PLANNING & COMMUNITY DEVELOPMENT

TO: **El Paso County Board of Adjustment**

FROM: **Ashlyn Mathy, Planner I**
Ed Schoenheit, Engineer I
Meggan Herington, AICP, Executive Director

RE: **Project File #: BOA-23-002**
Project Name: Barbarick Transfer Station - BOA setback
Parcel No.: 5233002013

OWNER:	REPRESENTATIVE:
BR 8812 CLIFF ALLEN POINT LLC PO BOX 88120 Colorado Springs, CO 80908	Kimley-Horn Associates Jim Houk jim.houk@kimley-horn.com (719) 284-7280

Commissioner District: 1

Board of Adjustment Hearing Date:	**4/26/2023**

EXECUTIVE SUMMARY

A request by Kimley Horn Associates for approval of a dimensional variance to allow a front and side setback (north and west side of the property) of 35 feet where 100 feet is required to all adjacent properties for the use of "Waste Disposal and Recycling Facilities" in the I-3 (Heavy Industrial) zoning district per Section 5.2.59.E.1.g. This request is asking for relief from the specific standards of Section 5.2.59.E.1.g (Which would fall under the provision for relief under Section 5.5.2.B.2.a (Variances to Physical Requirements)), not the dimensional standards which the applicant does meet. The 5.29-acre property is located on Cliff Allen Point roughly a quarter of a mile south from Vollmer Place and Cliff Allen Point intersection, El Paso County, Colorado. (Parcel No. 5233002013) (Commissioner District No. 2).

A. REQUEST

A request by Kimley Horn Associates for approval of a dimensional variance to allow a front and side setback (north and west side of the property) of 35 feet where 100 feet is required to all adjacent properties for the use of "Waste Disposal and Recycling Facilities" in the I-3 (Heavy Industrial) zoning district per section 5.2.59.E.1.g. This request has been made to allow for more room on the property for vehicles and allow drivers to leave the property safely and this will provide more space to the residential properties by moving the uses further from the residential property lines.

B. APPROVAL CRITERIA

Section 5.5.2.B.2.a, Variance to Physical Requirements, of the El Paso County Land Development Code (2022), states the following:

The Board of Adjustment is authorized to grant variances from the strict application of any physical requirement of this Code which would result in peculiar and exceptional practical difficulties to, or exceptional and undue hardship upon, the owner of the property. Practical difficulties and hardship, in this context, may exist where the legal use of the property is severely restricted due to:

1) *The exceptional narrowness, shallowness, or shape of the specific piece of property.*

   The subject property does not have exceptional narrowness, shallowness, size, or shape. The property is 5.29 acres in size and has no slope.

2) *The exceptional topographic conditions or other extraordinary or exceptional situation or condition of the piece of property.*

   According to the applicant's letter of intent, the property is potentially encumbered by the following conditions:

   "Moving the building footprint to the west and to the north will also allow for better use and safety of the site for the users/customers. This will allow for more room for the customer to safely and easily maneuver from the entrance and weigh station/check-in to the waste/recycling stalls inside the building, and exit. The request will also reduce potential on-site conflicts and circulation issues with the larger removal transport vehicles."

According to the County's GIS mapping, the property does not appear to be encumbered by steep slopes and roughly 0% of the property contains slopes exceeding 30%. The proposed building is 10,240 square feet and there is an existing 7,991 square foot building. With the two buildings, the maximum lot coverage of 25% is met for the site.

In order to meet this criterion, the applicant would be required to provide evidence that the proposed use cannot be relocated elsewhere on the property to an area that meets the dimensional standards. The applicant has stated that this is a more ideal spot due to being further away from residential zoning and for the safety of employees and customers, strict adherence to the code would put the use closer to the adjacent residential area. By the applicant proposing the use moved more to the northwest area the property, it moves the use further away from the residential properties. There are industrial uses that are to the north and west side of the property. If this use is closer to the industrial uses, there are less negative impacts than if the use was closer to the residential properties to the south and east.

However, Section 5.5.2.B.2.a, Variance to Physical Requirements, of the Code continues by stating the following:

The Board of Adjustment may also grant variances from the strict application of any physical requirement of this Code based upon equitable consideration, finding that the burdens of strict compliance with the zoning requirement(s) significantly exceed the benefits of such compliance for the specific piece of property and;

- *The variance provides only reasonably brief, temporary relief; or*

  If approved, the variance would provide permanent relief.

- *The variance request includes an alternative plan, standards or conditions that substantially and satisfactorily mitigate the anticipated impacts or serve as a reasonably equivalent substitute for current zoning requirements; or*

  An alternative plan, standard, or condition was submitted by the applicant with this application. If 35 feet cannot be approved, they have submitted a document showing 50 feet and 80 feet.

- *Some other unique or equitable consideration compels that strict compliance not be required.*

  The applicant states in their letter of intent that moving the site closer to the northwest side of the property provides safer conditions for employees and customers, in addition to being further away from residential zoning districts that are located southeast of the property.

C. LOCATION

North:	I-2 (Limited Industrial)	Vacant
South:	RR-5 (Residential Rural)	County
East:	RS-5000 (Residential Suburban)	Single-family Residential
West:	I-3 (Heavy Industrial)	Vacant

D. BACKGROUND

In 2017, the subject property was created by plat 13910. This plat is known as Amended Plat Barbarick Subdivision, Lot 4. An Early Assistance meeting was completed on 7/5/22. This meeting discussed the use of a trash transfer station at the subject property. The subject property is a leased property that shares the entrance with an automotive mechanic shop. The adjoining properties on the north and west side of the property are industrial uses such as, RV/ self-storage and equipment supply facilities. To the east and south side of the property, are residential zoning districts.

E. ZONING ANALYSIS

The subject parcel is zoned I-3 (Heavy Industrial). The I-3 zoning district is intended to accommodate manufacturing and industrial uses, which may include related outside storage of raw or finished materials. The density and dimensional standards for the I-3 zoning district are as follows:

- Minimum lot size: 1 acre(+)
- Minimum width at the front setback line: 200 feet
- Minimum setback requirement: front 30 feet, rear 30 feet, side 30 feet (*)(+)
- Maximum lot coverage: 25%
- Maximum height: 40 feet (-)

+ If the building is established as or converted to condominium units in accordance with Chapter 7 of this Code, the building and lot shall meet the minimum lot area and setbacks, but the individual units are not required to meet the minimum lot area, maximum lot coverage, or setback requirements.

* Minimum building setback distance from any adjoining residential zoning district boundary is 175 feet. The PCD Director may allow a reduction in the setback where appropriate actions are taken including landscaping, fencing, berms or building design, or where the use can be limited to mitigate potential impacts.

- The maximum height of any structure is in accordance with the following formula: A plane with a pitch of 2 feet horizontal to one foot vertical beginning at a height of 25 feet above all property lines using the mean property line elevations as the datum.

The Land Development Code specifies certain criteria in section 5.2.59.1.G, General Requirements Waste Disposal and Recycling Facilities Not Requiring a Certificate of Designation.

"All structures where solid wastes are dumped or stored or areas where containerized solid wastes are stored shall be setback at least 100 feet from all property lines, and the facility site shall be fenced, landscaped, or otherwise buffered so as to minimize impacts on neighboring property. Where deemed appropriate, setback requirements may be varied."

F. ALTERNATIVES EXPLORED

There are two (2) alternatives that would not require a dimensional variance request:

1. The applicant could cease further development on the property.
2. The applicant could relocate the use to elsewhere on the property so that it meets the applicable setback requirements.

G. SERVICE

1. WATER

Water is not provided at this site.

