



November 9, 2020

Greg Barnes, Planner III
Adams County, Colorado
Via email: GJBarnes@adcogov.org

Dear Mr. Barnes

Thank you for the opportunity to comment on the 2020 Text Amendments to Adams County's Development Standards and Regulations. The City and County of Denver offers the following comments, through its Department of Aviation, which operates Denver International Airport ("DEN"). DEN takes special interest in the Development Standards and Regulations as a significant portion of DEN property is located in Adams County.

DEN often receives notices of new developments, permit requests, and zoning changes from Adams County, and its responses to these notices often address the same issues. DEN lists these common issues here, and encourages Adams County to consider these common issues as the text amendments are finalized:

- **Wildlife Attractants:** Many projects located in Adams County fall within the "DEN 10,000' Critical Space" or the "5-Mile 'Known-attractant' Separation Area" for the final build-out of future DEN Runways, as defined by the Federal Aviation Administration ("FAA"). These areas are not necessarily co-located with the Airport Noise Overlay described in Section 3-35-02 BOUNDARIES. Therefore, project developers may not be aware of this guidance. When DEN is notified of a project, USDA Wildlife Biologists assigned to DEN assist in explaining DEN's "Wildlife Hazard Management Plan," and DEN and the USDA often coordinate with project developers as projects progress. DEN typically requests that landscape plans in areas of concern include maintenance of trees and grasses to reduce attractants for wildlife such as raptor species, blackbirds/starlings, and geese, avoid planting of fruit-producing trees and shrubs, and design water quality ponds/detention structures to meet a 40-hour drain time following a 100-year event.
- **Navigable airspace associated with DEN:** In some areas of Adams County, the FAA requires notice of any structure or temporary construction equipment (e.g., cranes) that will rise higher than specified heights. This requirement is identified in 14 CFR Part 77, "Objects Affecting the Navigable Airspace" and requires notice to the FAA via the FAA Form 7460-1, "Notice of Proposed Construction or Alteration". The FAA website from which the need for the 7460 process can be determined ("Notice Criteria Tool") and/or the filing can be initiated is: <https://oiaa.faa.gov/oiaa/external/portal.jsp>.
- **Noise:** "DNL" is a noise metric used to quantify noise exposure from aircraft. DNL is generally depicted on a map via contour lines that enclose geographic areas that are exposed to similar noise levels. Part 150 of the Federal Aviation Regulations (FAR Part 150) specifies various land uses that are either compatible or incompatible with certain DNL noise levels.
 - Based on this and other factors, DEN encourages surrounding jurisdictions to prohibit residential uses within the 60 DNL contour. Adams County's current Development Standards and Regulations allow for some residential uses within this contour.
 - Also, while keeping residential zoning outside the 60 DNL contour ensures a certain level of protection against incompatible land use, it is still possible for residential development in some





locations outside that contour to result in residents of those areas experiencing high levels of aircraft overflight activity. This can lead to noise complaints and community pressure to restrict DEN operations. Though Section 3-35-02 BOUNDARIES relies on the 60 DNL contour, it is strongly recommended that developers and/or planning departments contact DEN for evaluation of any potential noise impacts as residential construction is considered near DEN, even when the development is located outside the noise contour.

- Section 3-35-05-02, AFFIDAVIT REQUIRED TO OBTAIN BUILDING PERMIT, requires a signed “Aircraft Activity Covenant with Disclosure” to be filed prior to issuance of a building permit. DEN has updated its suggested form covenant, and would encourage Adams County staff to work with DEN to ensure the appropriate form covenant is put in place for developments requiring such covenants.

Thank you again for this opportunity for DEN to comment.





