staff submitted comments (Exhibit 634) and the list of possible conditions was discussed with the parties at the final hearing on September 19, 2014. The Hearing Examiner modified his list of possible conditions to account for the written commentary by Technical Staff and those comments made by the parties at the September 19, 2014 hearing, and shared the revised list with the parties (Exhibit 638(a)). Thereafter, some of the parties filed additional comments (Exhibits 639, 640, 641 and 642).

The Hearing Examiner made further revisions to the possible conditions. That final list of possible conditions is attached hereto as Appendix II to the Hearing Examiner's Report, which recommends denial of the special exception petition. If the Board of Appeals disagrees with that recommendation, it may find the list of possible conditions to be useful.

APPENDIX II - S-2863, COSTCO

Conditions to Consider if the Board of Appeals Grants the Costco Special Exception Petition

1. The Petitioner shall be bound by all of its testimony and exhibits of record, and by the testimony of its witnesses and representations of counsel identified in this report.

2. Development of the property is limited to:
   a) An Automobile filling station to be located on a 36,800 square foot parcel in the southwest quadrant of the Wheaton Mall Parcel.
   b) 16-fueling stations, consisting of four islands with four gas dispensing hoses each.
   c) A canopy and a 128 square foot sales kiosk as shown on the special exception plan.
   d) Four 28.50 square-foot signs, with each sign located on one of the four sides of the canopy, and a portable board sign, providing daily gas prices.
   e) Parking on the adjacent parking lot.
   f) An eight-foot high screening wall along the outer perimeter of a portion of the Mall's Ring Road located to the south and west of the Property.
   g) Landscape islands to the south and west of the Property.
   h) Underground fuel storage tanks.
   i) Such other items as are specified in the following conditions.

3. The Fuel storage tanks and fuel pump installation and use must comply with the control guidelines and air quality permitting requirements of the Maryland Department of the Environment (MDE) and must meet required standards of all county, state and federal authorities.

4. Hours of operation must be limited to Monday through Friday, from 6:00 AM until 9:30 PM and Saturday and Sunday from 7:00 AM until 7:00 PM.

5. Petitioner shall have a minimum of one attendant on site at the gas station at all times during the operation of the gas station. Petitioner must have two attendants on site on weekends between the hours of 10:00 a.m. and 4:00 p.m. In addition, at all other times, Petitioner must dispatch one or more additional attendants as needed to manage the queue and direct traffic in order to avoid any queuing on the Ring Road.

6. Petitioner must conduct monitoring of the gas station to give the Board of Appeals the opportunity to review the results of the emissions associated with the operation of the gas station, as follows:

   (a) Monitoring Requirements

   Petitioner must monitor one-hour NO_2 and annual $PM_{2.5}$ levels at the subject site from a location in the parking lot adjacent to the subject site in the location indicated on Exhibit A-1, with the written permission of the property owner, Wheaton Plaza Regional Shopping

Center, LLP ("Westfield"). The monitoring will be conducted based on a quality assurance plan and audit procedures that are consistent with the EPA Quality Assurance Handbook for Air Pollution Measurement Systems. The monitoring reports will include all raw (fundamental) data (hour-by-hour NO_2 concentrations and every sixth day 24-hour integrated $PM_{2.5}$ concentrations) collected in accordance with the standard EPA particulate monitoring schedule as applicable to annual average analysis.

(b) Pre-Operational Monitoring - six months

Monitoring shall occur for a minimum of six months prior to the operation of the station in order to establish baseline air quality levels, and such monitoring results shall be provided quarterly to the Board of Appeals, Maryland Department of Environment ("MDE"), M-NCPPC Technical Staff, KHCA, KVCA, SCGC (the "Parties"). An independent third party validating company ("Validating Company") shall conduct quarterly onsite audits of equipment performance relative to manufacturer's specifications, review site logs and quality assurance records, and review data quality. The Validating Company's independent audit report will be appended to the quarterly data report (the "Monitoring Report") and provided to the Parties. A minimum of two quarters of baseline monitoring reports and audit results will be submitted to the Board prior to the issuance of a Use and Occupancy for the gas station. This submittal will be made within 30 days of the completion of the six-month monitoring period.

(c) Post Operational Monitoring – months one through six

Monitoring of the gas station as outlined above shall continue once the gas station is operational. On a quarterly basis, copies of the Monitoring Report indicating the measured 98th percentile concentrations for one-hour NO_2, and annual $PM_{2.5}$ measured concentrations relative to the National Ambient Air Quality Standards ("NAAQS") and the amount of gasoline sales that occurred during the reporting period must be filed with the Parties. Such filing must be made no later than 30 days following the end of each quarter.

If after the first six months of monitoring, the 98th percentile concentration for one-hour NO_2 (based on the six month period) or the six-month average $PM_{2.5}$ is greater than the NAAQS, the Board of Appeals will hold an emergency hearing within 20 days after being notified of the exceedance to determine the cause or causes of the exceedance and to identify the appropriate action.