2. WASTEWATER

Wastewater is not provided at this site**.**

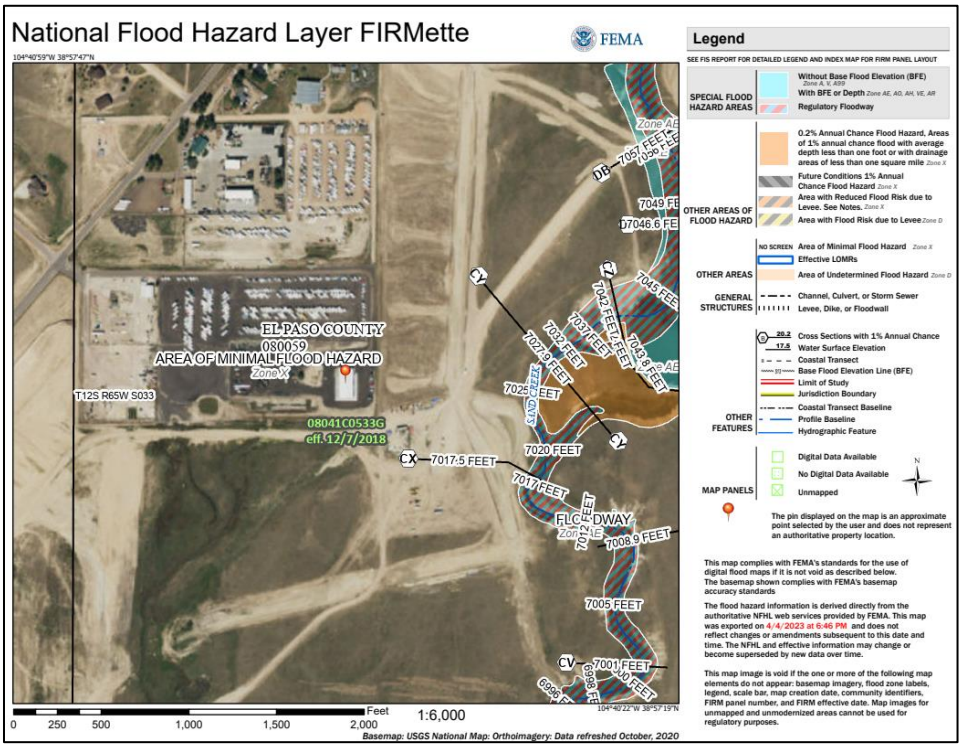
3. EMERGENCY SERVICES

The parcel is located within the Black Forest Fire Protection District. The District was sent a referral and has no outstanding comments

H. ENGINEERING

1. FLOODPLAIN

The parcel is located outside 500yr flood area and designated Zone "X" an area of minimal flood hazard based on a review of the FEMA Firm Map #08041C0533G, dated December 7, 2018.



2. DRAINAGE AND EROSION

The parcel is within the Sand Creek Basin boundary. This drainage basin has a drainage basin planning study. Associated drainage basin fees are assessed to projects within the Sand Creek Basin. However, drainage basin fees are not collected for non-platting applications such as this application in accordance with approved resolutions and the El Paso County Engineering Criteria Manual. The parcel was originally platted in 1978 as part of the McClintock Station subdivision plat #4962 prior to the establishment of the drainage basin fee program. No drainage basin fees were assessed when the plat was amended in 2017 as part of the "Barbarick Subdivision" plat #13910. Further subdivision would incur drainage basin fees. A grading and erosion control plan (GEC) and Stormwater Management Plan with required infrastructure (detention pond) have been completed as part of the **"**Barbarick Subdivision".

3. TRANSPORTATION

The parcel is accessed from Carah Dawn View and Cliff Allen Point, both private rural local roads that access Vollmer Road.

A full Traffic Impact Study was previously completed in 2007 as part of the Barbarick Subdivision for light industrial use on Lot #4. An updated Traffic Impact Study will be required at the site development stage with new requested uses.

Road Impact Fees will be applicable to new uses and any new constructed structures per Resolution 19-741. Road impact fees would be paid at time of building permit.

I. RECOMMENDED CONDITIONS OF APPROVAL

Should the Board of Adjustment determine that the application is consistent with the criteria for approval of a dimensional variance for a side setback of 35 feet where 100 feet is required, and that the applicant has met the review and approval criteria for granting variances from the applicable standards, staff recommends the following conditions and notation of approval:

CONDITIONS

1. The approval applies only to the plans as submitted. Any expansion or additions beyond those depicted on the associated site plan may require separate Board of Adjustment application(s) and approval(s) if the development requirements of the applicable zoning district cannot be met.

2. Approval of the transfer station by the Planning and Community Development Department and issuance of a building permit from the Pikes Peak Regional Building Department is required prior to an addition or expansion of a residential property.

NOTATION

1. Physical variances approved for a proposed structure or use (except for lot area variances) are valid only if construction of the structure is initiated within twelve (12) months of the date of the Board of Adjustment approval or if the use of the property in the approved location does not cease for a continuous period of greater than twelve (12) months.

2. The PCD Director may require a survey, certified by a registered surveyor, licensed in the State of Colorado, depicting the improvement in relationship to the lot lines affected to demonstrate compliance with the approval of the dimensional variance.

J. PUBLIC COMMENT AND NOTICE

The Planning and Community Development Department notified 14 adjoining property owners on 4/5/2023, for the Board of Adjustment meeting. Responses will be provided at the hearing.

K. ATTACHMENTS

Letter of Intent
Vicinity Map
Site Plan
Public Comments

COMMENT RESPONSE 2-28-2023

Kimley»Horn

BARBARICK WASTE TRANSFER STATION

VARIANCE OF REQUIRED BUILDING SETBACK
LETTER OF INTENT

Affiliated Party Information:

Owner/Leasee/Applicant:
BR 8812 Cliff Allen Point LLC
Attn: Richard Graham
Email: grahaminvestments@gmail.com
Phone: 719-440-9414

Planning:
Kimley-Horn & Associates
Attn: Jim Houk
Email: jim.houk@kimley-horn.com
Phone: 719-453-0180

Engineering:
Kimley-Horn & Associates
Attn: Ryan Schnelbach
Email: ryan.schnelbach@kimley-horn.com
Phone: 719-501-1723

Please include:
provision of utilties updated to include provision of utilities - no water, sanitary sewer, or gas is proposed
-anticipated traffic generation and access to the site Updated to include access and traffic generation description / include traffic study

BARBARICK WASTE TRANSFER STATION

VARIANCE OF REQUIRED BUILDING SETBACK
LETTER OF INTENT

Affiliated Party Information:

Owner/Leasee/Applicant:
BR 8812 Cliff Allen Point LLC
Attn: Richard Graham
Email: grahaminvestments@gmail.com
Phone: 719-440-9414

Planning:
Kimley-Horn & Associates
Attn: Jim Houk
Email: jim.houk@kimley-horn.com
Phone: 719-453-0180

Engineering:
Kimley-Horn & Associates
Attn: Ryan Schnelbach
Email: ryan.schnelbach@kimley-horn.com
Phone: 719-501-1723

PROPERTY INFORMATION: BARBARICK WASTE TRANSFER STATION

SITE ADDRESS:	8812 Cliff Allen Pt, Colorado Springs, CO 80908
PARCEL ID:	5233002013
ZONING:	I-3 (Heavy Industrial) District
ACREAGE:	5.29 acres

LETTER OF INTENT

PROJECT UNDERSTANDING

Kimley-Horn's role in this project is to lead the entitlement process and provide civil engineering / Landscape Architecture + Planning services throughout the Site Development Plan and Construction Document planning processes with El Paso County.