November 9, 2020

Greg Barnes
Adams County Community and Economic Development
4430 South Adams County Parkway, Suite W2000A
Brighton, CO 80601

RE: Amendments to the Adams County Development Standards, PLN2020-00009
TCHD Case No. 6568

Dear Mr. Barnes,

Thank you for the opportunity to review and comment on the text amendments to revise all 11 chapters and appendices of the Adams County Development Standards and Regulations. Tri-County Health Department (TCHD) staff has reviewed the amendments for compliance with applicable environmental and public health regulations and principles of healthy community design. After reviewing the amendments, TCHD has the following comments.

Chapter 4 – Design Requirements and Performance Standards

4-03-03-02-11 Short-Term Rentals & 4-07-02-07 Vacation Rentals

Proper wastewater management promotes effective and responsible water use, protects potable water from contaminants, and provides appropriate collection, treatment, and disposal of waste, which protects public health and the environment. TCHD regulates On-Site Wastewater Treatment Systems (OWTS), also known as septic systems, through the issuance of permits to install, repair, expand, use, or operate a system. Short-Term Rentals and Vacation Rentals do not produce the same amount of wastewater as residential uses. Moreover, most systems may not have been designed and sized to accommodate increased capacity that may accompany short-term and vacation rentals. To ensure short-term and vacation rentals with OWTS have proper functioning systems with adequate capacity for the proposed use, TCHD should be included in the licensing process. TCHD would like to work with the County to determine the best process going forward.

Chapter 9 – Storm Drainage Design and Stormwater Quality Regulations

Stormwater management is important for improving water quality and preventing flooding and erosion. TCHD strongly supports the amendments to the Storm Drainage Design and Stormwater Quality Regulations as it is anticipated these updates will result in improved water quality. Specifically, TCHD commends the County for the strategies, practices, and language found in sections: 9-01-03-14, 9-01-03-18, 9-03-19, 9-04-03, 9-04-04, 9-04-06, 9-04-07; 9-04-11, 9-04-12, and 9-05-04.

Chapter 11 – Definitions

11-02-53 Automobile Service Station & 11-02-250 Fueling Station

Alternative fuels can help support the adoption of electric vehicles leading to a reduction greenhouse gases and air pollution. TCHD commends the County for updating language in the Development Standards to be more inclusive of a diversity of fuel types at Automobile Service Stations and Fueling Stations.

11-02-300 Individual Sewage Disposal System

TCHD recommends that all mention of individual sewage disposal systems (ISDS) be replaced with on-site wastewater treatment systems (OWTS). This better reflects current terminology and regulatory requirements in TCHD's On-Site Wastewater Treatment System (OWTS) Regulation O-17. The following definition can be utilized to best reflect current terminology and align with the regulation:

On-Site Wastewater Treatment System (OWTS) means an absorption system of any size or flow or a system or facility for treating, neutralizing, stabilizing, or dispersing sewage generated in the vicinity, which system is not a part of or connected to a sewage treatment works.

Please feel free to contact me at 720-302-3184 or aheinrich@tchd.org if you have any questions.

Sincerely,



Annemarie Heinrich Fortune, MPH/MURP
Land Use and Built Environment Specialist

cc: Sheila Lynch, Monte Deatrich, Michael Weakley, Warren Brown, TCHD

ADDITIONAL COMMENTS RECEIVED FROM THE PUBLIC

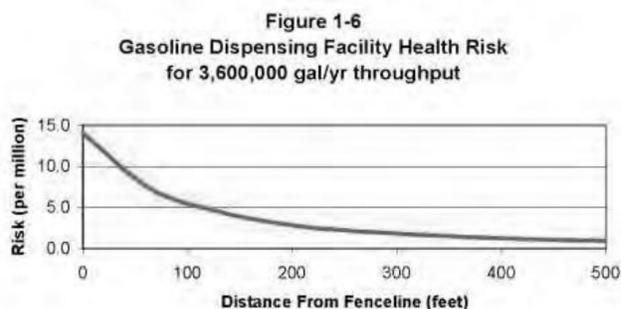
Air Quality & Health Effects

There is a large body of scientific evidence showing that the health of those spending extended periods of time near a gas station is jeopardized, particularly for the young and elderly. The studies documenting the adverse effects of gas station emissions on health are summarized in the portion of the CEDS Convenience Stores & Gas Stations webpage at: <https://ceds.org/gasstation/>.

