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August 24, 2026

Via Email and Hand Delivered:
El Paso County Board of County Commissioners

Re: Request for Determination on Appeal of Administrative Determination on Use for Buc-ee's

Dear Commissioners:

This letter concerns the appeal of the administrative determination on use dated July 1, 2026 (the "Determination") requested by Buc-ee's, EPCO, LLC ("Buc-ee's") related to the proposed Buc-ee's travel center (the "Project") located at I-25 and County Line Road in El Paso County, Colorado (the "County").

The Determination correctly concluded that the Planning Director could not find that the Project is sufficiently similar to a Convenience Store, as defined in the County's Land Development Code (the "LDC), for the County to classify the Project as such and, thus, could not be permitted in the C-1 Zone District. Buc-ee's appeal of the Determination does not provide adequate justification to overturn the Planning Director's conclusion and fails to provide adequate support for the claim that "Convenience Store" is a more appropriate designation than uses not permitted in the C-1 Zone District, such as a Gas Station, Truck Stop, or Big-Box Store. As such, we respectfully request that the Board deny Buc-ee's appeal and uphold the Determination.

I. The Project Is Not Sufficiently Similar to a "Convenience Store" to Justify a Reversal of the Determination

The LDC defines "Convenience Store" as "[a]n establishment for the purpose of offering for sale to the neighborhood in which it is located such items as groceries, ready to eat food, over the counter drugs, and sundries. A convenience store may include retail sale of gasoline and other petroleum products." *LDC, § 1.15.* The LDC's definition of "Convenience Store" includes several characteristics which the Project does not share.

a. Not a Neighborhood-Serving Use

First, a Convenience Store offers its wares "for sale to the neighborhood in which it is located." It is definitionally a neighborhood-serving use. Buc-ee's, to the contrary, serves primarily traveling customers who either stop at a Buc-ee's travel center en route to their destination or make Buc-ee's a long-distance destination of its own. Its business model hinges upon out-of-town customers traveling long distances in

their individual vehicles to the travel center, as seen through Buc-ee's famous billboards hundreds of miles away from their nearest locations. It does not serve "the neighborhood in which it is located."

Table 1: A Buc-ee's Billboard in Springfield, Missouri

Even if Buc-ee's did not target long-distance travelers as its primary customer base, the Project is not at the neighborhood scale contemplated by the "Convenience Store" use. The Project proposes 120 gas pumps and 812 parking spaces. That is not a design intended to service the surrounding community – one of large-lot rural residences and suburban pockets. That is a development designed entirely to populate the neighborhood with out-of-town (and often out-of-state) tourists whose vehicle trips by the thousands are incomparable to the scale of a neighborhood Convenience Store.

Peer jurisdictions similarly treat their equivalent Convenience Store uses as small-scale, neighborhood businesses:

- Douglas County: "[a] small retail or service commercial use, which provides limited food products, household items or other goods or services commonly associated with the same, which do not typically offer comparison shopping opportunities." *Douglas County Zoning Resolution, § 1-3602.*
- Elbert County: "[a] retail or service commercial use which serves the area immediately surrounding the use by providing groceries, sundries and miscellaneous services which do not typically offer comparison shopping opportunities." *Elbert County Zoning Regulations, Appendix A.*
- Arapahoe County: "[a] small commercial establishment selling packaged food and other convenience items, which may include gasoline and/or a single-bay, fully-automated vehicle wash facility as an accessory and clearly secondary or subservient use to the convenience store, and having a gross floor area of less than 3,000 square feet." *Arapahoe County Land Development Code, § 7-2.*
- Adams County: "[a] small commercial establishment selling packaged food and other convenience items, which may include gasoline. This use category includes any retail establishment selling consumer products and having a gross floor area of less than two thousand (2,000) square feet." *Adams County Development Standards and Regulations, § 11-02-135.*

The existing Convenience Stores in the County reinforce that a Convenience Store is a small, neighborhood establishment, just as Convenience Stores are treated in comparable jurisdictions. According to the Determination, the largest parcel housing a Convenience Store in the County is 6.11 acres. That property is less than one-fifth the size of the Project site's 30.8 acres. The largest existing Convenience Store in the County has a floor area of 5,550 square feet; a mere 7.5% of the size of the Project's proposed 74,000 square foot building. *Project Application Submittal, pp. 248-249 (Site Development Plan).* The Project's proposed gas canopy, at 62,000 square feet, is nearly eight times the size of the next largest gas canopy at a Convenience Store, at 8,000 square feet. *Determination, p. 5 (Gas Station and Convenience Store Developments in El Paso County).* The Project is not a Convenience Store because it contemplates an unprecedented scale for what is intended to be a small, low-intensity use.

b. Expanse of Items for Sale is Not a Convenience Store

A Convenience Store sells "such items as groceries, ready to eat foods, over the counter drugs, and sundries." These are items one would commonly expect to be sold at a Convenience Store. They do not include extensive meal preparation, on-site bakeries, and home goods. Convenience Stores do not have live brisket stations that shout as a group "Fresh Brisket on the Board" when fresh meat is brought out nor dedicated fudge bars where you can create a "Buc-uterie" board. The merchandise offered at Buc-ee's stores includes extensive branded clothing and apparel; kitchen goods including cast iron skillets, glassware, and cookbooks; home décor; and stuffed animals. Some Buc-ee's locations even sell hunting gear, outdoor grills, and fire pits. This product range is far more expansive than the products offered in a typical Convenience Store and is more akin to a big-box department store.

c. 120 Gas Station Pumps is not a Convenience Store

Finally, a Convenience Store "may include the retail sale of gasoline and other petroleum products." This phrasing and de-emphasis of the sale of gasoline within the "Convenience Store" use emphasizes that gasoline sales are not the primary business driver for Convenience Stores. Gasoline sale is an ancillary, accessory use that does not always accompany Convenience Stores. The Project is divided nearly equally into gasoline sales and big-box retail, with 62,000 square feet of canopied gas pumps alone, compared to 74,000 square feet of retail and dining facilities. *Project Application Submittal, pp. 19 (Exhibit B: Site Composition Plan); 249 (Site Development Plan).* Despite Buc-ee's assertion that 60% of their per-store revenue comes from non-gas sales, having 40% of revenue come from a 120-pump gas island is not what the LDC contemplates for a Convenience Store.

II. The Project Is Not Similar to Permitted Uses In the C-1 Zoning District

When reviewing an administrative determination on use, the Planning Director must determine that: (1) "[t]he function, performance characteristics, and location requirements of the unlisted use [are] consistent with the purpose and description of the zoning district where it is proposed," and (2) "[t]he unlisted use is compatible with the uses specifically allowed in the district, and similar in characteristics such as traffic and parking generation, noise, glare, vibration, and dust." *LDC, § 5.3.6(C)(1).* The Project fails to satisfy both of these criteria with respect to Buc-ee's requested determination that the Project is a Convenience Store.

a. Buc-ee's is Not a Convenience Store Consistent with C-1 Zone District Purposes Because There are Significant Off-Site Impacts

The Project site is located in the "C-1 Zone District," an obsolete zone district which properties have been unable to rezone into since May 1, 1991, over 35 years. *LDC, § 4.4.1(I).* The purpose of the C-1 Zone District is "providing for commercial activities." *LDC, § 4.4.1(A).* While this purpose provides little guidance on the types of commercial activities desired in the C-1 Zone District, the other permitted uses in the C-1 Zone District show that it is intended to accommodate low-intensity, neighborhood commercial uses.

Permitted uses in the C-1 Zone District include, for example, "Barber/Beauty Shop," "Child Care Center," "Copy Shop," "Funeral Home," and "Restaurant." *LDC, Table 5-1.* These are small-scale uses with minimal off-site impacts, particularly with respect to parking generation, noise, glare, vibration, and dust. These uses generate trips from consumers, but they are not high intensity uses. The Project is not similar to these permitted uses in intensity nor in characteristics.

A travel center is a high-intensity, high-trip-generation, auto-oriented use that will generate significant off-site impacts. The Project is anticipated to generate over 22,000 vehicle trips per day, with only a fraction of those trips originating within the surrounding region. *Project Application submittal, pp. 21-24 (Trip Generation Memorandum).* Traffic impacts will be so significant that major modifications to the I-25/County Line Road interchange will be required. *Buc-ee's Traffic Impact Study Review, prepared by*

Galloway, dated June 12, 2025, attached hereto as Exhibit A, *p. 7.* A Child Care Center or Funeral Home would not require reconfiguration of an interchange with a major interstate highway.

The Project contemplates a large footprint, 120 gas pumps, and a sea of 812 surface parking spaces. Its intense activity could have significant wildlife impacts, particularly given its close proximity (0.25 miles) to Colorado Parks and Wildlife designated aquatic High Priority Habitat and its location within elk and mule deer ranges. *Buc-ee's Palmer Lake Site Proposed Commercial Travel Center Environmental Assessment, prepared by HWA Wildlife Consulting, LLC, dated June 12, 2025, attached hereto as* Exhibit B, *p. 2.* The Project is also expected to generate high demand for additional water usage in a region where water resources and infrastructure are already strained. *Letter re: Buc-ee's Travel Center Water Supply Considerations, prepared by BBA Water Consultants, Inc., dated June 12, 2025, attached hereto as* Exhibit C. These characteristics and the scale of the Project's impacts are completely alien to and incompatible with the other permitted uses in the C-1 Zone District.

Even to the extent the C-1 Zone District permits slightly more intense uses – "Indoor Amusement Center," "Theater," "General Retail Sales," etc. – it does not approach the level of intensity contemplated by the Project. The number of parking spaces and average daily trips, the visibility of the lighting, and the enormity of the typical Buc-ee's signage all distinguish the Project from even the most intense uses contemplated by the C-1 Zone District. The quantity of fuel sales alone, which is prohibited as a primary Gas Station or Truck Stop use in the C-1 Zone District and allowed only when incidental to a Convenience Store, sets the Project apart from any other permitted use in the C-1 Zone District.

Notably, the C-1 Zone District does not permit many auto-oriented uses with as much focus on vehicular travel as the Project. "Automobile and Trailer Sales," "Gas Station," "Parking Garage," "Truck Stop," and "Vehicle Repair Garage, Commercial" are not permitted uses in the C-1 Zone District. *LDC, Table 5-1.* These uses are more comparable and have high trip generation and produce significant off-site impacts due to the volume of vehicles they serve and the activities they conduct. The Project shares more similarities in terms of off-site impacts with this auto-oriented group of uses than with many of the neighborhood-scale retail uses contemplated for the C-1 Zone District.

III. The Project Is More Similar to Other Uses Defined in the LDC Which Are Not Permitted in the C-1 Zone District

The Project shares just as many – if not more – characteristics with the "Gas Station" and "Truck Stop" use classification not allowed in the C-1 Zone District than it does with the "Convenience Store" use. The LDC defines "Gas Station" as "[a] property where the retail sale of gasoline, diesel fuel, oil, or other fuel for vehicles [sic] and which may include, as an incidental use, the retail sale and installation of vehicle accessories, the making of minor repairs, and facilities for washing and servicing of not more than 3 vehicles completely enclosed in a structure." *LDC, § 1.15.*

A development housing 120 gas pumps, with a 62,000 square foot gas canopy, is a business engaging in the retail sale of gasoline at a scale greater than most, if not all, other Gas Stations in the County. Unlike with Convenience Stores, sale of gasoline at that scale is not an incidental use. It is near equal in both

projected revenue and footprint to Buc-ee's proposed retail use. Buc-ee's is not a 7-11 in a strip mall; it is a travel center whose two primary functions are the refueling of passenger vehicles and the provision of rest facilities for long-distance travelers.

The LDC defines "Truck Stop" as "[a]n establishment that provides maintenance, repair, storage and other services to commercial vehicles and their drivers, which may include but are not limited to fuel, accessory or parts sales, overnight accommodations, restaurant facilities, or any combination thereof." *LDC, § 1.15.* The Project provides fuel at a larger scale than most Truck Stops and contains restaurant facilities that are more significant than the prepared food sales contemplated in Convenience Stores and Gas Stations.

While the Project does not neatly match all the characteristics of a Gas Station or a Truck Stop, it is as similar or more similar to those uses as it is to a Convenience Store. And that is precisely the issue with Buc-ee's appeal of the Determination: the Project is of a scale and scope not contemplated by the LDC. There is no use with a definition adequately tailored to encompass a travel center, and it is not similar enough to existing permitted uses to allow it to exist in the C-1 Zone District as an undefined use. A travel center of the type proposed by Buc-ee's is a high impact development with substantial off-site effects, the likes of which are not contemplated by permitted uses in the C-1 Zone District. Such a use requires a more exacting level of review with meaningful public engagement.

IV. Buc-ee's Should Be Required to Rezone the Project Site to a Zone District in which a Travel Center May Be Permitted

If the County desires to permit the Project at all (which it should not, as the Project is wholly incompatible with the surrounding area), then Buc-ee's should be required to rezone the Project site to a zone district in which a travel center is more appropriate. The LDC encourages landowners to rezone land from obsolete zoning classifications such as the C-1 Zone District. *LDC, § 4.1.4.* A rezoning would allow for the appropriate level of public input and consideration of whether the Project is a suitable use for this region. Buc-ee's should not be permitted to force such an intensive use on nearby rural residences and patrons of the Greenland Open Space through an entirely administrative process with minimal public input – as they have attempted with the Determination.

Further, there are no existing Convenience Store uses permitted in the C-1 Zone District. The Board should not force a square peg into a round hole by reshaping the LDC's definition of "Convenience Store" to fit a much more intense travel center, especially if the outcome is to permit a brand new use in an obsolete, undesirable zoning district. The County should be working to reduce the number and type of uses present in its obsolete zoning districts to encourage their rezoning to modern standards. They should not encourage development to skirt public input and current zoning requirements by offering expansive interpretations of uses in obsolete zoning districts.

Conclusion

The Project does not fit within the LDC's definition of a "Convenience Store." It is fundamentally dissimilar from several characteristics of a Convenience Store, including the neighborhood scale and

focus, the products offered for sale, and the accessory nature of gasoline sales. The Project has just as much – if not more – in common with uses like "Gas Station" and "Truck Stop," which are not permitted in the C-1 Zone District, as it does with a Convenience Store. The Project does not follow the neighborhood-oriented intent of the C-1 Zone District and is incompatible with other permitted uses. The Board should deny Buc-ee's appeal and uphold the Determination as written.