The purpose of this project is to develop a waste transfer station facility (WTS), on the property: Parcel ID: 5233003013, located at: 8812 Cliff Allen Pt, Colorado Springs. Included in this project is: ~12,000 S.F. waste transfer building, drive aisles, scale house with ground scales, landscape buffering and screening as required for County Code Compliance. Vicinity map shown below.

VICINITY MAP
SCALE: 1" = 250'

SERVICE UNDERSTANDING

The services provided by the WTS include the indoor drop-off, removal, and recycling of various forms of **Dry Waste. Dry Waste pertains to various goods or materials such as/made of wood, plastic, composites, glass, and metals. Wet waste, such as garbage or other organic or consumable wastes, are not accepted at the WTS.** Located within the proposed ~12,000 S.F. WTS building, are six waste collection bins, used for various wood, plastic, composite, metal, etc. **Goods anticipated to be dropped off include, but are not limited to: bedframes, dressers, televisions, workout equipment, scrapped lumber, household remodel debris, yard clippings, etc.** These bins are laid out so the customer can safely and easily pull up to, or back into the drop off stall and safely relocate their wastes directly into the bins. Located outside the WTS building are three metal recycling bins, also located for safe customer access. Two of such bins are for **Steel Recycling** and one for **Non-Ferrous Metal Recycling.** Non-ferrous metals pertain to aluminum, titanium, zinc, lead, nickel, copper, and copper alloys (brass, bronze, etc.). This waste material will be picked up daily as the containers are filled and transferred to the regional facilities. It is anticipated that 1 to 2 containers will be removed each day.

NOTE: The Indoor Waste Disposal and Recycling Facilities was reviewed by the Colorado Department of Public Health & Environment (CDPHE) office, and was found Not Requiring a Certificate of Designation, required with traditional waste disposal sites based on the natural and limited storage and type of waste on the site.

SITE UNDERSTANDING (See site plan for reference)

As the site sits, lots to the north, northwest, and west are zoned industrial. Their respective land uses are self-storage, RV Storage, and Large Equipment Supply and Storage. The site of interest: 8812 Cliff Allen Pt, is a leased parcel, sharing an entrance with an existing auto mechanic shop (Dirt Road Diesel). Lots to the east are zoned residential, with residential homes existing there today. The lot to the south of the site is also zoned residential and is currently vacant. Within the project lot is an existing easement supporting the regional stormwater detention pond. The capacity of the pond is 1.49 ac-ft, and footprint of pond/easement is approximately 0.91 acres. The pond receives flows from the adjacent (I-3 Zone) industrial lots to the north and west, as well as the lots just to the north of Carah Dawn View, the public which is the drive serving the site.

The project recognizes and is responding to the current development code section 5.2.59.E.1.g General Requirements Waste Disposal and Recycling Facilities Not Requiring a Certificate of Designation and the related 100' setback.
The code states: "All structures where solid wastes are dumped or stored or areas where containerized solid wastes are stored shall be setback at least 100 feet from all property lines, and the facility site shall be fenced, landscaped, or otherwise buffered so as to minimize impacts on neighboring property. **Where deemed appropriate, setback requirements may be varied.**"

In addition, the site layout is responding to the standards set forth in Table 5-5: Density and Dimensional Standards for Industrial Districts (I-3 Zone). Special Note 6 states**:** Minimum building setback distance from any adjoining residential zoning district boundary is 175 feet. The PCD Director

may allow a reduction in the setback where appropriate actions are taken including landscaping, fencing, berms or building design, or where the use can be limited to mitigate potential impacts.

REQUEST FOR VARIANCE

We, Kimley-Horn & Associates, are requesting dimensional variance with the Building Setbacks associated with the Western and Northern Property Boundary. The request is for relief for a setback criterion stated in the code section 5.2.59.E.1.g General Requirements Waste Disposal and Recycling Facilities Not Requiring a Certificate of Designation.

Specifically, the request is asking for relief from the stated 100' setback required from all adjacent land uses. Due to the nature of the site and the surrounding uses, the request is a proposed 35' setback on the north and west boundaries, while still adhering to the minimum **standard** I-3 zone setback (30'), as well as the minimum setback distance required per Table 5-5, Special Note 6 (175'). The proposal will maintain a setback consistent with the general zone and will further increase the 175' setback along the boundaries adjacent to existing residential zones (east and south). This will improve the condition along the residential buffers per the criteria objectives. The residential setbacks are proposed to increase to 192' on the south and 382' on the east. There are no impacts to the existing use of the adjacent industrial zones on the north and west side of the project. * See Site Plan/Aerial Exhibit below.

Moving the building footprint to the west and to the north will also allow for better use and safety of the site for the users/customers. This will allow for more room for the customer to safely and easily maneuver from the entrance and weigh station/check-in, to the waste / recycling stalls inside the building, and exit. The request will also reduce potential on-site conflicts and circulation issues with the larger removal transport vehicles. Locating the WTS further to the west/north will allow for the access ramp to extend over a greater distance, lessening the grade and supporting a safe approach to the drop off stalls. It also allows the customer and removal vehicle drivers to take wider turns as the navigate to and from their respective routes. It is important to note that the customers are primarily local-residents and not certified professional drivers that pull trailers or drive trucks every day.

As the building footprint is shifted further east or south, the room for customer and removal vehicle maneuverability decreases dramatically and the waste removal access ramp is forced to span a shorter distance at a steeper grade. Nonetheless, the structure is also then being moved closer to the adjacent residentially zoned properties at the eastern and southern property frontages. Lastly, the further the building is shifted to the east or south, the steeper the drive aisles for waste removal become. With steeper drive aisles and a more confined space available for maneuvering throughout, risk associated with collisions amongst other vehicles, structures, etc. is unnecessarily increased.

ACCESS TO SITE & TRAFFIC GENERATION

The site is accessed from the intersection of Vollmer Road and Lochwinnoch Lane. The eastbound leg of the Vollmer Road and Lochwinnoch Lane intersection facilitates traffic into Carah Dawn View, then southwards via Cliff Allen Pt. The proposed site for the Barbarick Waste Transfer Station is accessed from Cliff Allen Pt. It is anticipated that this intersection will operate acceptably throughout

the 2045 development horizon, and all vehicle queues are anticipated to be maintained within the existing storage lengths, per the traffic study. See **Appendix A.**

PROVISION OF UTILITIES

Water, sanitary sewer, and gas service is not needed for the proposed site. Electric is to be serviced from the existing transformer at the north of the site. The existing business and primary user of the lot, Dirt Road Diesel, utilizes water, sanitary sewer, gas, and electric services.

PRO VS. CON ANALYSIS

PROS	CONS
Safer & easier customer access and experience	
Safer & easier service provider access	
Lesser impact on adjacent residential, provide greater buffers	

ADJACENT PROPERTY INFORMATION

Adjacent Property to the West:
PARCEL ID: 5233002011
OWNER: HW Diesel Enterprises
ZONING: I-3
USE: Self Storage, Large Vehicle and Freight Storage, Construction Equipment Supply

Adjacent Property to the North:
PARCEL ID: 5233002012
OWNER: BWH Properties LLC
ZONING: I-2
USE: Self Storage and RV Storage

Adjacent Property to the Northwest:
PARCEL ID: 5233002010
OWNER: Lewis-Wolf Properties LLLP
ZONING: I-3
USE: Self Storage, Large Vehicle and Freight Storage, Construction Equipment Supply

Adjacent Property to the East:
PARCEL ID: 5233302013
OWNER: Joseph Vasquez
ZONING: RS-5000
USE: Single Family Residential

Adjacent Property to the East:
PARCEL ID: 5233302014
OWNER: Mic Phillips
ZONING: RS-5000
USE: Single Family Residential

Adjacent Property to the East:
PARCEL ID: 5233302022
OWNER: Chad Caskey
ZONING: RS-5000
USE: Single Family Residential

APPENDIX A

Traffic Impact Study

Barbarick Waste Transfer Station

El Paso County, Colorado

Prepared for:

Graham Construction Management

Kimley»Horn

T R A F F I C I M P A C T S T U D Y

Traffic Engineer's Statement

The attached traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.