Perhaps the most clear connection between elevated health risk for nearby residents and other sensitive uses located near a gas station is presented in the California Air Resources Board (ARB) *Air Quality and Land Use Handbook*. Health effects range from nausea to cancer. The cancer risk posed by gas station emissions stems from benzene and other compounds released to the atmosphere while pumping gas and released from underground fuel storage tank vents. There is no reliable technical fix that can prevent these emissions and health impacts.

The California ARB Handbook graph below indicates that adverse effects extend out at least 500 feet from a gas station. The Handbook describes those most vulnerable to adverse health effects and sensitive land uses as:

"Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses)."



A number of jurisdictions across the U.S. have adopted a requirement that new gas stations be located away from the homes, schools, and other sensitive land uses. A small sampling of these requirements can be found at: <https://ceds.org/gasstation/#zoning>.

The U.S. Environmental Protection Agency echoed the concerns about the health risk associated with fueling emissions in their [School Siting Guidelines](#). The USEPA recommended screening school sites for potential health risk when located within 1,000 feet of a high-volume gas station.

Aquatic Resource Impacts

The Clear Creek watershed is part of the Upper Platte River basin. The Clear Creek watershed is intensely developed which makes it unlikely the stream supports any of the aquatic species that would be uniquely susceptible to gas station impacts. If area homes obtained water from nearby wells then the gas station could pose a threat to this resource. However, area homes are served by a community water supply, not by individual wells. Following is a summary of how a gas station may impact aquatic resources.

Because of the high traffic volume and refueling, convenience stores with gas pumps pose an unusually severe threat to ground and surface waters. One study found that contaminant levels in convenience store-gas station runoff were 5- to 30-times higher when compared to residential runoff. These findings have prompted the USEPA and a number of states to list vehicle fueling locations as stormwater hotspots.

Fuel storage tanks and pipelines pose another source of contamination, though the design of both has improved dramatically over the past couple of decades. Spillage at the pump is a more likely source of fuel release into nearby waterways. Johns Hopkins University researchers found that an average of 40 gallons of gasoline is spilled annually at the pumps of a typical gas station. The JHU researchers also found that a significant portion of the spilled gasoline can migrate through the concrete pads at many fueling stations.

One review of scientific studies indicated that a gasoline plume can travel up to 400 feet underground. Add another 100 feet for installing grout curtains or other containment measures and gas dispensers should be no closer than 500 feet to a well, wetland, spring, stream, river, pond, lake, reservoir or tidal waters.

Blighting

A 2012 New York Times story documented the problems associated with converting closed gas stations into productive businesses. Because of contamination issues, the cost of removing buried tanks, and other factors, gas station redevelopment can take years. In the meantime, the station sits boarded up, like the abandoned San Antonio station pictured here. This photo was taken in 2011 and the closed station was still present (and closed) as of April, 2016. Closed stations impart a visual blight to the area which can retard commercial-residential development and depress the value of nearby properties.



Need

Increasing miles per gallon and changes in driving habits has caused gasoline sales to decline. As a result, the number of gas stations in the U.S. has declined from more than 200,000 in 1994 to just slightly more than 150,000. This ongoing trend means that every time a new station is opened an existing business within the same market area will likely experience a decline in sales and possibly close.

A *hypermart* is defined as a large combination convenience stores with sit-down space and numerous fueling positions. A study conducted in the Tucson, AZ area documented that:

On average, if a gas station is located within 0.5 road miles of a hypermart, the stations price is pushed down about 2.1 cents, and if it's located between 0.5 and 1.5 miles, the price is lowered by 1.2 cents. This effect of a hypermart is substantially greater than the effect of the addition of a traditional gas station in the areas.