Respectfully,

Caitlin Quander

Enclosure Exhibits A, B and C

EXHIBIT A

Buc-ee's Traffic Impact Study Review

[see attached]

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To:	Ian Griffis
From:	Brian J. Horan, P.E. Kevin R. Fellin, P.E.
Cc:	Caitlin S. Quander
Date:	June 12, 2025
Re:	**Proposed Palmer Lake, Co - Buc-ee's**
Subject:	**Traffic Impact Study Review**

The purpose of this memorandum is to summarize a review of the traffic impact studies that have been prepared for the Buc-ee's travel center that is proposed to be located in the southwest quadrant of the I-25/County Line Road interchange in what is now part of El Paso County, Colorado. **This memorandum does not support or oppose the proposed project, however, it provides a technical review of the submitted traffic impact studies to highlight any potential critical traffic related considerations that may have not been fully addressed.**

As such, the following documents were reviewed in detail by our traffic engineering team:

TRAVEL CENTER PALMER LAKE – TRAFFIC IMPACT STUDY
Dated: November 19, 2024
Prepared by: Kimley-Horn and Associates, Inc.
Prepared for: Ratcliff Engineering Services, LLC

TOWN OF PALMER LAKE – TRAFFIC IMPACT STUDY
Dated: February 27, 2025
Prepared by: Stolfus & Associates, Inc.
Prepared for: Town of Palmer Lake, CO

This assessment was undertaken at the request of Ian Griffis who represents a consortium of local landowners and entities that depend on safe and convenient access to their local/regional road network to meet their transportation needs. As a result, this memorandum assesses the traffic impact studies that were prepared to evaluate this new use with respect to best practices and sound assumptions.

OVERVIEW

Overall, we found that each traffic study reviewed generally followed typical guidelines and practices in preparation of a traffic impact study.

Traffic Counts. Both traffic studies conducted existing traffic counts during acceptable periods (weekday AM and PM periods) with the Stolfus study also collecting traffic counts during a peak weekend period.

Given the highlighted impacts to the existing Tri Lakes Church of Christ, an additional traffic count collected on a Sunday that correlated with their Sunday service would better demonstrate the Buc-ee's impact and emphasis to maintain adequate access for the church beyond a right-in/right-out access point as currently provided in the future.

Spot checks of the existing traffic count figures would suggest traffic balancing was warranted at certain locations, but it should be noted such balancing would ultimately not fundamentally impact the reported results.

Trip Generation. Both studies relied on actual field measurements at existing Buc-ee's sites which does provide the most accurate representation of the traffic generated by this unique use given the Institute of Transportation Engineer's (ITE) Trip Generation Manual does not provide equivalent data.

The Kimley-Horn study utilized a more conservative trip generation assessment based on existing sites across the country while the Stolfus study concentrated on an existing Buc-ee's in Colorado.

The Kimley-Horn study assumed that 85 percent of the future site traffic would predominately already exist on I-25 and then divert their trip to Buc-ee's on the way to their final destination. The Stolfus study assumed 75 percent. For both studies, these assumptions appear to be based on the ITE Trip Generation Handbook for a typical gasoline station with convenience store. Based on our knowledge of a Buc-ee's travel center, this type of facility acts more as a destination than a typical travel center so it should be expected that a lesser percent of site trips will be attracted from the adjacent roadways and that a greater percentage will be new trips added to the road network as destination trips. The difference between diverted link and destination trips does not materially impact the study intersections given all trips (primary and diverted link) show up at the site entrances. It should be expected the overall volume of traffic on I-25 will increase in the area as a result of the Buc-ee's site.

Site Access. The site access for the proposed Buc-ee's site is proposed to include two (2) full-movement access points on Beacon Lite Road and one (1) right-out only on County Line Road. In review of other Buc-ee's sites, they typically provide more access opportunities to support efficient circulation into and out of the site.

The limited access line should be verified for the proposed right-out access on County Line Road. Also, the proposed right-out was identified to require a deviation from access management minimum spacing standards. Impacts should be evaluated if the deviation is not approved.

Site Distribution. Both studies assumed that approximately 90 percent or more of the site trips will be oriented to/from I-25. This evaluation concurs and as a result focuses in part on the I-25/County Line Road interchange in the subsequent Traffic Operations section of this memorandum.

TRAFFIC OPERATIONS

I-25/County Line Road Interchange

As noted in both traffic studies, nearly all of the site generated traffic would be oriented to/from the I-25/County Line Road interchange. Therefore, the analysis and recommendations from the previously prepared traffic studies were reviewed in detail. The results are summarized below.

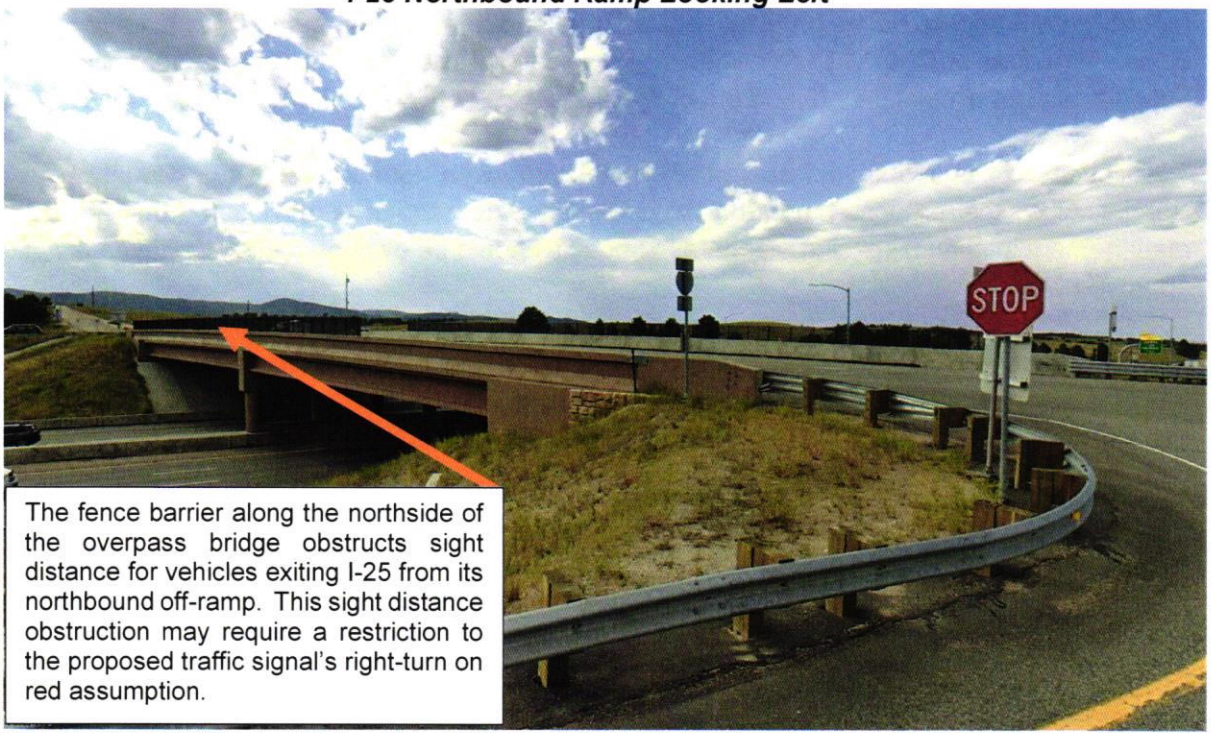
Roadway Geometry. The previously prepared traffic studies provided the following improvements at the I-25/County Line Road interchange:

- Restripe the existing bridge lanes to provide three (3) westbound and two (2) eastbound lanes.
- Construct an additional lane on the I-25 NB off-ramp and the I-25 SB off-ramp at their intersection with County Line Road.
- Reconstruct the eastbound approach to provide a total of three lanes at the intersection with the I-25 SB off-ramp.
- Install traffic signals on County Line Road at both I-25 off-ramp intersections.

The fifth travel lane on the interchange bridge would require the reduction of existing striped shoulders. Therefore, the lateral offset requirements from the bridge wall need to be considered to ensure proper clearance from heavy vehicles. Additionally, the alignment of the relocated through lanes with the corresponding receiving lanes would need to be reviewed.

The relocation of the roadway edge lines would also impact sight distance considerations. The driver's viewing (eye) location would need to be shifted further back on each of the I-25 off-ramps. As shown below, with the shift in viewing location, the bridge wall and fence on top of the wall would likely obstruct the line on sight. While the installation of a traffic signal would help resolve sight distance concerns, right-turn-on-red (RTOR) maneuvers would likely be prohibited which would impact vehicle throughput and increase vehicle queues exiting the off-ramp.

I-25 Northbound Ramp Looking Left



The fence barrier along the northside of the overpass bridge obstructs sight distance for vehicles exiting I-25 from its northbound off-ramp. This sight distance obstruction may require a restriction to the proposed traffic signal's right-turn on red assumption.

I-25 Southbound Ramp Looking Left

The fence barrier along the northside of the overpass bridge obstructs sight distance for vehicles exiting I-25 from its southbound off-ramp. This sight distance obstruction may require a restriction to the proposed traffic signal's right-turn on red assumption.

Traffic Analysis. While a traditional macroscopic analysis using Highway Capacity Manual methodologies was used in both studies to assess the lane use configuration at the I-25 ramp intersections at County Line Road, a more detailed microsimulation would be required to fully evaluate how the interchange operates due to the following reasons:

- The two I-25 ramp intersections are in close proximity to each other (less than 400 feet centerline-to-centerline) and may experience impacts due to queue spillback.
- The proposed traffic signals would likely operate under clustered or highly coordinated signal timing patterns, created platooning effects.
- The I-25 ramps would impact operations on I-25 at the merge and diverge points especially if traffic spills back into the mainline interstate travel lanes.

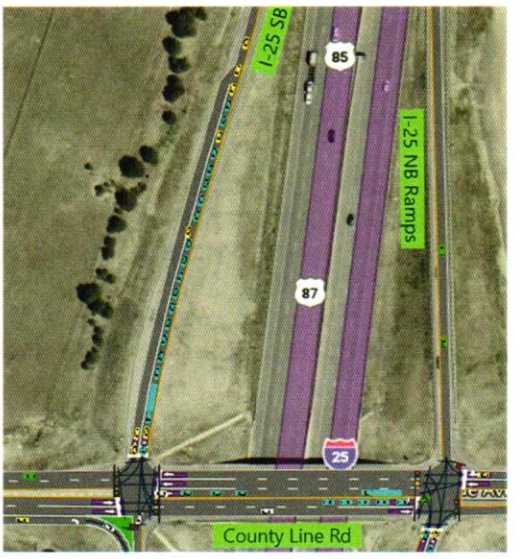
While a full analysis of the interchange and freeway operations would likely be required as part of the interchange modification process, a preliminary assessment was performed as part of this review. Specifically, the 2045 Synchro analysis from the Kimley Horn study was replicated based on the analysis worksheets and signal timing sheets provided in the report appendices. The following modifications were then made to support the SimTraffic model:

- The yellow and red times were increased from the Synchro default values (3.5 sec. yellow, 1.0 sec. red) to values (4.1-4.3 sec. yellow, 2.6 sec. red) consistent with CDOT's "Guidelines for Traffic Signal Vehicle Change and Clearance Intervals".
- Right-turns-on-Red (RTOR) was turned off for the I-25 Off-Ramp approaches to the proposed traffic signals for the sight distance constraints outlined above.
- The Link Origin-Destination settings were revised to account for the fact that few (if any) vehicles would exit I-25 at one intersection and re-enter at the adjacent intersection.

Using the revised Synchro files described above, a SimTraffic simulation analysis was performed, and the results are summarized below:

- During the PM peak hour, queues on the I-25 NB off-ramp would periodically extend to the gore point. It is noted that based on AASHTO standards and a design speed of 80 mph (posted 75 mph + 5 mph), an additional 705 feet of deceleration distance would be required to ensure mainline freeway operations are not impacted.

- The peak southbound left queue on the ramp would extend approximately 500 feet. The proposed right turn lane would need to be constructed to this length to avoid being blocked by the adjacent queue. The 705 feet of deceleration distance beyond the queue would extend to the taper area of the ramp.



- During the AM and PM peaks, queues for the eastbound and westbound left-turn movements onto I-25 would extend to the adjacent ramp intersection. Thus, the delays and queuing would likely be greater than the results presented in the traffic studies that did not account for vehicle spillback effects.

While the acceleration distance requirements for the on-ramps would not fundamentally be affected by the proposed interchange modifications, the traffic generated by the site would create the need for an increased number of gaps within the I-25 mainline traffic in order to adequately merge onto the highway. Neither study provided traffic volume data for I-25. Therefore, performing a traffic merge analysis to ensure I-25 traffic operations would be maintained is not possible at this time.

It is noted that items mentioned in the section above would be addressed during the formal interchange modification process. However, interchange modification reports are typically at the time of project funding and the timeline for this process is typically hard to predict. Given the need for the I-25/County Line Road interchange to adequately serve site project, a preliminary interchange and freeway traffic analysis is recommended as part of the project approval process.

CONCLUSIONS

Based on a preliminary review of the traffic impact studies prepared by Kimley-Horn and Stolfus, the following conclusions are presented:

1) In general, the traffic studies followed typical guidelines and practices in preparation of a traffic impact study. Minor errors and/or typos were observed but were determined to not fundamentally change the presented results.

2) Given the characteristics of Buc-ee's to draw destination trips beyond a typical gasoline station with a convenience store, it should be anticipated that a greater percentage of the total site trips will be destination and diverted in nature thereby adding more site trips to I-25 than assumed in each study.

3) The primary vehicular site impacts to the public road network will occur at the I-25/County Line Road interchange. Neither study focused nor provided adequate details to evaluate whether off-ramp vehicle queues would spill back into the mainline interstate travel lanes. Based on a preliminary SimTraffic model, critical attention should be given to the adequacy of this interchange beyond adding traffic signals at the end of the interstate ramps and adding turn lanes to the approaches of those traffic signals. This is critical to the future operation of this interchange and whether it is adequate to support the proposed new use. The following elements should also be considered:

    a. Available intersection sight distance for the exiting off-ramp approaches to the proposed traffic signals and likely prohibition of assuming right-turns on red to improve vehicle capacity and queuing.
    b. The spacing between the proposed interchange traffic signals and potential spill back of vehicle queues into each other.
    c. Lengths of the interstate off-ramps with respect to debilitating vehicle queues that may spill back in the interstate mainline.
    d. Review of historical crash data over the past 3-years to identify any existing issues that could be exacerbated by the project.