Jeffrey R. Planck

September 15, 2022

Jeffrey R. Planck, P.E., PE #53006 — Date

Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

Mr. Richard Graham, Jr. — Date
Graham Construction Management
4615 Northpark Drive
Colorado Springs, CO 80918

Barbarick Waste Transfer Station

El Paso County, Colorado

Prepared for
Graham Construction Management
4615 Northpark Drive
Colorado Springs, CO 80918

Prepared by
Kimley-Horn and Associates, Inc.
2 North Nevada Avenue
Suite 300
Colorado Springs, Colorado 80903
(719) 453-0180

September 2022

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1.0 EXECUTIVE SUMMARY

This report has been prepared to document the results of a Traffic Impact Study for the Barbarick Waste Transfer Station project proposed at 8812 Cliff Allen Point in El Paso County, Colorado. Specifically, the project is located near the southeast corner of the Lochwinnoch Lane and Vollmer Road intersection. For the purposes of this study, Barbarick Waste Transfer Station is anticipated to include an intermediate transfer facility. It is expected that Barbarick Waste Transfer Station will be completed in the next several years; therefore, analysis was conducted for the 2025 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The intersection of Vollmer Road and Lochwinnoch Lane was incorporated into this traffic study in accordance with El Paso County standards and requirements.

Regional access to Barbarick Waste Transfer Station will be provided by SH-21 and US-24. Primary access will be provided by Vollmer Road. Direct access will be provided by the existing east leg at the intersection of Lochwinnoch Lane and Vollmer Road.

Barbarick Waste Transfer Station is expected to generate approximately 280 weekday daily trips, with 36 of these trips occurring during both the morning and afternoon peak hours. Of the 280 weekday daily trips, 10 are anticipated to be heavy vehicle trips with two (2) heavy vehicle trips during both peak hours.

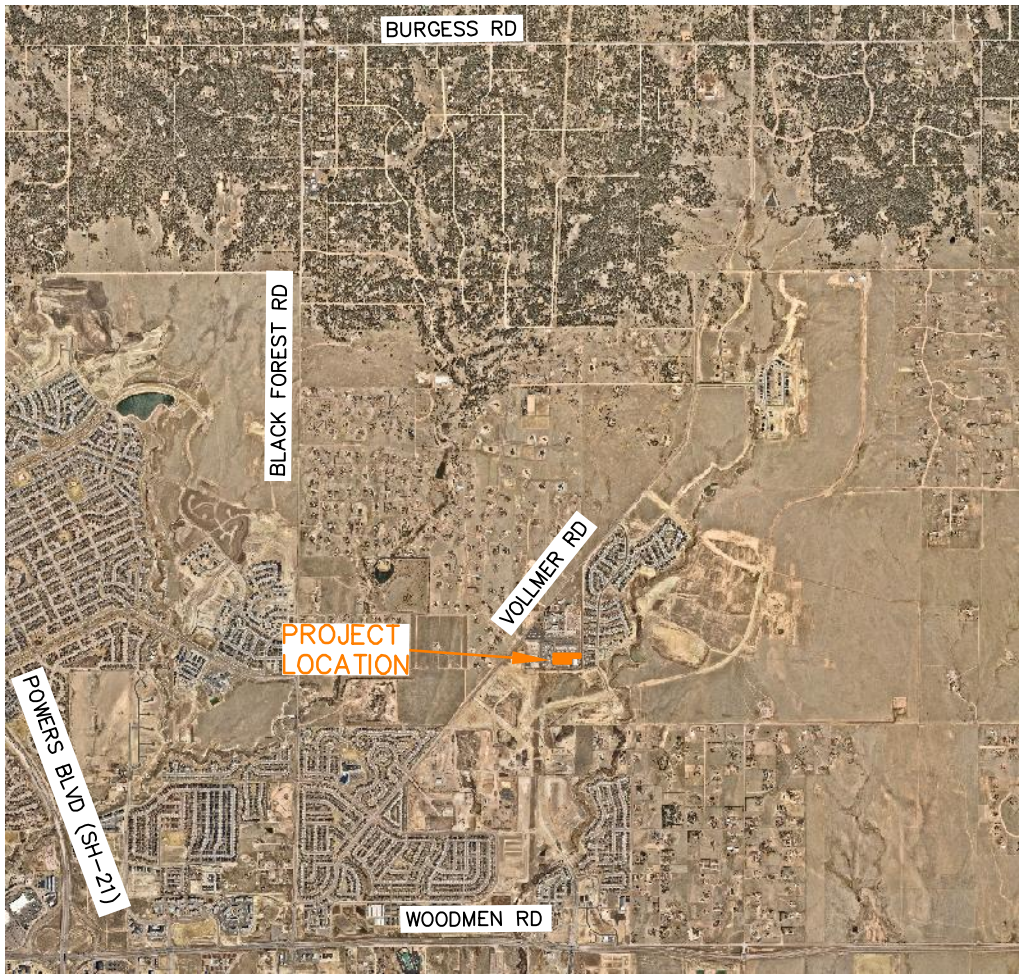
Based on the analysis presented in this report, Kimley-Horn believes Barbarick Waste Transfer Station will be successfully incorporated into the existing and future roadway network with the existing geometry and control. The intersection of Vollmer Road and Lochwinnoch Lane is anticipated to operate acceptably throughout 2045 and all vehicle queues are anticipated to be maintained within the existing storage lengths. The road impact fee associated with the project is expected to be $22,380.

2.0 INTRODUCTION

Kimley-Horn and Associates, Inc. has prepared this report to document the results of a Traffic Impact Study for the Barbarick Waste Transfer Station project proposed at 8812 Cliff Allen Point in El Paso County, Colorado. Specifically, the project is located near the southeast corner of the Lochwinnoch Lane and Vollmer Road intersection. A vicinity map illustrating the Barbarick Waste Transfer Station development location is shown in **Figure 1**. For the purposes of this study, Barbarick Waste Transfer Station is anticipated to include an intermediate transfer facility. A conceptual site plan is attached in **Appendix D**. It is expected that Barbarick Waste Transfer Station will be completed in the next couple years; therefore, analysis was conducted for the 2025 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The intersection of Vollmer Road and Lochwinnoch Lane was incorporated into this traffic study in accordance with El Paso County standards and requirements.

Regional access to Barbarick Waste Transfer Station will be provided by SH-21 and US-24. Primary access will be provided by Vollmer Road. Direct access will be provided by the existing east leg at the intersection of Lochwinnoch Lane and Vollmer Road.



BARBARICK WASTE TRANSFER STATION
EL PASO COUNTY, COLORADO
VICINITY MAP

FIGURE 1

3.0 EXISTING AND FUTURE CONDITIONS

3.1 Existing Study Area

The existing site is comprised of a diesel engine repair service. West of the site are single family homes. East of the site is vacant land that is currently being developed. Vacant land, industrial uses, and single-family homes are located to the south. An RV and boat storage facility is located to the north of the site.

3.2 Existing Roadway Network

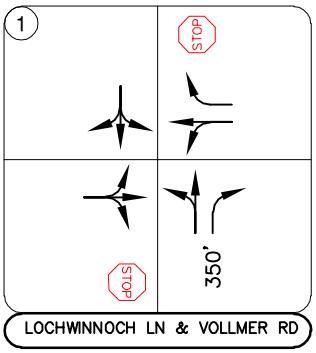
Vollmer Road provides two through lanes of travel in each direction, northeastbound and southwestbound, with a 45 mile per hour speed limit through the study area. Lochwinnoch Lane consists of one through lane in each direction extending primarily eastbound and westbound at the study area key intersection.