(d) Post Operational Monitoring – months seven through twelve

If the 98th percentile concentrations for one-hour NO_2 (based on the initial post operational six month period) and the six month average $PM_{2.5}$ are less than the NAAQS, Costco may continue operations and shall continue quarterly monitoring and audits as outlined above for an additional six months and shall file the Monitoring Report with the Parties. Such filing must be made no later than 30 days following the end of each quarter.

Thereafter, the Board of Appeals will schedule a public hearing to review the results. The Board of Appeals shall determine that no further monitoring is required and shall issue an order so reflecting if the 98th percentile concentrations for one-hour NO_2 is either (i) less than 90 parts per billion ("ppb") (i.e., 90 percent of the current NAAQS) *or* (ii) less than any future governing NAAQS (in the event the EPA lowers the 1-hour NO_2 standard to less than 90 ppb).

If measured concentrations for $PM_{2.5}$ exceed the annual NAAQS or measured concentrations of NO_2 exceed the one-hour NAAQS, based on the first year of measured air quality data during the operational period of the gas station, the Board of Appeals will hold an emergency hearing within 20 days after being notified of the exceedance to determine the cause or causes of the exceedance and to identify the appropriate action.

(e) Post Operational Monitoring – Year two, if required

If measured concentrations of the 98th percentile concentration for one-hour NO_2 are greater than 90 ppb, but less than the NAAQS after the first year of measured air quality data during the operational period of the gas station, Costco shall continue the monitoring of NO_2 , and $PM_{2.5}$ for a second year as outlined. The Monitoring Report shall be filed with the Parties. Such filing must be made no later than 30 days following the end of each quarter. After the second year of monitoring, the Board of Appeals will schedule a public hearing to review the results. If the 98th percentile concentrations for one-hour NO_2 , and annual $PM_{2.5}$ are less than the NAAQS, the Board of Appeals shall determine that no further monitoring is required and shall issue an order so reflecting.

If the applicable NAAQS are exceeded for either NO_2 or $PM_{2.5}$ based on the completion of the second year (if required) of air quality data collected during the operational phase of the gas station, the Board of Appeals will hold an emergency hearing within 20 days after being notified of the exceedance to determine the cause or causes of the exceedance and to identify the appropriate action.

7. Petitioner must limit gasoline product sales to regular and premium unleaded gasoline. Petitioner shall be limited to annual sales of 12 million gallons. In the event Petitioner's sales reach 12 million gallons within any consecutive 12 month period, Petitioner shall be required to close the station through the end of the 12 month period. Petitioner must deliver to the Board of Appeals a quarterly report no later than ten days following the end of each quarter reporting on the total sales for the preceding quarter.

8. Petitioner must install an "ARID Technologies Permeator," to reduce harmful emissions from the underground storage tank vent. This devise may in the future be replaced with different equipment of substantially the same or improved capability.

9. Petitioner must turn off gas canopy lighting no later than 10:00 PM Monday through Friday and 7:30 PM Saturday and Sunday, with the exception of security lighting.

10. Petitioner must designate six parking spaces immediately to the west of the gas delivery area "employee only parking." Petitioner shall use best efforts to direct all other employees to not park in the southwest parking lot.

11. Petitioner must obtain any required permits for all signs, and copies thereof must be filed with the Board of Appeals prior to posting the signs.

12. Petitioner must provide the following signage relating to garage parking:
a) signs along eastbound Ring Road indicating "Costco/Mall Parking in Garage";
b) directional signs to the garage located directly east of the Costco Warehouse;
c) signs on the second floor of parking garage indicating "Costco/Mall Parking Available – Third Level"; and
d) a minimum of two signs within the Costco warehouse at the customer exits indicating that parking is available on levels two and three of the parking garage.

13. No more than five fuel deliveries will occur per day, including weekends, to coincide with the hours of gasoline station operations. Petitioner must use commercially reasonable efforts to schedule at least one of the daily gas deliveries prior to 9:30 AM, but no earlier than 6:00 AM on weekdays and 7:00 AM on weekends. Delivery vehicles must not idle and must be turned off during the off-loading of fuel. Petitioner must install "no idling" signs adjacent to the gas delivery truck area.

14. All gas delivery trucks must be certified NDTE (New Technology Diesel Engines), or future substantially equivalent certified standard.

15. Petitioner must extend the pedestrian aisle designated to run just south of the main drive aisle in the vicinity of the gas station west to the Ring Road.

16. Petitioner must construct a five-foot wide raised, pedestrian path along outer perimeter of Ring Road as set forth on Exhibit 233(a)-(d), to include five handicapped access ramps to be located at the start and end of the pedestrian path; at the western terminus of the east-west drive aisle; at the north-south drive aisle by the Costco loading docks; and by the north-south drive aisle on the east side of Costco store.

17. Petitioner must provide adequate traffic control measures, in cooperation with the operator of the Mall (currently Westfield) that include, but are not limited to, directional arrows and signage to provide safe passage to and through the special exception site.