4) Analysis of the on-ramp merge area on I-25 is recommended to measure the adequacy of the freeway facility.

5) Given the need for the I-25/County Line Road interchange to adequately serve site project, a preliminary interchange and freeway traffic analysis is recommended as part of the project approval process.

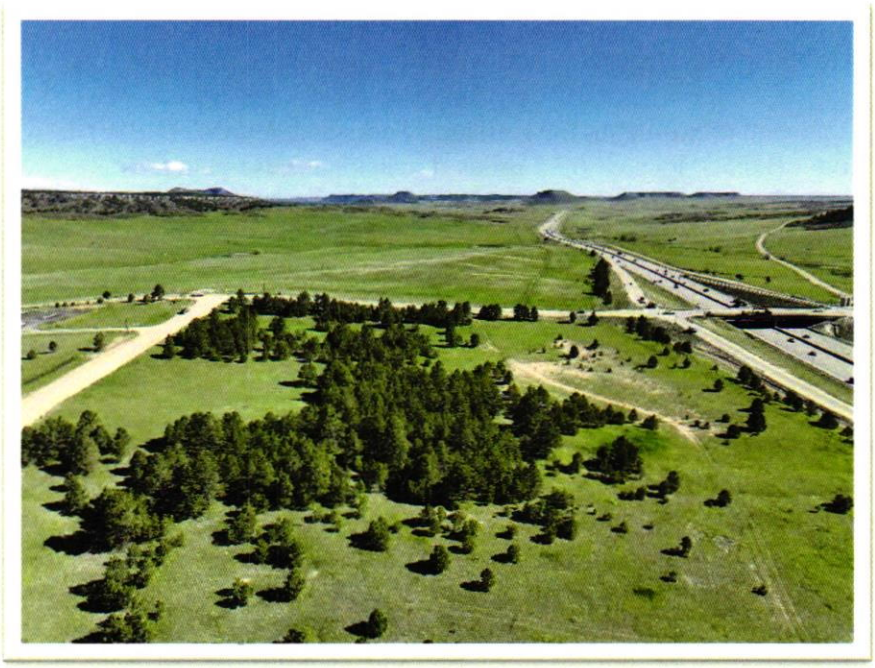
6) Impacts should be evaluated if the deviation for the proposed right-out entrance on County Line Road is not approved.

EXHIBIT B

Buc-ee's Palmer Lake Site Proposed Commercial Travel Center Environmental Assessment

[see attached]

Buc-ee's Palmer Lake Site
Proposed Commercial Travel Center
Environmental Assessment
El Paso County, Colorado
June 12, 2025



Prepared for:

Ian Griffis

Prepared by:

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1. Executive Summary

Buc-ee's is proposing a commercial travel center in El Paso County, Colorado. The proposed 24.9-acre commercial travel center raises two primary environmental concerns: impacts to aquatic resources and adverse effects on big game populations. HWA Wildlife Consulting, LLC conducted an environmental assessment of the proposed travel center project site by assessing big game habitat and wetland and riparian habitat. The proposed project includes a 77,303 square foot facility, 120 fueling stations, 828 parking spaces, stormwater detention infrastructure, a retaining wall, and utility installations. The project will introduce substantial increases in water runoff, vehicle traffic (22,150 daily weekday trips), noise, and lighting. These factors present both direct and indirect risks to sensitive ecosystems and wildlife corridors in the region.

The site's topography and proximity to the Colorado Parks and Wildlife (CPW) designated aquatic High Priority Habitat (HPH), located 0.25 miles downslope, raise concerns about contamination from stormwater runoff and fuel-related pollutants. Fuel spills are inevitable at the proposed site, especially given the high number of planned fueling pumps. These spills can release toxic hydrocarbons, including benzene, toluene, and xylene, which are known to contaminate soil, surface water, and groundwater and pose serious ecological and human health risks. Spills at the site could have significant impacts to groundwater, nearby streams, and the CPW-designated aquatic HPH located approximately 0.25 miles downgradient of the project site.

Furthermore, the project site is located within habitat for elk and mule deer, including resident populations, summer ranges, concentration areas, and highway crossing habitats. It is located less than a mile from two major I-25 wildlife underpasses—Monument Hill and Dogleg—that provided over 4,000 mule deer crossing attempts during 2022–2023. The Greenland Wildlife Overpass is a new overpass designed to support long-term elk herd connectivity and is visible from the project site, which may impede big game movement along the overpass. Direct habitat loss (24.9 acres) combined with increased traffic, human presence, and visibility of the project site may cause avoidance of these wildlife crossings and the surrounding habitats. A GIS-based viewshed analysis shows much of the region's critical big game habitat, including the Greenland Overpass, big game HPHs, the approaches to the Dogleg Underpass, and the adjacent wildlife escape ramp, is within direct line-of-sight of the project. This visual and auditory exposure from the proposed project could lead to avoidance behaviors, habitat fragmentation, increased mortality from vehicle collisions, and reduced wildlife movements between seasonal ranges for big game species.

The proposed Buc-ee's travel center's scale, location, and associated vehicle traffic presents risks to both aquatic ecosystems and big game movement corridors. According to this assessment, the proposed project could negatively impact aquatic and big game habitat within the surrounding area.

2. Introduction

Buc-ee's has a proposed commercial travel center (project site) within El Paso County, Colorado. HWA Wildlife Consulting, LLC (HWA) completed an environmental assessment for the project site in 2025. This effort included a desktop analysis using online resources and field data collected

by HWA within and around the project site during a ground survey on May 15, 2025. The ground survey focused on:

- Assessing big game habitat within and around the project site
- Assessing the wetland and riparian habitat within and around the project site
- Photographing the project site and the surrounding habitat

The perimeter of the site was surveyed from the ground using adjacent roads (Palmer Drive Road and Beacon Lite Road) and a drone was used to survey the actual site and the surrounding habitat. This environmental assessment focused on potential impacts to aquatic habitats and big game species within and around the project site.

3. Project Site

The project site is located in the southwest corner of I-25 and Palmer Drive Road, approximately 2.5 miles east of Palmer Lake, Colorado, in Section 2 T11N:R67E (Figure 1). According to the development plan, the project site's boundary encompasses 24.9 acres to accommodate a 77,303 square foot travel center, 120 fueling stations, 828 parking spaces arranged along all four sides of the travel center, stormwater detention facilities, a retaining wall on the east side, and utilities. The site will be open twenty-four hours a day, seven days a week. The primary access points to the site are from Palmer Drive Road to the north and Beacon Lite Road to the west. The majority of the vehicles accessing the site will be exiting off of I-25, driving west along Palmer Drive Road, and then south into the site. Based on a traffic impact study, the project site will generate 22,150 daily weekday trips (Kimley-Horn 2024). Photos referenced in this report are included in Appendix A.

4. Vegetation

The vegetation cover within the project site primarily consists of undisturbed ponderosa pine (*Pinus ponderosa*) forested habitat and prairie grassland habitat (see photos in Appendix A). There is a small drainage that flows west to east through the site that could contain riparian associated plant species (Figure 2, Photo 4).

5. Wetland Habitat, Riparian Habitat, and Aquatic Species

Potential wetlands and riparian habitat within and around the project site were identified using U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI), U.S. Geological Surveys (USGS) National Hydrography Dataset (NHD), Colorado Parks and Wildlife (CPW) High Priority Habitat (HPH) data, and drone imagery (Figure 2).

One NHD feature, classified as a stream/river, occurs within the project site (Figure 2). The NHD feature could not be surveyed from the ground due to land access restrictions. Drone imagery shows that there is a depression within this feature (Photo 4). This feature likely contains water during heavy rain events. The water flows west to east, crosses under I-25, and eventually heads northeast into CPW-designated aquatic native species conservation waters HPH. The aquatic HPH is located approximately 0.25 miles northeast of the project site (Figure 2, Photo 5). CPW

recommends that HPHs be avoided to minimize impacts to wildlife and sensitive habitats from land use developments in Colorado.

One of the primary aquatic concerns about the proposed development is potential spills impacting the important aquatic HPH and impacts to local groundwater. Based on the topography, spills within the project site will eventually flow east and northeast into the CPW designated aquatic HPH, located approximately 0.25 miles to the northeast (Figure 2). The newly developed Buc'-ees in Johnstown, Colorado, has already reported a diesel line spill that was reported on November 20, 2024 (Release #REL-016877; CDOPS, 2025). In addition to underground gas line and tank spills, there is a concern about gas spills at the 120 fueling pumps. Research from John Hopkins University indicates that a typical gas station may spill approximately 40 gallons of gasoline annually, with a substantial portion eventually seeping through the concrete and into the ground, potentially introducing hazardous substances like benzene into the environment (Hilpert and Breysse 2014). The estimated 40 gallons of gasoline spilled annually is referring to gasoline spilled at the pump and does not include spills from underground storage gas lines or tanks. This study focused on typical gas stations much smaller than the 120 fueling pump stations that the Buc'-ees site will have.

Gasoline spills can cause significant environmental impacts, contaminate soil, contaminate groundwater, and contaminate surface water due to the presence of toxic hydrocarbons such as benzene, toluene, and xylene (ATSDR 2015). These substances are not only harmful to aquatic life but also pose health risks to humans through contaminated drinking water and inhalation of volatile compounds (EPA 2020). In aquatic ecosystems, gasoline can reduce oxygen availability in water, leading to fish kills and disruption of aquatic habitats (NOAA 2021). Additionally, long-term exposure of these contaminates in the soil can hinder plant growth and degrade land quality, making remediation both complex and costly (EPA 2020). There is a concern that the gas spills at the project site will negatively impact ground water and the CPW-designated aquatic HPH that is located approximately 0.25 miles downslope of the project site.

6. Big Game

CPW has identified big game HPHs to protect species such as elk (*Cervus elaphus*) and mule deer (*Odocoileus hemionus*). CPW recommends that HPHs be avoided to minimize impacts to wildlife (including big game) from land use developments in Colorado. CPW has also identified habitat ranges where big game spend the majority of their time. Avoiding and minimizing impacts in HPHs and big game habitat ranges will help minimize any negative impacts to big game populations.

The location of big game HPHs and habitat ranges in the vicinity of the project site were obtained from the CPW – Geospatial Data website (CPW 2025, Figures 3-5). Big game HPHs do not occur within the project site. However, elk migration corridor HPH occurs approximately 0.14 miles to the north of the project site and mule deer severe winter range HPH and winter concentration area HPH occurs approximately 1.95 miles to the northwest of the project site (Photo 6). Additionally, the project site is located within elk resident population area habitat, elk highway crossings habitat, mule deer concentration area habitat, mule deer summer range habitat, mule deer resident population area habitat, and mule deer highway crossing habitat. And elk summer range habitat

is located approximately 0.39 miles to the west and mule deer winter range habitat is located approximately 0.01 miles to the north. The majority of the habitat within and around the project site is suitable for big game. Although some small-scale disturbances do occur in the area (e.g., roads and residential housing), the majority of the habitat is undisturbed and provides a mix of forage and cover habitat for big game (Figure 1 and photos in Appendix A).

Due to the elk and mule deer populations in the area and high fencing along I-25 that restricts big game movements, CPW and the Colorado Department of Transportation (CDOT) have strategically located underpasses, wildlife escape ramps, and overpasses, along I-25 to support big game movements (Figures 1-5 and photos in Appendix A).

Specifically, the Monument Hill Underpass is located approximately 0.63 miles south of the project site and the Dogleg Underpass is located approximately 0.67 miles north of the project site (Figures 1-5, Photos 6 and 7). These two underpasses were studied in 2022 and 2023 to determine wildlife activity and use with a focus on big game successfully crossing I-25 (Kintsch et al. 2025). The Monument Hill Underpass had 2,051 attempted mule deer crossings in 2022 and 2,444 in 2023 (Kintsch et al. 2025). The Dogleg Underpass had 378 attempted mule deer crossings in 2022 and 84 in 2023 (Kintsch et al. 2025). Successful mule deer crossings (number of mule deer that fully crossed the underpass) at the two underpasses ranged from 86% to 93% and wildlife-vehicle collisions decreased by 78% during the two-year study (Kintsch et al. 2025). Additional mammal species observed at the two underpasses include black bear (*Ursus americana*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), elk, fox (*Vulpes* sp.), raccoon (*Procyon lotor*), and white-tailed deer (*Odocoileus virginianus*) (Kintsch et al. 2025). This data shows that deer, elk, and other wildlife species are in the area and move through the habitat during different times of the year. There is a concern that the increase in vehicle traffic associated with the project site will result in more noise, human activity, and vehicle lights at night, all of which could impact big game movement patterns within and between the two underpasses.

Wildlife high fencing is located along I-25 where big game species frequently attempt to cross the highway. Occasionally, big game species will pass through the high fencing (e.g., where the fencing is broken) and then they can become trapped within the I-25 corridor. Wildlife escape ramps are designed to allow big game species to safely escape from the high fenced areas. These wildlife escape ramps are strategically placed in areas where they are most likely to be utilized by big game species. A wildlife escape ramp, along the west side of I-25, is located adjacent to the project site (Figures 1-5, Photos 1 and 8). The wildlife escape ramp is located approximately 20 feet from the project site's boundary and approximately 100 feet from the project site's proposed retaining wall. Due to the project site's close proximity to the escape ramp, big game species might not feel comfortable using the escape ramp. As depicted in Photo 8, there will be limited space between the I-25 wildlife high fencing and the project site's retaining wall for big game to exit from the escape ramp. Human activity (vehicle and foot traffic), lights, and noise from the project site, which will be visible from the escape ramp, could prevent big game species from using the wildlife escape ramp and from traveling along the area between I-25 and the project site's retaining wall. Big game species trapped within the I-25 corridor present an increased risk for big game-vehicle collisions and could place more stress on the animals until they can escape from the corridor.

Further, the new I-25 Greenland Wildlife Overpass is located approximately 2.1 miles north of the project site (Figures 1-5, Photo 6). According to CDOT (2025), the overpass will provide a vital and safe connection for large game to cross I-25 in their natural habitat, addressing specific needs of elk and other large animals that need wide open areas to cross because they avoid tunnels, underpasses, and enclosed areas. This overpass will connect 39,000 acres of big game habitat (Douglas County Land Conservancy) to more than one million acres of the Pike National Forest (CDOT 2025). Due to this overpass being visible from the project site (see Viewshed Analysis in Figures 3-5) and the important habitat north of the project site that could be used for approaching and dispersing from the overpass, there is a concern that big game movements could be impacted by the project.