The unsignalized intersection of Lochwinnoch Lane and Vollmer Road operates with stop-control on the eastbound Lochwinnoch Lane and westbound Carah Dawn View approaches. For the purposes of this analysis, Vollmer Road is considered a north/south roadway while Lochwinnoch Lane is considered an east/west roadway. The northbound and westbound approaches provide a shared left turn/through lane and a right turn lane. The southbound and eastbound approaches provide one shared lane for all movements. An aerial photo of the existing intersection configuration is below (north is up - typical).

Lochwinnoch Lane & Vollmer Road

The intersection lane configuration and control for the study area intersection are shown in **Figure 2**.

Kimley»Horn
NORTH
NTS 196489000



LEGEND
X Study Area Key Intersection
STOP Stop Controlled Approach
SPEED LIMIT XX Roadway Speed Limit
100' Turn Lane Length (feet)

BARBARICK WASTE TRANSFER STATION
EL PASO COUNTY, COLORADO
EXISTING GEOMETRY AND CONTROL

FIGURE 2

Kimley»Horn

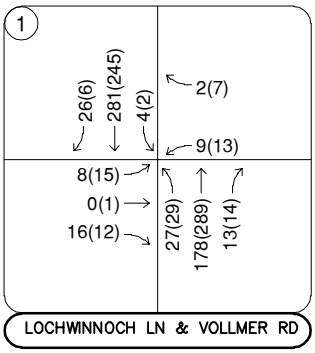
3.3 Existing Traffic Volumes

Existing turning movement counts were conducted at the study intersection on Thursday, August 25, 2022, during the morning and afternoon peak hours. The counts were conducted during the morning and afternoon peak hours of adjacent street traffic in 15-minute intervals from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM on this count date. The existing intersection traffic volumes are shown in **Figure 3** with count sheets provided in **Appendix A**.

3.4 Unspecified Development Traffic Growth

According to the 2040 traffic projections from the El Paso County Major Transportation Corridor Plan (MTCP) traffic model compared to the existing traffic volumes, the area surrounding the site is expected to have an average 18-year growth factor of 1.43. This growth factor equates to an annual growth rate of 1.99 percent. Future traffic volume projections and growth rate calculations are provided in **Appendix B**. Therefore, a 1.99 percent annual growth rate was used to calculate future traffic volumes at the study area intersection. This annual growth rate was used to estimate short-term 2025 and long-term 2045 traffic volume projections at the key intersection. The calculated background traffic volumes for 2025 and 2045 are shown in **Figure 4** and **Figure 5,** respectively.

Kimley»Horn
NORTH
NTS 196489000



Thursday, August 25, 2022
7:00 to 8:00AM (4:15 to 5:15PM)

LEGEND

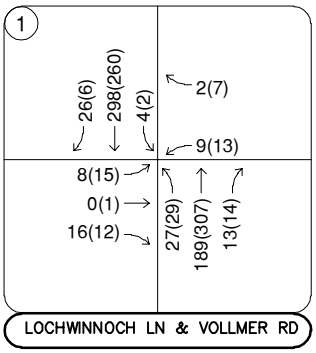
(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

BARBARICK WASTE TRANSFER STATION
EL PASO COUNTY, COLORADO
2022 EXISTING TRAFFIC VOLUMES

FIGURE 3

Kimley»Horn

Kimley»Horn
NORTH
NTS 196489000



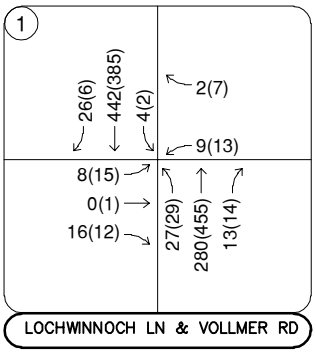
LEGEND

(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

BARBARICK WASTE TRANSFER STATION
EL PASO COUNTY, COLORADO
2025 BACKGROUND TRAFFIC VOLUMES

FIGURE 4

Kimley»Horn



LEGEND

(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

BARBARICK WASTE TRANSFER STATION
EL PASO COUNTY, COLORADO
2045 BACKGROUND TRAFFIC VOLUMES

FIGURE 5

4.0 PROJECT TRAFFIC CHARACTERISTICS

4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual*[1] published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. However, for this study, Kimley-Horn used user-specific trip generation based on trips at a similar Peak Disposal and Recycling facility located at 856 Washington Street in Monument, Colorado, for traffic associated with the development. Further, steel recycling collection data from Colorado Industrial Recycling located at 2730 E. Las Vegas Street in Colorado Springs as well as data from the Green for Life trash collection facility were used for site generated traffic. Trips at the existing site were collected daily from August 2018 to July 2022. To be conservative, the month with highest number of trips, June 2022, was used for the trip generation. Of note, operations significantly decrease during the winter season and colder months. The operations primarily consist of personal vehicles utilizing the site to unload waste or recycle steel materials while trucks with 40-yard dumpster containers will haul out recycled steel and waste. The peak month for waste trucks occurred in June 2022 with 73 trucks collecting waste from the facility and hauling off-site. Likewise, the peak month for steel recycling trucks occurred in June 2022 with 7 trucks collecting recycled steel and hauling off-site. Further, trips generated on the existing diesel engine repair site were not subtracted from the existing counts to conservatively evaluate the key intersection.

Barbarick Waste Transfer Station is expected to generate approximately 280 weekday daily trips, with 36 of these trips occurring during both the morning and afternoon peak hours. Of the 280, weekday daily trips, 10 trips are anticipated to be heavy vehicle trips with two (2) heavy vehicle trips during both peak hours. **Table 1** summarizes the estimated trip generation for the Barbarick Waste Transfer Station.

[1] Institute of Transportation Engineers, *Trip Generation Manual*, Eleventh Edition, Washington DC, 2021.

Table 1 – Barbarick Waste Transfer Station Traffic Generation

Vehicle and Trip Type	Weekday Vehicle Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Passenger Vehicle Trash/Recycle Drop-off	270	17	17	34	17	17	34
Truck - GFL Boxes Picked up	8	1	1	2	1	1	2
Truck - Recycled Steel Pick up	2	0	0	0	0	0	0
Total Site Generated Trips	**280**	**18**	**18**	**36**	**18**	**18**	**36**

4.2 Trip Distribution

Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, existing and anticipated surrounding demographic information, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source. The project trip distribution for the proposed development is illustrated in **Figure 6**.

4.3 Traffic Assignment

Barbarick Waste Transfer Station traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Traffic assignment is shown in **Figure 7.**

4.4 Total (Background Plus Project) Traffic

Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short-term 2025 buildout horizon and long-term 2045 twenty-year planning horizon. These total traffic volumes for the study area are illustrated for the 2025 and 2045 horizon years in **Figures 8** and **9**, respectively.

