

Language from the Planning staff report pertinent to non-inherent adverse effects and health.

The entire report can be downloaded here:

http://www.montgomeryplanningboard.org/agenda/2013/documents/20130228_CostcoStaffReport.pdf

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Summary

Staff recommends denial of the proposed special exception request. Issues to be discussed in this report are non-inherent adverse characteristics and the unmet burden of proof in determining adverse impacts on health.

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Executive Summary

Staff recommends denial of the proposed gas station based on three sections of the Zoning Ordinance.

First, according to Section 59-G-1.21, Standard of Evaluation, the non-inherent adverse effects of the proposed use, alone or in conjunction with the inherent adverse effects, are a sufficient basis to deny a special exception. Staff has determined that three of the proposed use's six non-inherent characteristics are cause for concern because combined, they have the potential to create adverse health impacts for residents of the area to the south of the proposed Site. These three characteristics are: location, size, and queuing of vehicles. (Full discussion is in Section VII, Standards for Evaluation.)

Second, the Applicant has not satisfied the requirement of Section 59-G-1.21, General Conditions, which states that, "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...(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."

Staff has closely reviewed the Applicant's analysis of the Volatile Organic Compounds (VOCs) and other toxics, some of them deemed carcinogenic by the United States Environmental Protection Agency (EPA) and other research. Staff has also conducted its own research of the relevant and most recent available scientific material to understand the full context of the issues related to health impacts of these toxics. Staff's conclusion is that the Applicant's analyses and assertion of no adverse health impacts is based on insufficient information, and may have understated the exposure of the adjacent population to some of the toxics. For example, staff reviewed three of the six pollutants associated with automobile idling (mobile sources) considered the most harmful due to one of the non-inherent characteristics of the proposed use (queuing): CO; PM2.5; and NO2. Staff found that although the CO emissions are well below the National Ambient Air Quality Standard (NAAQS) for the maximum 1-hour standard, they will still create a CO hotspot at the proposed location, similar to hot spots created at major intersections in the area. However, unlike an intersection hot spot, which quickly dissipates with distance, the hotspot created with this gas station will dissipate over a wider area, remain stagnant for a longer period of

time, and therefore may have more adverse health impacts on nearby residents than otherwise demonstrated by the Applicant's analysis (see Attachment 8).

Staff also disagrees with the Applicant's cancer risk analysis based on the estimated additional incremental exposure to VOCs (hydrocarbons such as benzene, toluene, xylene, and 1, 3 butadiene) both from stationary and mobile sources because we question the Applicant's low assessment of residential exposure rates to these carcinogens. More importantly, staff has no supporting information on the methodology used by the Applicant in calculating the cancer risk, and there are no reliable tools to analyze this information adequately (see Attachment 8). Therefore, staff has concluded that the Applicant's analysis cannot be relied on to provide the evidence needed to make the finding required by the §59-G-1.21(8).

Third, according to Section 59-G-1.21(c) General Conditions,

"The applicant for a special exception has the burden of proof to show that the proposed use satisfies all applicable general and specific standards under this Article. This burden includes the burden going forward with the evidence, and the burden of persuasion on all questions of fact."

Staff believes that the Applicant has not met the burden of proof in this case. Three of the non-inherent characteristics of the proposed use could create potential health impacts that have not been adequately analyzed by the Applicant, and not clearly demonstrated to be negligible (as the Applicant claims). The Applicant has not provided sufficient information for staff to determine that the potential health impacts associated with emissions from the proposed use (fueling, reloading and burping of storage tanks, spills, idling of vehicles) are not significantly higher than those considered to be inherent in a typical gas station (see full discussion in Section VI.C and Attachment 8).

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VI. Staff Analysis – C. Environmental Planning

The Applicant submitted an Environmental Report, dated November 19, 2012, which was supplemented on December 18, 2012 and January 16, 2013. This report includes modeling results to demonstrate that the proposed gas station will not constitute a nuisance or adversely impact health. The modeling used in this analysis accounted for the local topography, meteorological conditions, emission from the local transportation network, the proposed gas station, and regional background air quality. However, what is not accounted for is the existing local air quality conditions for the Site, nor Wheaton.

Neither Montgomery County nor the State of Maryland has air quality analysis standards. The EPA standards and methodologies used to evaluate the modeling results are generally applied on a regional level, and are not site-specific. Background levels are calculated regionally and reflect non-source specific quantities. Second, gas stations are considered to be hotspots for air toxics due to the concentration of emission sources (e.g., idling vehicles, underground storage tanks, etc.). These air toxics can be divided into origin categories – mobile or stationary sources. An example of a mobile source is the traffic and idling of vehicles; while stationary sources include emissions from refueling, underground storage tanks, spills, etc.