Finaly, a viewshed analysis was conducted to determine the potential visual impacts from the project site. The viewshed analysis was ran using the Visibility (Spatial Analyst) tool in GIS ArcMap (v 10.8; ESRI Inc, Redlands, CA). Parameters for the viewshed included approximately 850-foot stretch of road along Palmer Drive Road (between I-25 and Beacon Lite Road), and the project site boundary, 1-meter resolution digital elevation model (DEM) obtained from The National Map (TNM) server (USGS 2025), and using a 6-foot height offset. The 6-foot height offset represents the taller vehicles entering and leaving the Buc-ee's site. The result of this analysis is included in Figures 3-5. The viewshed displays areas visible from the increased traffic associated with the project site. The viewshed analysis displays a significant amount of big game habitat, including elk HPH, that will be visible from the project site (Figures 3-5). According to a meta-analysis by Benitez-Lopez et al (2010), infrastructural developments resulted in mammal populations declining, with an increase in population declines (out to 5 km) in open areas compared to forested areas. The big game habitat to the north, northwest, and northeast is primarily open and visible from the project site (Figures 3 and 4). There is a concern that wildlife will avoid suitable big game habitat and travel corridors that are visible from the project site.

Due to the project site being located within big game habitat ranges, near big game HPHs, adjacent to a wildlife escape ramp, near two underpasses that are being used by elk, deer, and other wildlife species (Kintsch et al. 2025), and near the new I-25 Greenland Wildlife Overpass, there is a concern that the project site could negatively impact big game populations. As mentioned, the adjacent I-25 wildlife escape ramp, the new I-25 Greenland Wildlife Overpass, and the west and east approaches to the Dogleg Underpass, will all be visible from the project site based on the viewshed analysis (Figures 3-5). Big game could avoid portions of these visual (i.e., direct line-of-sight) areas due to the increase in vehicle traffic, lights, and noise that will not be blocked by the landscape. The increase in vehicle traffic at the project site (22,150 daily weekday trips [Kimley-Horn 2024]), not only disrupts the natural behavior of big game but also contributes to higher rates of mortality through vehicle collisions.

Large mammals (i.e., big game) avoid roads due to traffic-related disturbances (e.g. lights, noise, and chemical emissions), which can result in habitat fragmentation, loss, and degradation (Rytwinski and Fahrig 2015). Studies have shown that mammal population densities declined based on their close proximity to infrastructure (including busy roads) and minimizing infrastructure developments in relatively undisturbed areas is important for conserving wildlife populations (Benitez-Lopez et al 2010). There is a concern that the increase in vehicle traffic (22,150 daily weekday trips), resulting in more noise, human activity, and vehicle lights at night,

will result in big game avoiding portions of the habitat surrounding the project site. Many large mammals, such as elk and deer, tend to move more frequently at night. Studies have shown that large mammals such as elk or mule deer change their behaviors more during the day compared to night (Northrup et al. 2015, Dzialak et al. 2011, Sawyer et al. 2009). In both Colorado and Wyoming, elk have been shown to select areas associated with human development or roads during the night compared to daytime hours (Dzialak et al. 2011, Sawyer et al. 2009). However, if there is a significant increase in light from vehicles or project infrastructure, these areas might be avoided. With the amount of light, traffic, and noise expected from the project site, there is potential for the project to equate to hundreds of acres of suitable habitat being avoided by big game, including important wildlife migration corridors and HPH areas.

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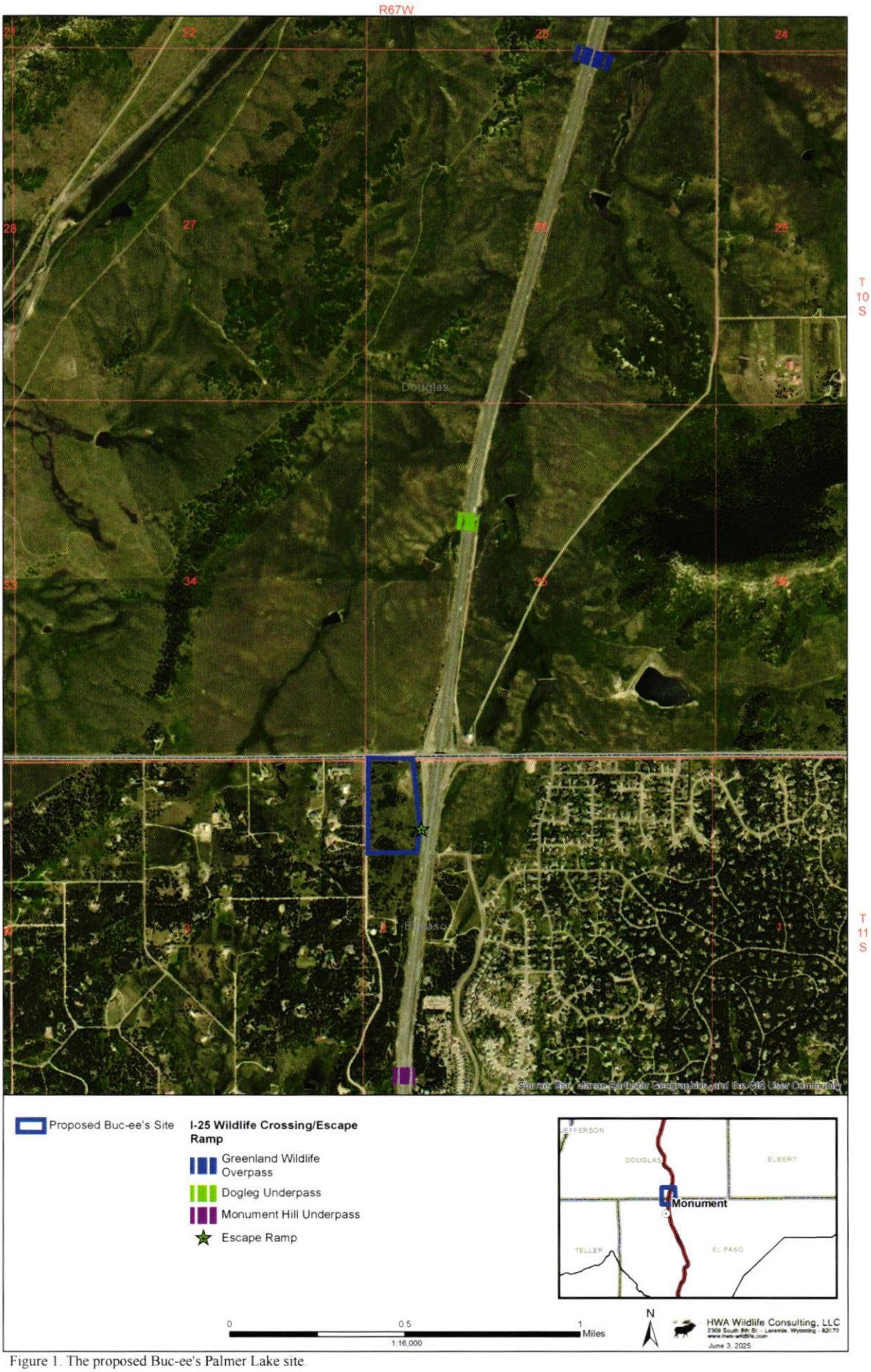

Figure 1. The proposed Buc-ee's Palmer Lake site.

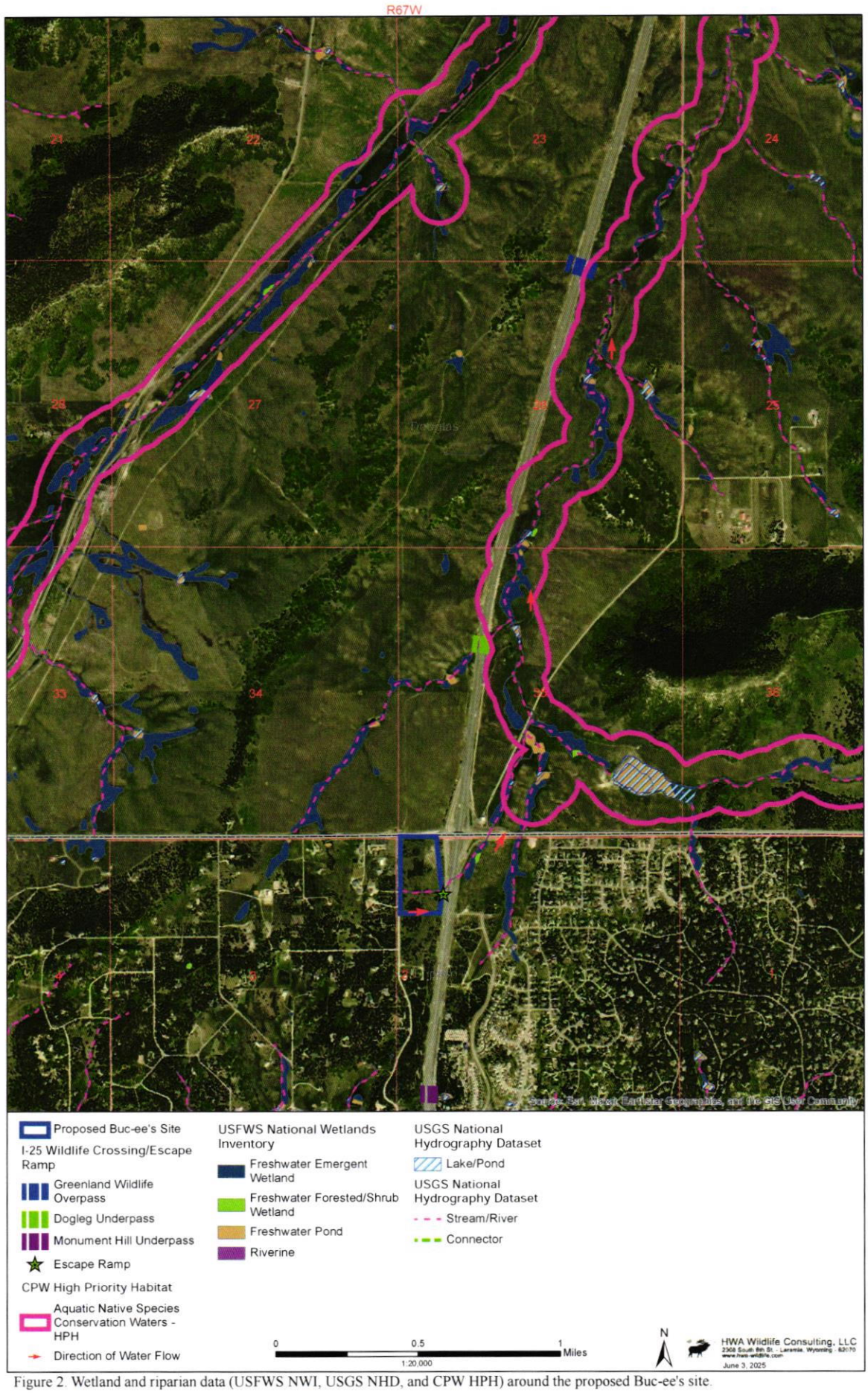

Figure 2. Wetland and riparian data (USFWS NWI, USGS NHD, and CPW HPH) around the proposed Buc-ee's site.

Figure 3. Elk habitat (CPW data) and viewshed analysis around the proposed Buc-ee's site.

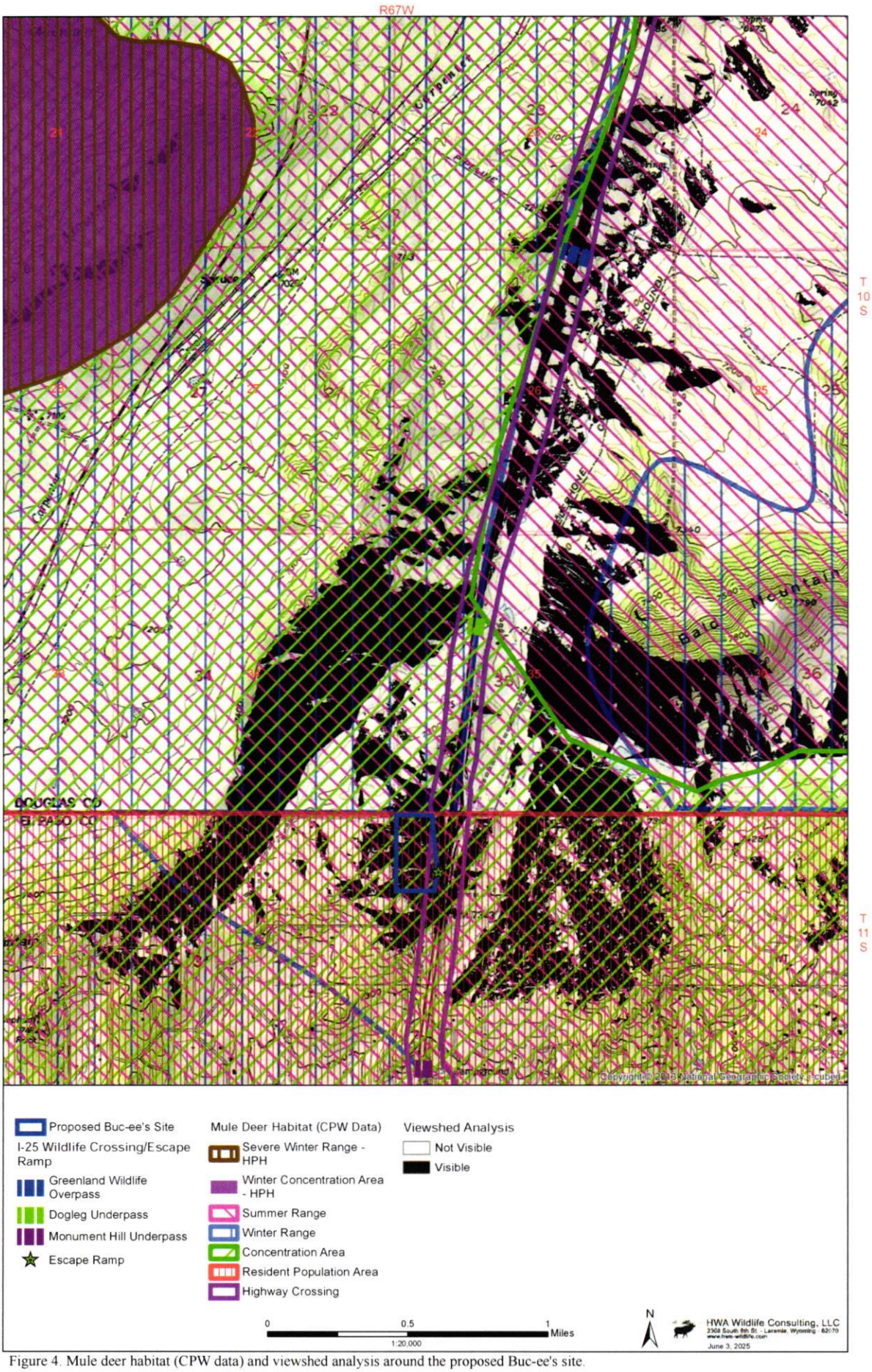

Figure 4. Mule deer habitat (CPW data) and viewshed analysis around the proposed Buc-ee's site.