18. Petitioner must provide painted crosswalks across Ring Road from pedestrian path access ramps. All crosswalks shall be at least five feet wide and striped, in accordance with ADA requirements, so as to ensure that cars slow down while crossing.

19. Petitioner must construct the green wall in the location set forth on Exhibit 229(c) and pursuant to the specifications set forth on Exhibit 265(c). The east end of the wall shall be located so as to provide pedestrian access to a possible path extending up from the property at 2609 McComas Avenue ("Mt. McComas"), which is being developed under Preliminary Plan number 120110170 (Kensington Heights).

20. Petitioner must maintain the green wall and green screen, including landscaping, to commercially reasonable standards consistent with a first class regional mall. Such standards shall, at a minimum, require planting and maintenance of trees, shrubs, and other plants listed on the approved landscaping plan as required by Maryland-National Capital Park and Planning Commission, and shall also require replacement of any such trees, shrubs, or other plants that die. This requirement does not prevent the Petitioner from requesting approval from M-NCPPC to substitute or add appropriate other plantings if desirable or if the initial plantings die. All replacements of vegetation must be made as soon as practicable (taking into account the time of year), but in no event more than six months after learning that an original planting has died.

21. Petitioner must maintain plantings in stormwater management bio-retention islands within the Special Exception Area at least at the level provided for in the Special Exception plans. Petitioner shall replace any plantings that die while the gas station remains operational. This does not prevent Petitioner from requesting approval from the Department of Environmental Protection (DEP) to substitute or add appropriate other plantings if desirable or if the initial plantings die, so long as the overall level of plantings equals or exceeds the quantity and quality of the original plantings. All replacements of vegetation must be made within six months of the time that it is determined that a planting has died so as to ensure that the minimum level of vegetation provided for in the landscaping plan is maintained at all times.

22. Petitioner and its contractors and agents are prohibited from any activity within the forest stand buffer, except for the following activities:
a) Planting and maintenance of trees, shrubs and other plants provided on the approved landscaping plan as required by the Maryland-National Capital Park and Planning Commission;
b) Limited access associated with the ordinary and necessary inspection, maintenance, repair, or replacement of the green wall and the landscaping associated with the green wall; and
c) Any activity required by applicable law, rule, or regulation.

23. Petitioner must not violate any terms of the stormwater management plan approved by the County Department of Permitting Services.

24. In the event Maryland Department of Environment ("MDE") determines that air monitoring of the station is necessary, Petitioner shall make the site available to MDE and shall cooperate fully with MDE.

25. Petitioner must submit an annual report to the Board of Appeals detailing any vehicle/pedestrian or vehicle/bicycle accidents occurring during the preceding year on the Special Exception site and any such vehicle/pedestrian or vehicle/bicycle accidents of which they are aware occurring along that portion of the Ring Road immediately adjacent to the Special Exception site or on that portion of the southwest parking lot located south of the main east-west drive aisle. The reports for the accidents within the Special Exception site shall identify the date of any such accident, the names of the involved parties, the nature of any injuries, the precise location of the accident, a brief description of the circumstances and a suggested remedy from Petitioner for any dangerous conditions that are revealed. The reports for the accidents outside the Special Exception site should contain as much of this information as can reasonably be obtained. Petitioner should attach a copy of any related police accident reports to its filings. The first such report shall be due one year after the use becomes operational. If no accidents have occurred, the report should still be filed, so indicating. A copy of Petitioner's report should also be filed with M-NCPPC's Transportation Planning Division, which shall submit remedial recommendations to the Board of Appeals within one month of receiving any report revealing one or more vehicle/pedestrian accidents and for a period of five years to the Montgomery County Pedestrian, Bicycle, and Traffic Safety Advisory Committee. The Board shall retain jurisdiction over this matter to review these annual reports and determine what action, if any, is necessary to insure reasonable safety to pedestrians on the subject site.

26. Petitioner shall not permit merchandise from trucks parked beyond the west side of the station to be walked through the special exception site during the hours that the gas station is operational. Bollards and chains must be used to preclude truck access to any portion of the gas station area during any period of time in which the station is operating.

27. Petitioner must establish a contact person to whom any issue, problem or complaint related to the gas station special exception operation may be directed ("Station Contact"). Petitioner must post the name, telephone number and email address of the Station Contact on the station kiosk and must also provide that information to the Board of Appeals, M-NCPPC Technical Staff, KHCA, KVCA and SCGC. Petitioner shall maintain a list of all reports of problems or complaints submitted to the Station Contact and the resolutions thereof, and shall file that listing with the Board of Appeals in its quarterly reports.

28. Petitioner must obtain and satisfy the requirements of all licenses and permits, including but not limited to building permits and use and occupancy permits, necessary to occupy the special exception premises and operate the special exception as granted herein. Petitioner shall at all times ensure that the special exception use and premises comply with all applicable codes (including but not limited to building, life safety and handicapped accessibility requirements), regulations, directives and other governmental requirements.