In the Nashville, TN area researchers found that hypermarkets:

...do in fact place statistically and economically significant downward pressure on the prices of nearby gas stations. The magnitude of the price impact implies the entrance of a hypermart into a local market will cut an average gas station's profit in half. The findings reaffirm others who have noted the sizable impact large, low-priced firms have on their smaller competitors.

1.5 Mile Market Area

According to the National Association Of Convenience Stores, 63% of sales come from the pumps, not purchases made inside the store. Most of the eleven existing businesses are combination gas stations-convenience stores. An analysis conducted in 2019 indicates the market area is already saturated with gas stations/convenience stores. Adding a twelfth would likely lower the profitability of the existing businesses, possibly causing one or more to close.

As explained in the Blighting section of this document, closed gas stations tend to be one of the more difficult sites to redevelop. It could take years before the closed station is developed to another use. In the interim the closed station may exert a blighting effect on the surrounding neighborhood.

Conclusion

At this point we can make a strong case that a gas station will expose those living within 500 feet to the unhealthful emission from the gas station. This would constitute grounds for a finding that a potential project would be:

- Not compatible with the surrounding,
- Not harmonious with the character of the neighborhood, and
- Detrimental to the immediate area as well as the health of inhabitants of the area.

These facts alone should prompt the County Commissioners to deny the rezoning and comprehensive plan amendment request.

Hydrocarbon Release During Fuel Storage and Transfer at Gas Stations: Environmental and Health Effects (2015)

[Markus Hilpert](#)¹, [Bernat Adria Mora](#)², [Jian Ni](#)³, [Ana M Rule](#)², [Keeve E Nachman](#)²

“It is important to note that vapor recovery at the nozzle can cause vapor releases at the storage tank, because vapors recovered at the nozzle are typically directed into the storage tank. The storage tank, in turn, can “breathe” and potentially release recovered vapors immediately or at a later time. A tank sucks in relatively uncontaminated air as the liquid fuel level drops in the tank due to vehicle refueling, and it releases vapors through the vent pipe into the atmosphere if the gas pressure increases and exceeds the cracking pressure of the pressure/vacuum valve, when fuel evaporates into unequilibrated gas in the headspace.”

The 2015 paper contained the following summary regarding the health implications of living, working or learning near a gas station:

“Health effects of living near gas stations are not well understood. Adverse health impacts may be expected to be higher in metropolitan areas that are densely populated. Particularly affected are residents nearby gas stations who spend significant amounts of time at home as compared to those who leave their home for work because of the longer period of exposure. Similarly affected are individuals who spend time close to a gas station, e.g., in close by businesses or in the gas station itself. Of particular concern are children who, for example, live nearby, play nearby, or attend nearby schools, because children are more vulnerable to hydrocarbon exposure.”

Idling engines, particularly those in large diesel trucks, emit a large quantity of particulates into the local atmosphere. These particulates can pose a significant health risk for those living near convenience store/truck stops.

Vent pipe emissions from storage tanks at gas stations: Implications for setback distances (2019)

Author links open overlay panel [Markus Hilpert^a](#) [Ana Maria Rule^b](#) [Bernat Adria-Mora^a](#) [Tedmund Tiberi^c](#)

Most call for a greater separation than the 300 feet recommended by the California Air Resources Board. The increasing safety zone distances were prompted by the growing body of research showing that adverse health effects extend further and further from gas stations. In fact, a [2019 study](#) of U.S. gas stations found that benzene emissions from underground gasoline storage tank vents were sufficiently high to constitute a health concern at a distance of up to 518-feet. Also, the researchers noted: “emissions were 10 times higher than estimates used in setback regulations [like that in the California handbook] used to determine how close schools, playgrounds, and parks can be situated to the facilities [gas stations].”

Prior to the 2019 study it was thought that most of the benzene was released at the pump during fueling.

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For more impacts related to environment, equity, and economy please review: <https://ceds.org/gasstation/#health>