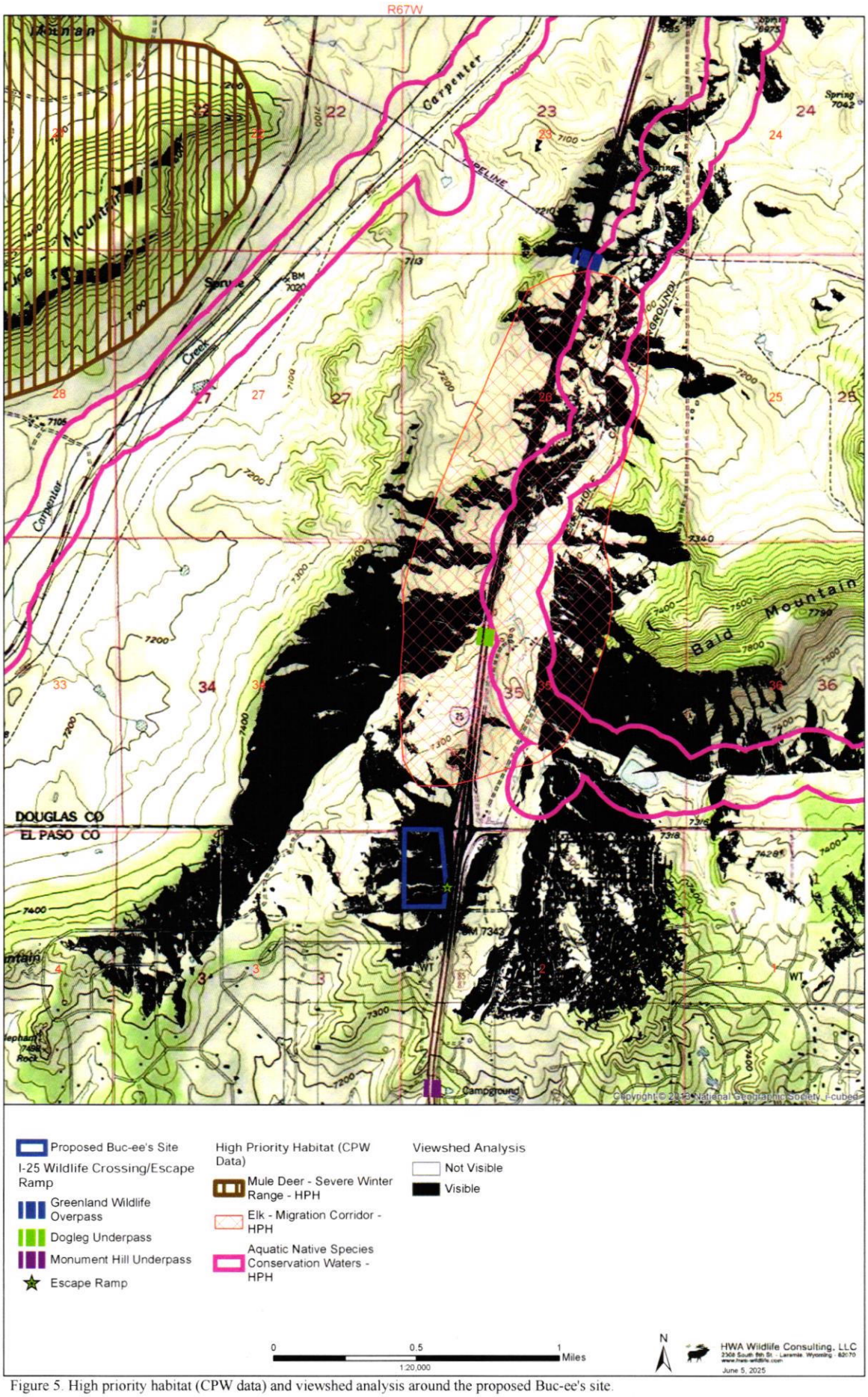

Figure 5. High priority habitat (CPW data) and viewshed analysis around the proposed Buc-ee's site.

Appendix A

Photos of the project site and surrounding habitat

(Survey Date: 5/15/2025)

Photo 1. Looking SW at the project site.

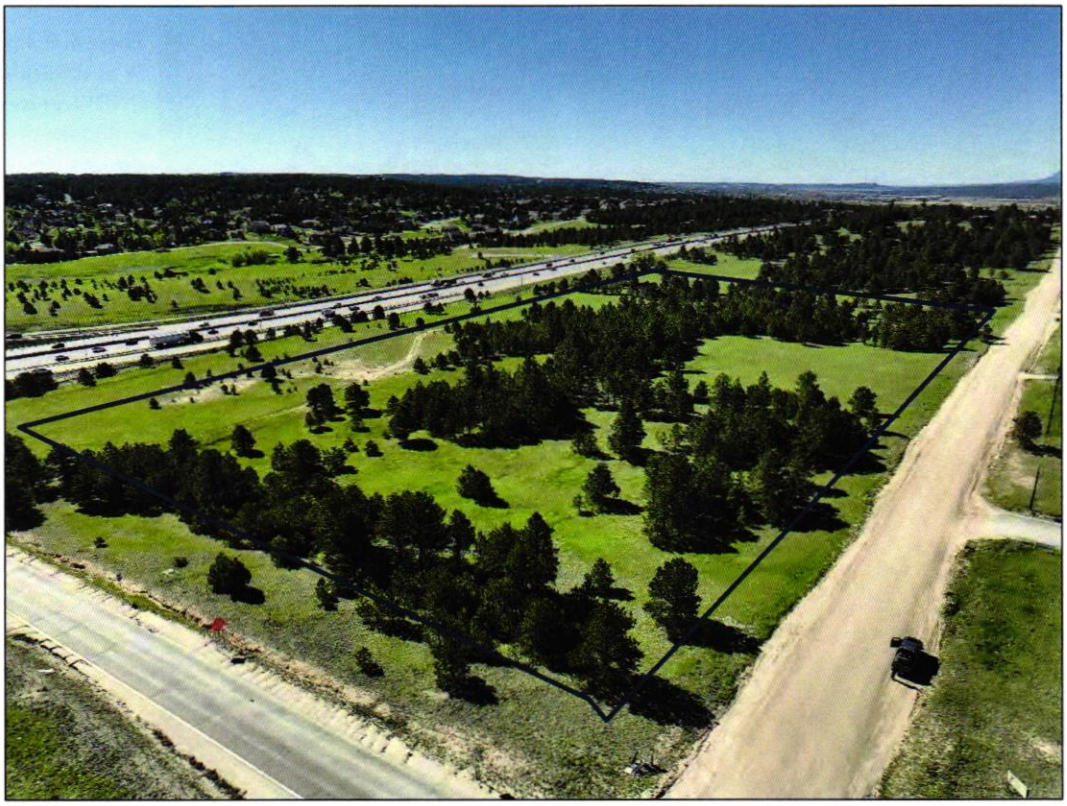

Photo 2. Looking SE at the project site.

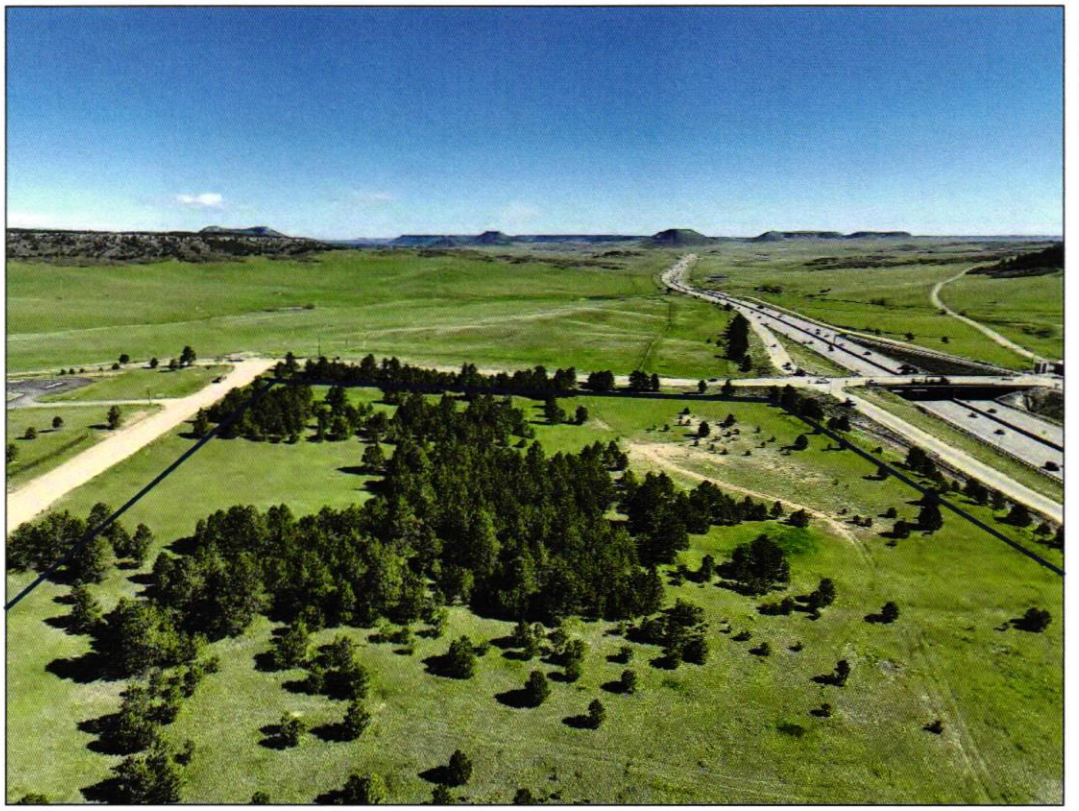

Photo 3. Looking N at the northern half of the project site.

Photo 4. Looking W at the drainage (NHD feature) within the project site.

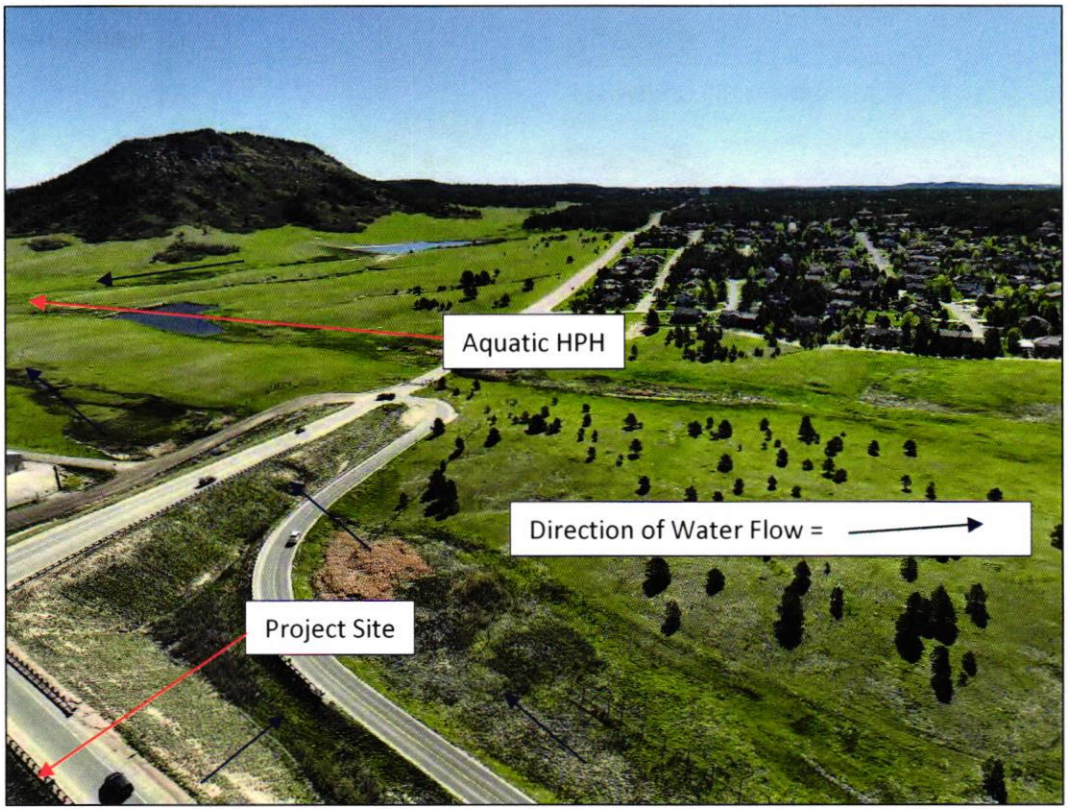

Photo 5. Looking NE at aquatic HPH.