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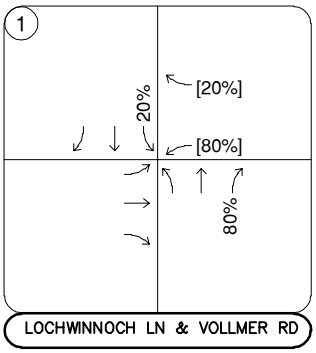
NTS 196489000



LEGEND

(X) Study Area Key Intersection

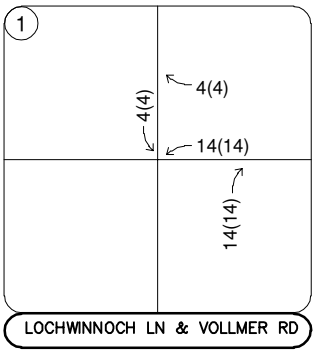
XX% External Trip Distribution Percentage

XX%[XX%] Entering[Exiting] Trip Distribution Percentage

BARBARICK WASTE TRANSFER STATION
EL PASO COUNTY, COLORADO
PROJECT TRIP DISTRIBUTION

FIGURE 6

Kimley»Horn

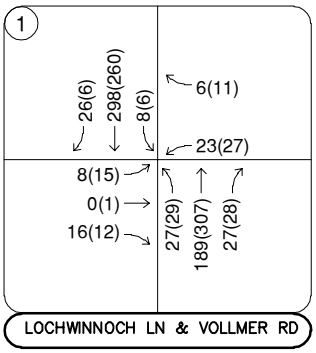


LEGEND

(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

BARBARICK WASTE TRANSFER STATION
EL PASO COUNTY, COLORADO
PROJECT TRAFFIC ASSIGNMENT

FIGURE 7



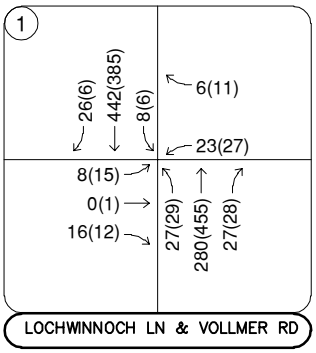
LEGEND

(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

BARBARICK WASTE TRANSFER STATION
EL PASO COUNTY, COLORADO
2025 TOTAL TRAFFIC VOLUMES

FIGURE 8

Kimley»Horn
NORTH
NTS 196489000



LEGEND

(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

BARBARICK WASTE TRANSFER STATION
EL PASO COUNTY, COLORADO
2045 TOTAL TRAFFIC VOLUMES

FIGURE 9

Kimley»Horn

5.0 TRAFFIC OPERATIONS ANALYSIS

Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2025 and 2045 development horizons at the identified key intersection. The acknowledged source for determining overall capacity is the current edition of the *Highway Capacity Manual (HCM)*[2].

5.1 Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). Based on El Paso County standards, the threshold for acceptable LOS is not less than LOS D during peak hours. **Table 2** shows the definition of level of service for signalized and unsignalized intersections.

Table 2 – Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Definitions provided from the Highway Capacity Manual, Sixth Edition, Transportation Research Board, 2016.

The study area intersection was analyzed based on average total delay analysis for unsignalized intersections. Under the unsignalized analysis, the LOS for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement.

[2] Transportation Research Board, *Highway Capacity Manual*, Sixth Edition, Washington DC, 2016.

5.2 Key Intersection Operational Analysis

Calculations for the operational level of service at the key intersection for the study area are provided in **Appendix C**. The existing year analysis is based on the lane geometry and intersection control shown in **Figure 2.** Existing peak hour factors were used for all horizons. Additionally, truck percentages were used for all horizons. Synchro traffic analysis software was used to analyze the unsignalized key intersection for HCM level of service.

Lochwinnoch Lane & Vollmer Road

The unsignalized intersection of Lochwinnoch Lane and Vollmer Road operates with stop-control on the eastbound and westbound Vollmer Road approaches. The intersection movements operate acceptably at LOS C or better during both peak hours under existing conditions. With project traffic, all movements are anticipated to continue operating at an acceptable level of service throughout the 2045 horizon. Therefore, no improvements or modifications are anticipated to be needed at this intersection based on the addition of project traffic and this operational level of service analysis. **Table 3** provides the results of the LOS analysis conducted at this intersection.

Table 3 – Lochwinnoch Lane & Vollmer Road LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2022 Existing				
Northbound Left	8.2	A	7.9	A
Eastbound Approach	12.6	B	13.3	B
Westbound Through/Left	16.1	C	15.5	C
Westbound Right	9.5	A	10.0	B
Southbound Left	7.8	A	8.0	A
2025 Background				
Northbound Left	8.3	A	7.9	A
Eastbound Approach	12.9	B	13.7	B
Westbound Through/Left	16.8	C	16.2	C
Westbound Right	9.6	A	10.2	B
Southbound Left	7.8	A	8.0	A
2025 Background Plus Project				
Northbound Left	8.3	A	7.9	A
Eastbound Approach	13.1	B	14.0	B
Westbound Through/Left	17.8	C	16.9	C
Westbound Right	9.6	A	10.2	B
Southbound Left	7.9	A	8.1	A
2045 Background				
Northbound Left	8.9	A	8.3	A
Eastbound Approach	16.7	C	18.6	C
Westbound Through/Left	24.5	C	13.3	C
Westbound Right	10.3	B	11.4	B
Southbound Left	8.1	A	8.5	A
2045 Background Plus Project				
Northbound Left	8.9	A	8.3	A
Eastbound Approach	17.0	C	19.0	C
Westbound Through/Left	27.1	D	25.4	D
Westbound Right	10.3	B	11.4	B
Southbound Left	8.2	A	8.5	A

5.3 El Paso County Turn Lane Requirement Analysis

The El Paso County Engineering Criteria Manual (ECM) was used to determine if left and right turn lanes are warranted along Vollmer Road. El Paso County classifies Vollmer Road as a Minor Arterial roadway. According to El Paso County ECM guidelines for Minor Arterials, a left turn lane is required for any access with a projected peak hour left turning volume of 25 vehicles per hour or greater, a right turn lane is required for any access with a projected peak hour right turning volume of 50 vehicles per hour or greater, and a right turn acceleration lane is generally not required.

Based on Vollmer Road providing a posted speed limit of 45 miles per hour, the turn lane requirements that the project traffic contributes to are as follows:

Lochwinnoch Lane and Vollmer Road:

- A southbound left turn lane **is not** warranted at this intersection based on projected 2045 total traffic volumes being eight (8) southbound left turns during the peak hour and the threshold being 25 vehicles per hour.

- A northbound right turn lane exists but **is not** warranted at this intersection based on projected 2045 total traffic volumes being 28 northbound right turns during the peak hour and the threshold being 50 vehicles per hour.

5.4 Vehicle Queuing Analysis

A vehicle queuing analysis was conducted for the study area intersection. The queuing analysis was performed using Synchro presenting the results of the 95th percentile queue lengths. Results are shown in the following **Table 4** with calculations provided within the level of service operational sheets of **Appendix C**.

Table 4 – Turn Lane Queuing Analysis Results

Intersection Turn Lane	Existing Turn Lane Length (feet)	2025 Calculated Queue (feet)	2025 Recommended Length (feet)	2045 Calculated Queue (feet)	2045 Recommended Length (feet)
Lochwinnoch Ln & Vollmer Rd					
Northbound Right	350’	0’	350’	0’	350’
Westbound Left/Through	100’	25’	100’	25’	100’
Westbound Right	C	25’	C	25’	C

C = Continuous Lane

As shown in the table above, vehicle queues are all anticipated to remain within the existing turn lane lengths through 2045.

5.5 Sight Distance Evaluation

It is recommended that sight triangles be provided at all site access points to give drivers exiting the site a clear view of oncoming traffic. Landscaping and objects within sight triangles must not obstruct drivers’ views of the adjacent travel lanes. ECM design sight distances for left turn from stop from public street intersections (Table 2-21) was evaluated at the intersection of Vollmer Road and Lochwinnoch Lane. ECM does not provide sight distances for right-turning vehicles from stop for public street intersections; therefore, AASHTO standards were used for right-turn from stop distances at the intersection of Vollmer Road and Lochwinnoch Lane.