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 (NO₂); ozone (O₃); particulate matter (PM_{2.5} and PM₁₀); and sulfur dioxide (SO₂). Each toxic has specific national ambient air quality standards. Primary standards provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against damage to animals, crops, vegetation, and buildings.

Staff reviewed three of the six pollutants associated with automobile idling, or mobile sources since the anticipated queues of vehicles waiting to purchase gas are not typical of a gas station. Staff reviewed CO; PM_{2.5}; and NO₂ and found that, while the CO emissions are well below the NAAQS for the maximum 1-hour standard, they will still create a CO hotspot, similar to those created at intersections. However, unlike an intersection hot spot, which dissipates over a wider area, the hotspot created with this gas station will not dissipate as quickly (see Attachment 8), and will be a true hotspot, circular in nature, centered around the area that is associated with the queuing (i.e., idling vehicles).

Additionally, the proposed gas station will create a hotspot in NO₂ emissions. And even though the incremental addition will dissipate across a small area, it could still be a cause for concern for nearest residents. The nearby residents will be directly impacted by the CO and NO₂ emissions (see Attachment 8). The proposed gas station, therefore, will bring the emissions directly into a neighborhood, and these emissions will not dissipate as they would along a transportation corridor.

The proposed gas station will minimally contribute to the levels of PM_{2.5} since the projected emissions from the proposed use will be small compared to the existing background levels of PM_{2.5}, partly because diesel fuel will not be sold here.

In addition to reviewing mobile sources, staff also reviewed stationary sources. The quantity of air toxics emitted from gas stations is directly related to the volume of gas dispensed. There are many components included in gas station-related emissions. These toxics are combined into one category, VOCs. VOCs include hydrocarbons such as benzene, toluene, xylene, and 1, 3 butadiene. Many compounds in this class are also a byproduct of gas combustion. Therefore, there are some VOCs associated with both mobile and stationary sources. However, a gas station has a much higher contribution to VOC levels than emissions from mobile sources, and these VOCs come from several sources such as the refueling of the underground storage tanks (UST), breathing (or burping) of the UST, refueling of vehicles, spillage, and idling vehicles waiting to purchase gas.

Staff has found that the VOC emissions from the proposed gas station will create another hotspot comparable to the nearby bus transfer station (see Attachment 8). Staff believes that the Applicant has understated the exposure of the nearest residents to these emissions. The applicant has provided a cancer risk analysis based on the additional incremental exposure to VOCs, which have been determined to be carcinogenic. Staff disagrees with the Applicant's low assessment of residential exposure rates (see Attachment 8), since the graphics provided show VOC emissions in the backyards of the nearest residents to be higher than stated in the analysis. Additionally, staff has no supporting method for

calculating the cancer risk since the risk assessment is not broken out by compound or length of exposure. It is also not clear what assumptions have been made to conclude that there will be no cancer risk.

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VII. Standards for Evaluation

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 (see Section VII, below).

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.

As discussed in the health impacts of the proposed gas station on Page 16, the cumulative impacts of the non-inherent characteristics are cause for concern.

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VIII. Conditions for Granting a Special Exception

As fully discussed in the executive summary and the environmental section of this report, the non-inherent characteristics of the proposed use could cause health impacts to the residents and workers in the area. Staff believes that the Applicant has understated the exposure to the carcinogenic toxins that the cancer risk analysis was based on. And the Applicant has not provided sufficient information for staff to determine that the proposed use will not adversely affect the health of people in the neighborhood.

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XII. Community Comment

Opposition expert, Dr. Henry Cole stated that Costco's air quality and risk assessment are likely to underestimate impacts on the adjoining properties. He believes that due to the omission of important pollutants and sources, and the use of background values that are not representative of the Mall, the Applicant's risk assessment underestimates what is likely to occur. His report further details specific

pollutants, such as “ultrafine particles,” and concludes that the Applicant’s environmental report is not an adequate health assessment capable of estimating the likely health impacts of the proposed gas station on residents. Rather, it is just an air quality modeling study (see Attachment 16). He asserts that the applicant should be required to conduct a comprehensive public health study of the facility, conduct ambient air monitoring for a 12-month period, and conduct a new air quality modeling study based on new data. He disagrees with multiple findings of the applicant’s air quality report, and the traffic model used to estimate the impacts of the proposed gas station. The Applicant’s estimates of cancer risk, in his opinion, exclude the carcinogens associated with combustion products (see Attachment 16).

Staff Reponses: Staff agrees that there is an understatement in the site-specific air pollutants and therefore, the risk assessment could potentially underestimate the level of exposure to the adjacent residences and ultimately the effects on health. With regards to ultrafine particles, staff believes that due to the fact that no diesel fuel will be sold, ultrafine particles will not be a critical pollutant associated with this gas station.

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XI. Conclusion

Staff recommends denial of the proposed special exception use for reasons stated in Section VII and Section VIII. The Applicant has failed to meet the burden of proof 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).