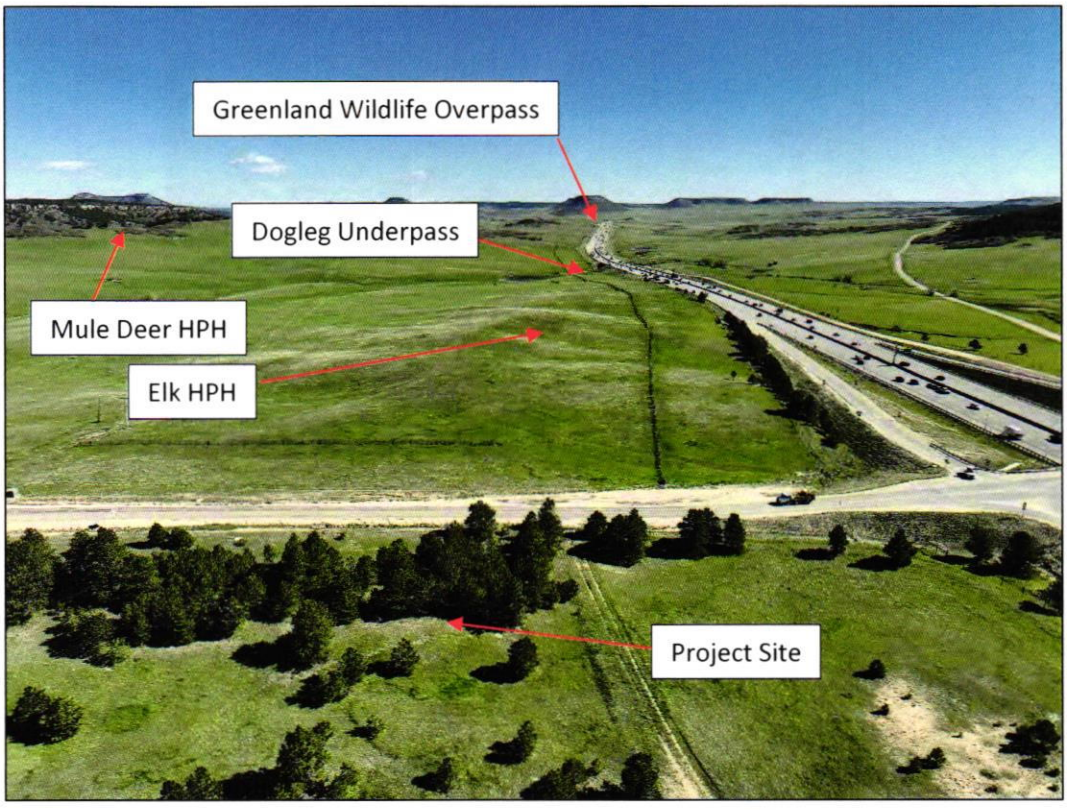

Photo 6. Big game HPHs and I-25 wildlife crossings.

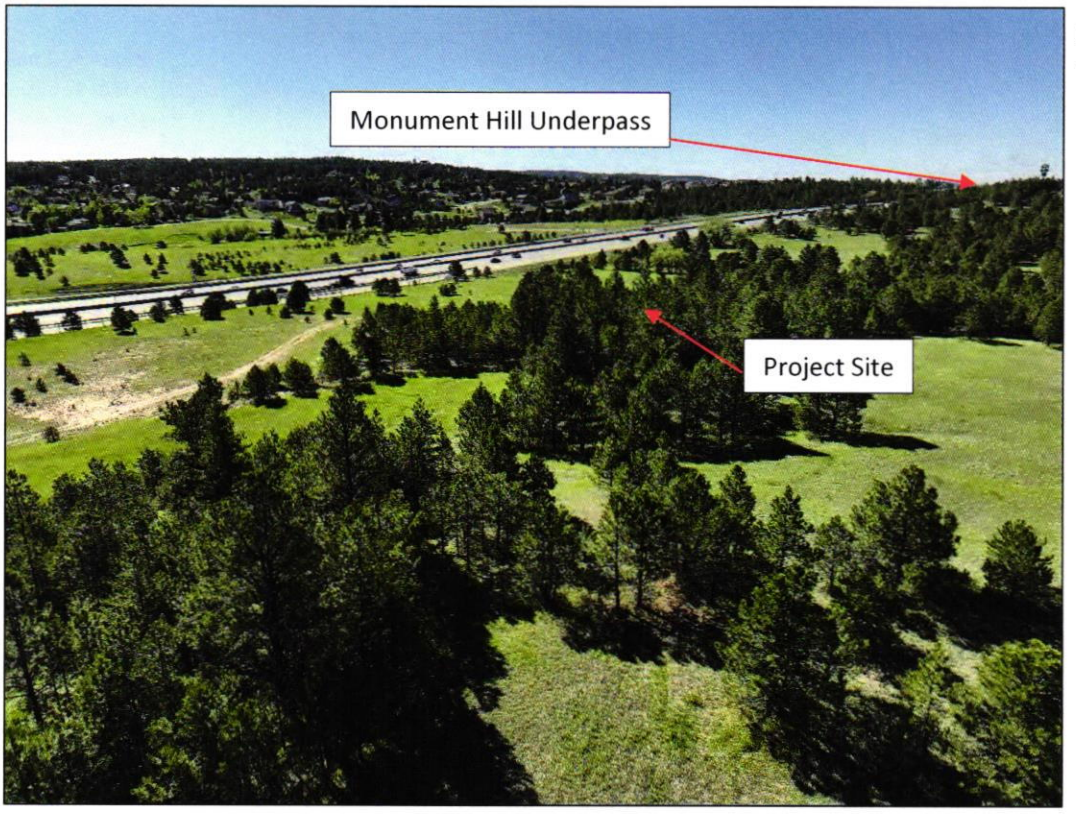

Photo 7. I-25 wildlife crossing.

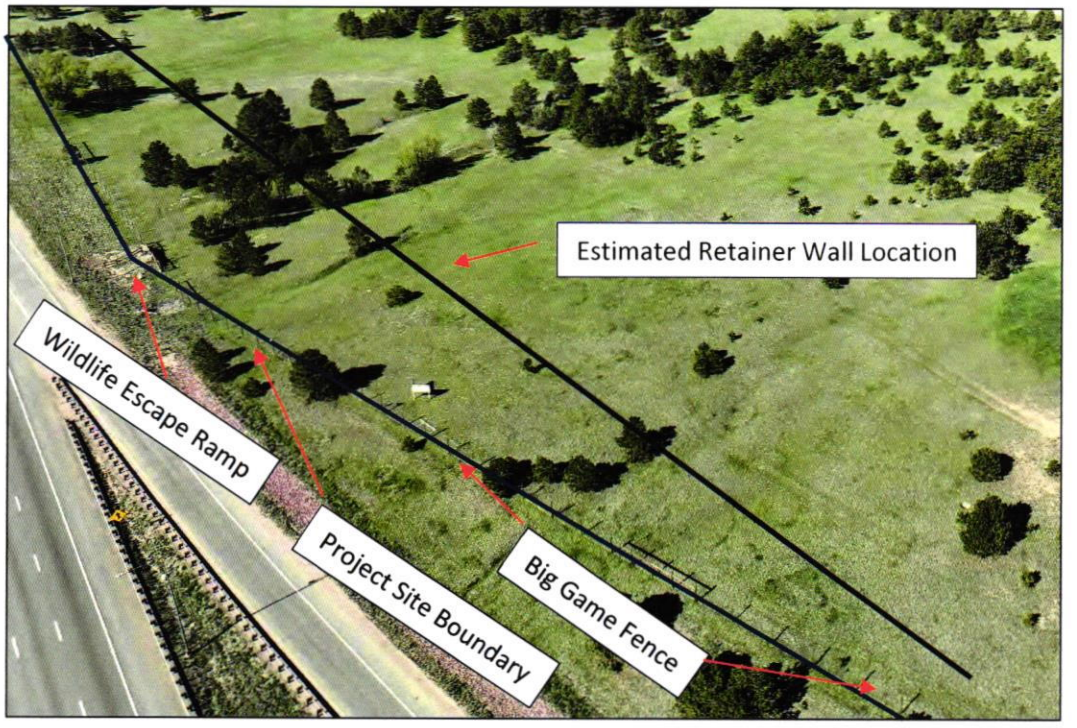

Photo 8. I-25 wildlife escape ramp.

EXHIBIT C

Buc-ee's Travel Center Water Supply Considerations

[see attached]

BBA
Water Consultants, Inc.

June 12, 2025

Town of Palmer Lake Planning Commission
42 Valley Crescent
Palmer Lake, CO 80133

RE: Buc-ee's Travel Center Water Supply Considerations

Dear Commissioners:

We are writing on behalf of Ian Griffis regarding Town of Palmer Lake ("Town") water supply considerations for the proposed Buc-ee's Travel Center annexation. We have consulted with northern El Paso County water users for over two decades regarding groundwater geology, Denver Basin aquifer well development, municipal water supply planning, and water rights matters. Our resumes are attached as **Appendix A**.

1. Summary

i) The Town is in a precarious position due to an underdeveloped water supply system. Presently, the Town cannot meet peak day water demand if there is a well failure. The Town should address its current water supply deficiencies before taking on new commitments.

ii) Approximately 50% of Town water supply comes from the non-renewable Denver Basin aquifers.

iii) Buc-ee's Travel Center will increase Town water demand by 25-27% and that demand will necessarily be served by Denver Basin groundwater.

iv) Denver Basin well construction is capital-intensive, with each well costing approximately $2.8M, or $4.7M with treatment.

v) Only the Denver and Arapahoe aquifers can be practically developed for Town municipal water use; Denver aquifer well yields are unpredictable.

vi) Denver and Arapahoe aquifer water levels are declining beneath the Town. Based on data from the Town's A-2 well, water level decline in the Arapahoe aquifer has averaged 17 feet per year and yield has decreased by 40% since when the well was first drilled in 2001.

vii) Denver Basin groundwater is a nonrenewable resource. The rate of Denver Basin water level and well yield decline will accelerate with greater Town well pumping and a higher density of Town wells.

viii) The April 2025 GMS Report estimates a $10.4M capital cost to serve Buc-ee's Travel Center. The actual long-term capital cost will be greater because the April 2025 GMS Report does not account for the cost to construct additional wells as well yields decline.

ix) The Town's water service commitments are permanent, yet the proposed Buc-ee's Travel Center Denver Basin supply is nonrenewable and finite. The April 2025 GMS Report does not address the cost for renewable water service.

x) Most water providers require development to pay its own way both for immediate capital improvements (e.g. wells, treatment, and distribution) and also costs for renewable water rights acquisition and infrastructure.

xi) Instead of making a new water service commitment to Buc-ee's Travel Center, the Town should:

a. Remedy its immediate water supply issues.

b. Compare projected Town water demand vs future well yield to ensure that the Town can provide water service to its residents in the future in the event that the top producing well is offline.

c. Identify and budget for future well construction projects to make up for declining well yields and routine well replacement.

d. Identify and budget for a permanent, renewable water supply to replace or substantially supplement Denver Basin groundwater in the future.

xii) There are grant and low-interest loan funding opportunities available through the Colorado Water Conservation Board to support the Town's planning and water infrastructure. Town can secure its water future without relying on Buc-ee's Travel Center tax revenue.

xiii) Annexation of the Buc-ee's Travel Center is likely to result in increased scrutiny over the Town's water rights operations, including preservation of the water level in historic Palmer Lake.

2. Introduction

In addition to professional experience and references cited in this letter, we have relied upon information from the:

i) April 2021 Water Resource Evaluation report prepared by GMS, Inc. (the "April 2021 GMS Report");

ii) November 2022 Preliminary Engineering Report for Water System Improvements prepared by GMS, Inc. (the "November 2022 GMS Report");

iii) April 2025 Preliminary Engineering Report, Town of Palmer Lake Water System Improvements for Proposed Buc-ee's Travel Center report prepared by GMS, Inc. ("April 2025 GMS Report"); and

iv) May 5, 2025 Town Board of Trustees Workshop.

The April 2025 GMS Report identifies that the Buc-ee's Travel Center will increase Town water demand by 25-27% over current conditions.[1] In recent years, the Town water supply has been derived from approximately 40-55% non-renewable Denver Basin aquifer pumping from the Denver and Arapahoe aquifers.[2] The Town plans to supply the Buc-ee's Travel Center and annexations enabled by the new 12-inch water line with additional Denver Basin wells because the Town's surface water supplies are already maximized to physical and water rights capacity.

3. Denver Basin aquifers

The layered sandstone, siltstone, clay, and shale Denver Basin aquifers were deposited approximately 70 to 34 million years ago, first as marine beach deposits (Fox Hills aquifer) and later as rivers that eroded sediment from mountains to the west (Arapahoe, Denver, and Dawson aquifers).[3] From top to bottom, the Denver Basin includes the Dawson, Denver, Arapahoe, and Fox Hills aquifers. The aquifers are not homogeneous units but rather zones of sandstone/siltstone/clay/shale layers separated by thicker zones of impermeable clay and shale. The aquifers are variable both vertically and laterally.

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[1] April 2025 GMS Report, Table 15 at 40.
[2] April 2025 GMS Report, Table 8 at 28.
[3] Thorson, Jon, P. Geology of Upper Cretaceous, Paleocene and Eocene Strata in the Southwestern Denver Basin, Colorado, Colorado Geological Survey, 2011.

Denver Basin groundwater rights are allocated based on land area and a 100-year aquifer life.[4] Discharge from the Denver Basin aquifers is much greater than recharge; groundwater is mined.[5] As a practical matter, the economic life of the Denver Basin aquifers for municipal use is much less than 100-years in northern El Paso County.[6]

The Town is located on the western edge of the Denver Basin, where the Denver Basin aquifers are truncated by the Rampart Range Fault system along the mountain front at the base of Sundance and Chautauqua Mountains.[7] Well yields near the edge of the aquifer can experience "boundary effects" that reduce long-term well yield. Douglas County implemented special "Margin B" zoning regulations to prevent excessive depletion of the vulnerable western edge of the Denver Basin.

3.1. Denver Basin aquifers beneath the Town

Beneath the Town, each of the Denver Basin aquifers have different characteristics:

i) The Dawson aquifer generally supports well yields less than 50 gallons per minute (gpm) at a total depth of approximately 1,100-1,400 feet. The Dawson aquifer is "not-nontributary." Municipal pumping from the Dawson aquifer must be approved by a decreed plan for augmentation. We are not aware of a plan for augmentation that would allow Dawson aquifer pumping by the Town.

ii) The Denver aquifer has a total depth of approximately 1,400-1,700 feet. Denver aquifer well yields are laterally variable in northern El Paso County. For example, the Town's D-3 well is unused due to low yield. *See* April 2021 GMS Report at 12. After the Arapahoe aquifer, the Denver aquifer is the second most widely developed aquifer for municipal use in northern El Paso County.

iii) The Arapahoe aquifer has a total depth of approximately 2,100 to 2,400 feet and currently supports well yields on the order of 150 to 300 gpm in northern El Paso County. For example, Town Well A-2 has a reported current "actual" yield of 240 gpm. *See* April 2025 GMS Report, Table 7 at 25. The Arapahoe aquifer is the most widely developed aquifer in northern El Paso County for municipal use due to relatively high well yield. Water levels in the Arapahoe aquifer are declining, as addressed in subsection 3.2, below.

iv) The Laramie-Fox Hills aquifer has a total depth of approximately 2,500 to 2,800 feet. The Laramie-Fox Hills aquifer is not widely developed in northern El Paso County due to: (i) substantial depth and corresponding well construction cost; (ii) yield likely lower

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[4] § 37-90-137(4), C.R.S.
[5] Paschke, Suzanne S., et. al., Groundwater Availability of the Denver Basin Aquifer System, Colorado, Professional Paper 1770, United States Geological Survey, 2011.
[6] El Paso County Water Master Plan, Forsgren Associates, Inc., February 2009.
[7] Keller, John W., et. al., Geologic Map of the Palmer Lake Quadrangle, El Paso County, Colorado, Colorado, Open-File Report 06-6, Geological Survey, 2007.

than in the Arapahoe aquifer; and (iii) serious water quality issues including total dissolved solids (salts) and radionuclides that exceed drinking water standards. For these reasons, we are not aware of any northern El Paso County municipalities that have or plan to develop Laramie-Fox Hills aquifer wells for potable consumption.