According to Table 2-21 from ECM and a roadway design speed of 45 miles per hour along Vollmer Road, the intersection sight distance for a vehicle turning left from stop is 500 feet for a two-lane roadway. With AASHTO standards, the sight distance for a vehicle turning right from stop is 430 feet. Therefore, all obstructions for left turning vehicles from stop should be clear to the right within the triangle created with a vertex point located 10 feet from the edge of the major road traveled way (typical position of the minor road driver’s eye when stopped) and a line-of-sight distance of 500 feet located in the middle of the nearest southbound through lane along

Vollmer Road. Likewise, all obstructions for right turning vehicles from stop should be clear to the left within the triangle created with a vertex point located 10 feet from the edge of the major road traveled way and a line-of-sight distance of 430 feet located in the middle of the nearest northbound through lane along Vollmer Road. It is believed that the intersection of Vollmer Road and Lochwinnoch Lane is appropriately located to provide necessary sight distances.

5.6 Bicycle and Pedestrian Access

Sidewalks are not present on either side of the Vollmer Road and Lochwinnoch Lane intersection. Sidewalks and bicycle lanes are not provided along Vollmer Road or Lochwinnoch Road.

5.7 Road Impact Fees

Road impact fees were evaluated based on the El Paso County Road Impact Fee Schedule. Based on these fee schedule guidelines, the fee per 1,000 square feet of Warehouse is $1,865. Therefore, the road impact fee for the proposed 12,000 square foot building is expected to be $22,380. Road impact fee calculations are shown in **Table 5**.

Table 5 – Road Impact Fees

Use	Units	Fee / Unit	Total Fee
Warehouse	12.00 KSF	$1,865	$22,380

During the final plat process, the project team will determine if the impact fees are paid up front or if the property will be included in one of the available public improvement districts with reduced upfront costs. The project team will determine payment methods with the final plat.

5.8 Heavy Vehicle Assessment

The heavy vehicle percentage adjacent to the intersection of Lochwinnoch Lane and Vollmer Road is currently 6.2 percent during the morning peak hour and 4.4 percent during the afternoon peak hour. An industry standard 10 percent K-factor was utilized to estimate an average daily traffic volume of 6,100 vehicles per day along Vollmer Road. The afternoon heavy vehicle percentage of 4.4 percent was utilized to estimate a daily heavy vehicle estimate of 268 trucks (6,100 x 0.044). The project is anticipated to add 10 daily truck trips during the peak day of the peak month. This equates to a 3.7 percent (10/268) increase in the overall number of daily trucks along Vollmer Road. However, the heavy vehicle usage of 4.4 percent along Vollmer Road remains the same due to the small number of trucks added daily by this project. This is due to passenger vehicles generated by the project being added to Vollmer Road as well as trucks and the overall truck percentage along Vollmer Road remaining the same ((268 existing trucks + 10 project trucks) / (6,100 existing vehicles + 280 project vehicles)). It should also be noted that this is calculated with the highest project generated volume day in the entire calendar year and the not the average project generation. Therefore, an approximate total of five heavy vehicles (10 trips) are expected to be added to the roadway network on a peak day, and this is expected to have a negligible impact to the surrounding roadway.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this report, Kimley-Horn believes Barbarick Waste Transfer Station will be successfully incorporated into the existing and future roadway network with the existing geometry and control. The intersection of Vollmer Road and Lochwinnoch Lane is anticipated to operate acceptably throughout 2045 and all vehicle queues are anticipated to be maintained within the existing storage lengths. The road impact fee associated with the project is expected to be $22,380.

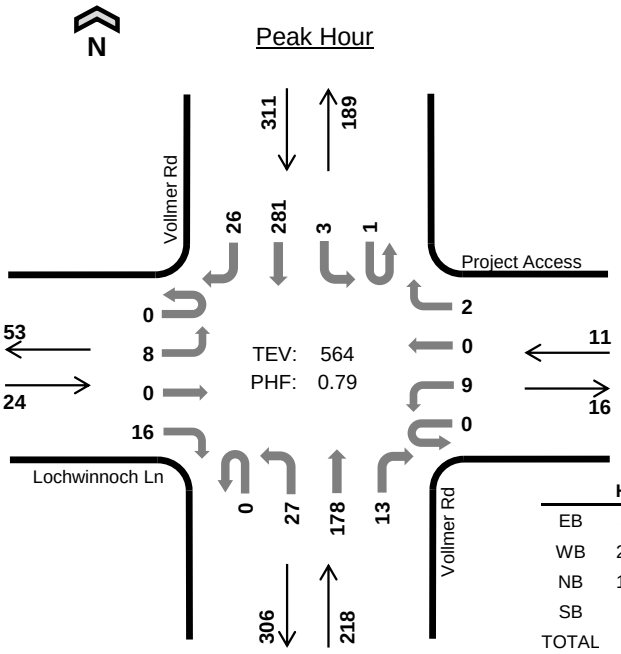
APPENDICES

APPENDIX A

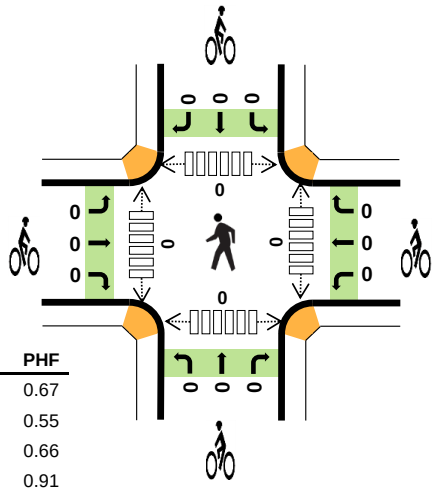
Intersection Count Sheets

Vollmer Rd
Lochwinnoch Ln

Date: 08/25/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



	HV %:	PHF
EB	4.2%	0.67
WB	27.3%	0.55
NB	11.5%	0.66
SB	1.9%	0.91
TOTAL	6.2%	0.79



Two-Hour Count Summaries

Interval Start	Lochwinnoch Ln Eastbound				Project Access Westbound				Vollmer Rd Northbound				Vollmer Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**1**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**5**	**36**	**3**	**0**	**0**	**70**	**7**	**126**	0
7:15 AM	**0**	**2**	**0**	**7**	**0**	**3**	**0**	**2**	**0**	**5**	**47**	**0**	**1**	**1**	**76**	**2**	**146**	0
7:30 AM	**0**	**1**	**0**	**4**	**0**	**1**	**0**	**0**	**0**	**4**	**29**	**6**	**0**	**0**	**65**	**4**	**114**	0
7:45 AM	**0**	**4**	**0**	**2**	**0**	**4**	**0**	**0**	**0**	**13**	**66**	**4**	**0**	**2**	**70**	**13**	**178**	**564**
8:00 AM	0	5	0	3	0	1	0	0	0	3	53	2	0	0	43	9	119	557
8:15 AM	0	1	0	5	0	2	0	0	0	1	40	5	0	0	32	2	88	499
8:30 AM	0	2	0	2	0	4	0	1	0	3	42	3	0	1	47	0	105	490
8:45 AM	0	2	0	6	0	3	0	0	0	4	43	0	0	0	51	1	110	422
Count Total	0	18	0	32	0	19	0	3	0	38	356	23	1	4	454	38	986	0
Peak Hour All	**0**	**8**	**0**	**16**	**0**	**9**	**0**	**2**	**0**	**27**	**178**	**13**	**1**	**3**	**281**	**26**	**564**	**0**
Peak Hour HV	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**21**	**2**	**0**	**1**	**4**	**1**	**35**	**0**
Peak Hour HV%	**-**	**13%**	**-**	**0%**	**-**	**33%**	**-**	**0%**	**-**	**7%**	**12%**	**15%**	**0%**	**33%**	**1%**	**4%**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**0**	**0**	**5**	**1**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**1**	**0**	**8**	**2**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**0**	**1**	**7**	**2**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**2**	**5**	**1**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	0	1	7	1	*9*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	1	1	5	1	*8*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	0	2	3	2	*7*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	0	0	3	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	2	7	43	11	*63*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**1**	**3**	**25**	**6**	***35***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Lochwinnoch Ln				Project Access				Vollmer Rd				Vollmer Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**1**	**6**	0
7:15 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**1**	**1**	**0**	**11**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**4**	**1**	**0**	**0**	**2**	**0**	**10**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**4**	**1**	**0**	**0**	**1**	**0**	**8**	**35**
8:00 AM	0	0	0	0	0	1	0	0	0	0	6	1	0	0	1	0	9	38
8:15 AM	0	0	0	1	0	1	0	0	0	0	4	1	0	0	1	0	8	35
8:30 AM	0	0	0	0	0	1	0	1	0	0	3	0	0	1	1	0	7	32
8:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4	28
Count Total	0	1	0	1	0	6	0	1	0	2	37	4	0	2	8	1	63	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**21**	**2**	**0**	**1**	**4**	**1**	**35**	**0**