3.2. Denver Basin aquifer water levels

Well yield is particularly sensitive to "available drawdown" which is the difference between the static, non-pumping water level and the deepest practical pumping water level in a well. A shallower "static" water level affords more available drawdown and greater well yield. As the aquifer and well static water level declines due to groundwater mining, well yield also decreases. Wells cannot be deepened because they already fully penetrate the targeted Denver Basin aquifer.

There are two serious well water supply concerns for the Denver Basin aquifers in northern El Paso County related to aquifer water level: (i) long-term well water level declines and (ii) well-to-well interference.

3.2.1 Aquifer water level declines

Denver Basin aquifer water level declines occur because aquifer discharge through pumping greatly exceeds aquifer recharge. Such water level declines are well documented, well understood, and occurring throughout the Denver Basin. The Town's Denver Basin aquifer wells have experienced substantial water level and yield declines:

i) When Town Denver aquifer well D-2 was equipped in 1989, it was tested at 210 gpm. The replacement well D-2R well has a reported yield of 130 gpm, a decrease of 38%. This change in yield is likely due to a decrease in the well static water level of 207 feet from a depth of 342 feet in 1989 to 549 feet in 2023 at an average decline rate of 6 feet per year. [8]

ii) When Town Arapahoe aquifer well A-2 was drilled in 2001, it was tested at 400 gpm. Today, the A-2 well has a reported yield of 240 gpm, a decrease of 40%. This change in yield is likely due to a decrease in the well static water level of 369 feet from a depth of 1,258 feet in 2001 to 1,627 feet in 2023 at an average decline rate of 17 feet per year.[9] Well A-2 water levels are illustrated in the graph below.

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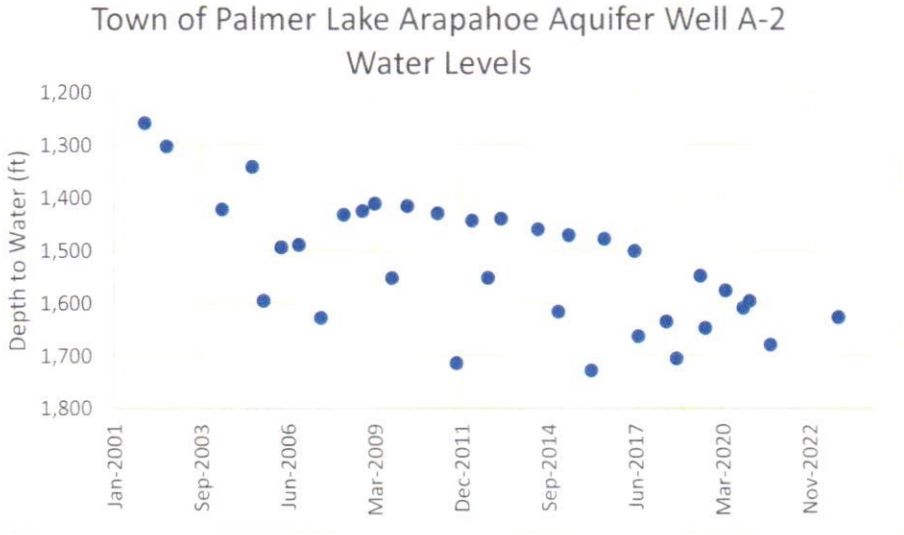
[8] Well yield and water levels from Colorado Division of Water Resources permit file no. 31264-F and 31264-FR and Colorado Decision Support System water level information, DB-119 PALMER LAKE D-2R and DB-119 (1987-2022). Current reported yield from the April 2025 GMS Report, Table 7 at 25.

[9] Well yield and water levels reported in Colorado Division of Water Resources permit file no. 56816-F and Colorado Decision Support System water level information, DB-119 PALMER LAKE A-2. Current reported yield from the April 2025 GMS Report, Table 7 at 25.



Denver and Arapahoe aquifer water level declines are not unique to the Town. Other northern El Paso County municipalities report similar and more severe water level declines. Our experience with Denver Basin aquifer development has shown that increased rates of aquifer withdrawal increase the rate of water level decline. A portion of water level declines result from neighboring pumping, but the most immediate effects result from in-Town or in-District pumping.

3.2.2 Well-to-well water level impacts

Groundwater in the Denver and Arapahoe aquifers is stored under artesian pressure, which is an important consideration for well spacing because groundwater level impacts extend for great distances in artesian or confined aquifers. The "cone of depression," which is the zone of water level impact surrounding a pumping well, can extend more than a mile from each confined Denver Basin aquifer well. During peak irrigation season pumping, we have documented and plan for 75 to 150 feet of water level impact due to well-to-well interference.

To manage, but not eliminate, well-to-well interference, Denver Basin wells constructed in the same aquifer should be spaced at least a half mile apart. Unfortunately, such well spacing results in substantial capital distribution and treatment costs.

4. Town water demands and water supply

The Town derives its water supply from surface water rights diverted from Monument Creek and Denver Basin well pumping. The Town's surface water rights are fully developed and future water demands will necessarily be met by new Denver Basin wells.

The Town appears to have a robust water rights portfolio relative to future water demand: The Town's current annual water demand is 168 acre-feet per year (AF/yr) and buildout (2050) water

demands including Buc-ee's Travel Center and associated potential annexations is 299 AF/yr. *See* April 2025 GMS Report, Table 14 at 39. The Town estimates that it has substantial "paper" Denver Basin water rights in the traditionally developed Denver and Arapahoe aquifers, totaling 1,535.8 AF/yr. *See* November 2022 GMS Report, Table 8 at 34.

However, "paper" water rights must be developed with expensive Denver Basin aquifer wells to serve customer demand. Construction of wells and water treatment is driven by peak day demand, estimated by the Town at 284% of average annual demand. Unfortunately, well drilling is capital-intensive. For example, the Town estimates that proposed Buc-ee's Well A-3 is a $4.7M project. *See* April 2025 GMS Report, Table 19 at 61-62.

4.1. Current Town water demands and water supply

Despite what appears to be a rich "paper" water rights portfolio, the Town is in a precarious water supply situation. Current average day demand is peak day is estimated at 0.42 million gallons per day (MGD). *See* April 2025 GMS Report, Table 16 at 39. Yet, firm water supply is 0.25 MGD (a 40% deficit), assuming well A-2 goes offline. *See* April 2025 GMS Report, Table 7 at 25. This critical vulnerability has been known to the Town since 2022:

> *The water system…needs include the addition of a new Arapahoe Aquifer well. The Town's well supply capacity is vulnerable with only two wells. With the existing larger capacity well out of service, well production capacity is limited to 288,000 gpd, less than the existing…demand.* (November 2022 GMS Report, § IX at 67).

We understand that the Town plans to remedy their existing water supply gap by constructing Arapahoe aquifer well A-1 in the near future, estimated to initially yield 0.35 MGD (240 gpm) to provide 0.59 MGD firm capacity. However, until that well is drilled, constructed, and online, the Town may need to impose outdoor use water restrictions if well or well pump failure occurs. Furthermore, well yield is not known until a well is drilled, constructed, and tested.

4.2. Near-term Town water demands and water supply

With addition of Buc-ee's Travel Center demand, peak day Town water demand will be approximately 0.54 MGD, which is slightly less than Town firm capacity if future Arapahoe aquifer well A-1 yields 0.35 MGD as expected by the Town. We understand the Town will also drill Buc-ee's Arapahoe aquifer well A-3, bringing estimated firm Town capacity to 0.94 MGD.

Based on the April 2021, November 2022, and April 2025 GMS Reports, it does not appear that the Town has planned for additional future Denver or Arapahoe aquifer wells that will be needed as well yields decline. This is an important planning consideration because a new Town Arapahoe

aquifer well supply is estimated to cost $4.7M with treatment, or approximately $2.8M exclusive of treatment.[10]

4.2.1 Shortcomings in Town Denver Basin water supply planning

The April 2025 GMS Report estimates a $10.4M cost for waterline extension, well construction, and water treatment for Buc-ee's Travel Center. The actual capital cost will be greater because the Town's water supply projections are based upon current Denver Basin well yields and does not account for the cost for future well construction to maintain production from a declining resource. The Town has not considered the following factors that will affect Town water supply during the next 10 years and add to the estimated $10.4M Buc-ee's Travel Center water infrastructure cost:

i) Decrease in Denver Basin aquifer well yields over time due to declining aquifer water levels. A rule-of-thumb is that well capacity decreases by approximately 5% per year due to water level declines, although the actual rate of decline depends on local factors.

ii) Decrease in Denver Basin aquifer well yields due to well-to-well interference, which depends on well spacing.

iii) Uncertain yield for new Denver Basin aquifer wells.

iv) Replacement of well A-1 that was drilled in 2021 and is near its 25 to 30 year expected usable life. (For example, Town well D-2 failed after 34 years).

v) Treatment of radium that is naturally occurring and reportedly increasing in concentration in water pumped from the Denver and Arapahoe aquifers. *See* April 2025 GMS Report, § IX at 63.

By not considering these factors, the Town has failed to consider the actual costs to continue reliance on the Denver Basin aquifers and the increased rate of aquifer depletion and treatment costs due to the Buc-ee's Travel Center and associated future annexations.

4.2.2 Future renewable water supply

In the mid-2000's neighboring water providers including Triview Metropolitan District ("Triview"), Donala Water and Sanitation District ("Donala"), Woodmoor Water and Sanitation District ("Woodmoor"), and the Town of Monument ("Monument") began to grapple with the finite nature of Denver Basin groundwater resource and the economic reality of drilling more wells to maintain production from declining aquifers.

Over the past two decades, neighboring water providers have been implementing renewable water supply plans: (i) Triview acquired renewable water rights on Fountain Creek and the Arkansas

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[10] Well cost based upon April 2025 GMS Report, Table 19 at 61-62. Well cost exclusive of treatment is a pro-rated amount.

River that are treated and delivered through Colorado Springs Utilities ("CS-U") infrastructure; (ii) Donala acquired water rights on the Arkansas River that are also conveyed through CS-U infrastructure; and (iii) Donala, Woodmoor, and Monument have partnered in the Loop Water Authority to deliver renewable Fountain Creek water rights.

The Town's need for a new renewable water supply is not a question of "if," but a question of "when." Water service to the Buc-ee's Travel Center will accelerate the timing of when the Town's reliance on Denver Basin groundwater becomes uneconomical. A critical shortcoming of the April 2025 GMS Report is that it does not address the actual cost for a permanent water commitment to Buc-ee's, which will ultimately require a renewable water supply.

5. Water rights administration

The Town operates a complex water rights portfolio including: (i) surface water rights decreed in Case Nos. CA-751, CA-13801, and 13CW3061; (ii) Denver Basin groundwater rights decreed Case Nos. 86CW108, 87CW68; (iii) plans for augmentation decreed in Case Nos. 87CW69, 10CW87, and 14CW3068; and (iv) rights of exchange decreed in Case Nos. 87CW69.

Initial review of the water accounting requirements in the above-mentioned water rights decrees compared to water accounting submitted by the Town to the Colorado Division of Water Resources indicates compliance deficiencies.

In our experience, unintentional decretal non-compliance often goes unnoticed until a water user embarks on a substantial new project. We encourage the Town to take compliance with its water rights decrees seriously before considering a large increment of new growth with the Buc-ee's Travel Center. Non-compliance issues have the potential to reignite historical Town water challenges including preservation of water levels in Palmer Lake.

If you have any questions about this letter, please contact us.

Very truly yours,

BBA Water Consultants, Inc.

Daniel O. Niemela, C.P.G.
Principal – Hydrogeologist

Rachael Frei, P.E.
Project Manager – Water Resources Engineer

DN/RF/jeb
Enclosures
2515.00

BBA
Water Consultants, Inc.

APPENDIX A

DANIEL O. NIEMELA, C.P.G.

Principal - Hydrogeologist

EDUCATION

B.A. in Geology, 2000, The Colorado College, Colorado Springs, Colorado.
Emphasis in Geology. Received Distinction for senior thesis project entitled "An Evaluation of Ground Water Development Potential for an Alluvial Aquifer in Crested Butte, CO."

Graduate course work at Colorado School of Mines

PROFESSIONAL

American Water Resources Association
American Institute of Professional Geologists
Colorado Water Well Contractors Association – Technical Director, 2006 - 2021
Colorado Water Well Contractors Association Member of the Year – 2013
HB13-1248 and SB15-198 Leasing Fallowing Technical Committee, 2012 - 2015
Colorado Ground Water Association – Director-at-Large, 2005 - 2006
National Ground Water Association
Chaffee County Economic Development Corporation, Policy Committee, 2023 - 2025

REGISTRATION

American Institute of Professional Geologists Certified Professional Geologist. CPG-12016

EXPERIENCE RECORD

2002-Present BBA Water Consultants, Inc., Englewood, Colorado
Principal/Hydrogeologist. Assist clients with development and maintenance of physical and legal ground and surface water supplies. Water supply planning; preparation of technical reports in support and opposition of Water Court applications; historical consumptive use quantification; water rights administration; augmentation plans; water rights valuation; water rights change of use; develop and implement water accounting procedures; water rights and reservoir modeling; design groundwater tests and analyses; supervise and perform pump tests and analyze test data; prepare analytical groundwater models; prepare well and recharge facility designs and specifications; conduct field investigations; evaluate geophysical log data, geologic maps and aerial photos; perform numerical groundwater modeling and calibration using MODFLOW; prepare groundwater quantifications; evaluate well-to-well impacts; and quantify surface water and groundwater interaction.

PUBLICATIONS

"Irrigation Season Water Level Changes in Municipal Arapahoe Aquifer Wells, Douglas County, Colorado," Geological Society of America Abstract with Programs, Vol. 39, No. 6, p. 43. 2007.

"Monitoring and Management of Nonrenewable Ground Water Resources – Case Study: Denver Basin Aquifers," AWRA Adaptive Management of Water Resources AWRA Summer Specialty Conference Proceedings. 2006.

"A Review of Water Level Changes in the Denver Basin Bedrock Aquifers," Geological Society of America Abstract with Programs, Vol. 36, No. 5, p. 311. 2004.

PRESENTATIONS

Colorado Bar Association "Maximizing the Effectiveness of Your Expert Witness in Water Court," October 2024.

EDC Insights Panel "Whiskey's for Drinking. Water's for Fighting," November 2023.

"Drought, Wildfire and Ground Water." CWWCA Annual Conference, Webinar, January 2021.

"History of Colorado Water Rights." The Colorado College, Webinar, November 2020.

"Types of Well Permits from Easy Exempt to Complex Fee Wells." CWWCA Annual Conference, Denver, CO, January 2019.

"History of Colorado Water Rights." CWWCA Mid-Year Conference, Breckenridge, CO, July 2017.

"History of Colorado Water Rights." Colorado College Guest Speaker, February 2017.

"Western Water Rights and Groundwater Administration." NGWA Webinar, August 2014.

"Introduction to Hydrogeology." CWWCA Annual Conference, Denver, CO, January 2014.

"Well Augmentation Plans." CWWCA Mid-Year Conference, Breckenridge, CO, July 2013.

"Introduction to Fractured Rock Hydrology, Various Case Studies." CWWCA Annual Conference, Denver, CO, January 2013.

"Introduction to Hydrology." CWWCA Short Course, Denver, CO, January 2013.

"Introduction to Sedimentary Rock Hydrology, The Denver Basin." CWWCA Mid-Year Conference, Breckenridge, CO, July 2012.

"Introduction to Fractured Rock Hydrology, Summit County." CWWCA Mid-Year Conference, Breckenridge, CO, July 2012.

"Adaptive Management in the Denver Basin Aquifers, Colorado." Declining Ground Water Levels: Measuring, Monitoring, and Mitigation – A National Ground Water Association Virtual Conference, October 2011.
"Turning to Groundwater: An engineering perspective." The University of Denver Water Law Review 2011 Symposium, Denver, CO, April, 2011.

"Economics of Denver Basin and Renewable Water Supply Planning and Surprising Ground Water Level Trends," Colorado Section of the American Water Resources Association, Monthly Lunch Program, July 2010.

"Pumping Tests and Hydrogeologic Data," CWWCA Annual Conference, Denver, CO, January 2009.

"Denver Basin Water Supply Planning: A Cost Comparison to Renewable Water," Colorado Groundwater Association Denver Basin Lecture Series, Parker, CO, May 2009.

"Denver Basin Aquifers," Metropolitan State College of Denver, Guest Lecturer, Denver, CO, 2003 through 2008.

"Irrigation Season Water Level Changes in Municipal Arapahoe Aquifer Wells, Douglas County, CO," Geological Society of America 2007 Annual Meeting, Denver, CO, October 2007.

"Monitoring and Management of Nonrenewable Ground Water Resources – Case Study: Denver Basin Aquifer," AWRA Adaptive Management of Water Resources AWRA Specialty Conference, Missoula, MT, June 2006.

"A Review of Water Level Changes in the Denver Basin Bedrock Aquifers," Geological Society of America 2004 Annual Meeting, Denver, CO, November 2004.

DANIEL O. NIEMELA, C.P.G.
EXPERT EXPERIENCE

Year	Type of Report or Testimony	Case No.	Description
2025	Deposition	22CW3074, Division 5	5/13/25 Deposition, Snake River Water District
2024	Deposition	22CW3074, Division 5	9/11/24 Deposition, Snake River Water District
2024	Expert Report	21CW3058, Division 2	Woodmoor Water and Sanitation District No. 1 Opposition to Triview Metropolitan District Exchanges
2024	Expert Report	20CW3012 and 20CW3013, Division 2	Tri-State Generation and Transmission Association Pueblo East Pit III Appropriative Storage Right and Plan for Augmentation
2022	Expert Report	19CW3036, Division 2	Tri-State Generation and Transmission Association and Amity Mutual Irrigation Company Opposition to Lower Arkansas Water Management Association Change of Use
2021	Testimony	17CW3069, Division 2	Tri-State Generation and Transmission Association and Amity Mutual Irrigation Company Opposition to Lower Arkansas Water Management Association Plan for Augmentation
2021	Expert Report	17CW3069, Division 2	Tri-State Generation and Transmission Association and Amity Mutual Irrigation Company Opposition to Lower Arkansas Water Management Association Plan for Augmentation
2020	Expert Report	17CW3202, Division 1	Centennial Water and Sanitation District Opposition to Central Colorado Water Conservancy District Change of Use and Appropriation of Storage Water Rights
2020	Expert Report	16CW3010, Division 2	[Additional] Supplemental Disclosure, Woodmoor Water and Sanitation District No. 1 Opposition to Triview Metropolitan District Application to Amend Plans for Augmentation
2020	Expert Report	16CW3010, Division 2	Supplemental Disclosure, Woodmoor Water and Sanitation District No. 1 Opposition to Triview Metropolitan District Application to Amend Plans for Augmentation
2020	Expert Report	17CW3122, Division 1	Centennial Water and Sanitation District Opposition to Perry Park Water and Sanitation District Application for Change of Use and Plan for Augmentation
2020	Expert Report	16CW3010, Division 2	Woodmoor Water and Sanitation District No. 1 Opposition to Triview Metropolitan District Application to Amend Plans for Augmentation
2019	Expert Report	17CW3072, Division 2	Woodmoor Water and Sanitation District No. 1 Rebuttal in Widefield Water and Sanitation District Change of Water Rights
2019	Expert Report	18CW3016, Division 2	Woodmoor Water and Sanitation District No. 1 Opposition to Triview Metropolitan District and Fountain Mutual Irrigation Company Change of Water Rights and Plan for Augmentation
2019	Expert Report	16CW3056, Division 2	Woodmoor Water and Sanitation District No. 1 Opposition to Colorado Springs Utilities Plan for Augmentation, Addition of Replacement Water Sources and Appropriative Rights of Exchange
2019	Deposition	16CW3202, Division 1	5/29/19 Deposition, Centennial Water and Sanitation District Opposition to Central Colorado Water Conservancy District, the Ground Water Management Subdistrict of the Central Colorado Water Conservancy District and the Well Augmentation Subdistrict of the Central Colorado Water Conservancy District Application for Conditional Ground Water Rights, Conditional Surface Water Rights, Conditional Recharge Rights and Plan for Augmentation
2019	Expert Report	16CW3202, Division 1	Supplemental Disclosure, Centennial Water and Sanitation District Opposition to Central Colorado Water Conservancy District, the Ground Water Management Subdistrict of the Central Colorado Water Conservancy District and the Well Augmentation Subdistrict of the Central Colorado Water Conservancy District Application for Conditional Ground Water Rights, Conditional Surface Water Rights, Conditional Recharge Rights and Plan for Augmentation
2019	Expert Report	17CW3069, Division 2	Tri-State Generation and Transmission Association Opposition to Lower Arkansas Water Management Association Application for a Plan for Augmentation
2019	Expert Report	16CW3202, Division 1	Centennial Water and Sanitation District Opposition to Central Colorado Water Conservancy District, the Ground Water Management Subdistrict of the Central Colorado Water Conservancy District and the Well Augmentation Subdistrict of the Central Colorado Water Conservancy District Application for Conditional Ground Water Rights, Conditional Surface Water Rights, Conditional Recharge Rights and Plan for Augmentation
2019	Expert Report	15CW3016, Division 2	Woodmoor Water and Sanitation District No. 1 Opposition to United States of America Application for Appropriative Storage Rights and Plan for Augmentation for the United States Air Force Academy
2018	Expert Report	16CW3119, Division 1	Centennial Water and Sanitation District Opposition to Central Colorado Water Conservancy District Change of Use and Appropriation of Storage Water Rights
2018	Expert Report	10CW4, Division 2	Tri-State Generation and Transmission Association Opposition to Lower Arkansas Valley Water Conservancy District and lower Arkansas Valley Super Ditch Company Appropriative Rights of Substitution and Exchange
2018	Expert Report	08CW104, Division 1	Centennial Water and Sanitation District Opposition to Fort Morgan Farms Plan for Augmentation
2018	Expert Report	13CW3153, Division 1	Centennial Water and Sanitation District Opposition to Kenneth Mayer Junior Water Rights, Change of Use, Plan for Augmentation and Exchange Water Rights
2017	Expert Report	14CW3123, Division 1	Centennial Water and Sanitation District Opposition to Groundwater Management Subdistrict and Well Augmentation Subdistrict of the Central Water Conservancy District Change of Use, Recharge and Exchange
2017	Testimony	N/A	10/5/17 Testimony to Water Resources Review Committee regarding HB17-1289
2017	Testimony	N/A	8/2/17 Testimony to Water Resources Review Committee regarding HB17-1289
2017	Deposition	14CW3177, Division 1	5/24/17 Deposition, Centennial Water and Sanitation District Opposition to City of Aurora Change of Use

Year	Type of Report or Testimony	Case No.	Description
2017	Expert Report	14CW3177, Division 1	Supplemental Disclosure, Centennial Water and Sanitation District Opposition to City of Aurora Change of Use
2017	Expert Report	12CW94, Division 2	Supplemental Disclosure, Tri-State Generation and Transmission Association, Inc Opposition to Catlin Augmentation Association Change of Use
2017	Expert Report	12CW94, Division 2	Tri-State Generation and Transmission Association, Inc Opposition to Catlin Augmentation Association Change of Use
2017	Expert Report	09CW91, Division 1	Centennial Water and Sanitation District Opposition to Public Service Company of Colorado Change of Use and Addition of Water Rights to Plan for Augmentation
2017	Expert Report	14CW3177, Division 1	Centennial Water and Sanitation District Opposition to City of Aurora Change of Use
2016	Expert Report	12CW94, Division 2	Tri-State Generation and Transmission Association, Inc Opposition to Catlin Augmentation Association Change of Use
2016	Expert Report	15CW3010, Division 1	Centennial Water and Sanitation District Opposition to Town of Wiggins and Box Elder Creek Properties Application for Conditional Water Right, Appropriative Right of Exchange and Plan for Augmentation
2016	Expert Report	16CW3038, Division 2	Amity Mutual Irrigation Company v. Fort Lyon Canal Company
2015	Expert Report	11CW13, Division 2	Tri-State Generation and Transmission Association, Inc Opposition to City of La Junta Water Rights Change of Use and Exchange
2015	Expert Report	12CW31, Division 2	Tri-State Generation and Transmission Association, Inc Opposition to Colorado Springs Utilities Application for Conditional Rights of Storage and Exchange
2015	Expert Report	12CW31, Division 2	Woodmoor Water and Sanitation District No. 1 Opposition to Colorado Springs Utilities Application for Conditional Rights of Storage and Exchange
2015	Expert Report	88CW23(B), Division 2	Woodmoor Water and Sanitation District No. 1 Opposition to Triview Metropolitan District Plan for Augmentation and Lawn Irrigation Return Flow Quantification
2014	Expert Report	2010-CV-4123 District Court, Denver, CO	Highland Ditch Co. Irrigation Water Supply in Longmont, CO, Prepared for Shigo, LLC
2013	Rebuttal Expert Report	12CW1, Division 2	Woodmoor Water and Sanitation District Change in Water Rights
2013	Supplemental Expert Report	11CW95, Division 2	Tri-State Generation and Transmission Association, Inc Opposition to Lance O. Verhoeff & Verhoeff Farms, Inc. Storage Rights
2013	Expert Report	11CW95, Division 2	Tri-State Generation and Transmission Association, Inc Opposition to Lance O. Verhoeff & Verhoeff Farms, Inc. Storage Rights
2013	Expert Report	12CW1, Division 2	Woodmoor Water and Sanitation District Change in Water Rights
2012	Expert Report	10CW29, Division 2	Woodmoor Water and Sanitation District Substitution and Exchange Water Rights
2012	Expert Report	10CW28, Division 2	Woodmoor Water and Sanitation District Plan for Augmentation and for Quantification of Reusable Outdoor Use Return Flows
2011	Rebuttal Expert Report	07CW104, Division 2 and 08CW263, Division 1	Woodmoor Water and Sanitation District Denver Basin Water Rights Adjudication
2011	Expert Report	07CW104, Division 2 and 08CW263, Division 1	Woodmoor Water and Sanitation District Denver Basin Water Rights Adjudication

RACHAEL D. FREI, P.E.

Project Manager - Senior Water Resources Engineer

EDUCATION

B.S. in Environmental Engineering, Colorado State University, Fort Collins, Colorado
Graduated December 2014

M.S. in Civil & Environmental Engineering, Colorado School of Mines, Golden, Colorado
Graduated December 2021

Relevant coursework include: analytical hydrology, integrated surface water hydrology, watershed modeling, mathematical modeling of groundwater systems, soil and water engineering, water law, engineering applications of GIS, numerical modeling and risk analysis, and project management.

Academic projects include: evaluation of sustainable ground water supply using ESRI ArcMap tools and development of an interactive multi-criteria decision analysis tool in Microsoft Excel to provide recommended options based on input water quality and site characteristics.

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers, Denver Section, Member since 2015
American Water Resources Association, Colorado Section, Member since 2015
ASCE Environmental & Water Resources Institute, Colorado Section, Member since 2015, Board Member 2024-Present
Colorado Ground Water Associations, Member since 2015
National Ground Water Association, Member since 2015

REGISTRATION

Registered Professional Engineer in the State of Colorado (P.E. 0057005).

EXPERIENCE RECORD

2015 - Present — BBA Water Consultants, Inc., Englewood, Colorado.
Project Manager – Senior Water Resources Engineer. Responsible for managing and leading various water resources and water rights projects, including: surface and ground water modeling, water rights operational modeling, historical use evaluations and changes of water rights, analysis and oversight of substitute water supply plans, augmentation plan operations and accounting, reservoir modeling and accounting, design and construction management of water supply wells and monitoring wells, operation of ground water pumping tests and data analysis, general water use accounting, water rights evaluations, and field data collection and interpretation. Serves as mentor to junior staff. Assists in preparation of technical reports in support of and opposition to Water Court applications.