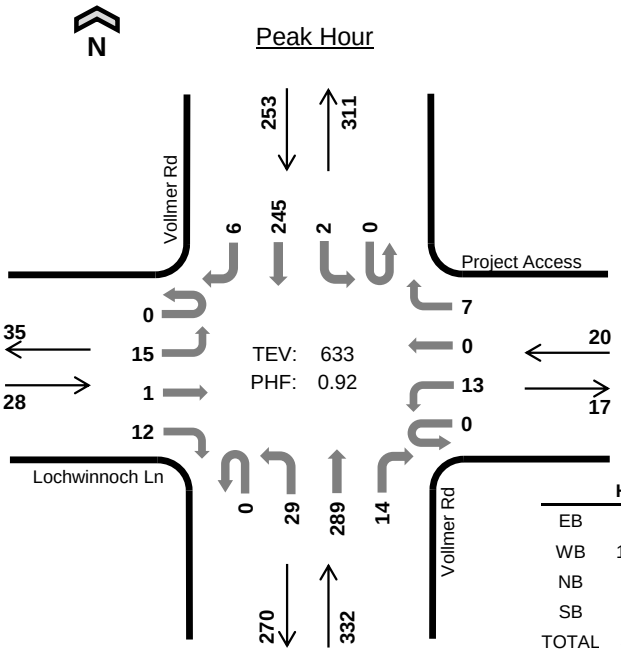
Two-Hour Count Summaries - Bikes

Interval Start	Lochwinnoch Ln			Project Access			Vollmer Rd			Vollmer Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

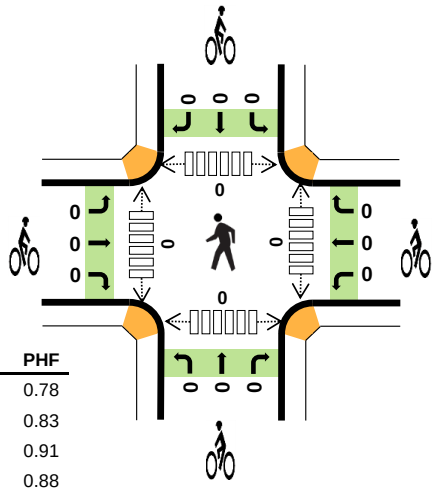
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Vollmer Rd
Lochwinnoch Ln

Date: 08/25/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM



	HV %:	PHF
EB	3.6%	0.78
WB	10.0%	0.83
NB	3.6%	0.91
SB	5.1%	0.88
TOTAL	4.4%	0.92



Two-Hour Count Summaries

Interval Start	Lochwinnoch Ln Eastbound				Project Access Westbound				Vollmer Rd Northbound				Vollmer Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	0	5	0	3	0	1	0	7	52	2	0	0	51	1	123	0
4:15 PM	**0**	**3**	**0**	**3**	**0**	**3**	**0**	**2**	**0**	**5**	**68**	**3**	**0**	**0**	**63**	**3**	**153**	0
4:30 PM	**0**	**3**	**0**	**6**	**0**	**2**	**0**	**4**	**0**	**6**	**80**	**3**	**0**	**0**	**59**	**1**	**164**	0
4:45 PM	**0**	**2**	**1**	**2**	**0**	**4**	**0**	**0**	**0**	**10**	**78**	**3**	**0**	**2**	**69**	**1**	**172**	612
5:00 PM	**0**	**7**	**0**	**1**	**0**	**4**	**0**	**1**	**0**	**8**	**63**	**5**	**0**	**0**	**54**	**1**	**144**	**633**
5:15 PM	0	1	1	3	0	2	0	0	0	8	63	2	0	0	68	1	149	629
5:30 PM	0	2	0	4	0	5	2	2	0	6	62	1	0	1	41	4	130	595
5:45 PM	0	1	1	1	0	1	0	1	0	3	89	1	0	0	44	3	145	568
Count Total	0	20	3	25	0	24	2	11	0	53	555	20	0	3	449	15	1,180	0
Peak Hour All	**0**	**15**	**1**	**12**	**0**	**13**	**0**	**7**	**0**	**29**	**289**	**14**	**0**	**2**	**245**	**6**	**633**	**0**
Peak Hour HV	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**11**	**1**	**0**	**1**	**11**	**1**	**28**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**8%**	**-**	**8%**	**-**	**14%**	**-**	**0%**	**4%**	**7%**	**-**	**50%**	**4%**	**17%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	1	1	6	*8*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	**1**	**1**	**6**	**2**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:30 PM	**0**	**1**	**3**	**1**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**0**	**0**	**1**	**6**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**0**	**2**	**4**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:15 PM	0	0	0	2	*2*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	0	0	1	3	*4*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	0	3	*3*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	1	3	14	27	*45*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**1**	**2**	**12**	**13**	***28***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Lochwinnoch Ln				Project Access				Vollmer Rd				Vollmer Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	6	0	8	0
4:15 PM	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**2**	**0**	**10**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**1**	**0**	**0**	**1**	**0**	**5**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**4**	**1**	**7**	30
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**6**	**28**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	20
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	4	19
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	15
Count Total	0	0	0	1	0	2	0	1	0	1	12	1	0	1	25	1	45	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**11**	**1**	**0**	**1**	**11**	**1**	**28**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Lochwinnoch Ln			Project Access			Vollmer Rd			Vollmer Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

APPENDIX B

Future Traffic Projections

MTCP Growth Rate: Barbarick Waste Transfer Station

Location	2022 AADT	2040 AADT	Growth Factor	Growth Rate
Vollmer Rd S/O Burgess Rd	6100	8700	1.43	1.99%

APPENDIX C

Intersection Analysis Worksheets

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	16	9	0	2	27	178	13	4	281	26
Future Vol, veh/h	8	0	16	9	0	2	27	178	13	4	281	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	10	0	20	11	0	3	34	225	16	5	356	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	686	692	373	686	692	225	389	0	0	241	0	0
Stage 1	383	383	-	293	293	-	-	-	-	-	-	-
Stage 2	303	309	-	393	399	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.16	6.56	6.26	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.554	4.054	3.354	2.254	-	-	2.254	-	-
Pot Cap-1 Maneuver	356	362	664	356	362	805	1148	-	-	1302	-	-
Stage 1	632	605	-	707	663	-	-	-	-	-	-	-
Stage 2	698	652	-	624	595	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	344	348	664	335	348	805	1148	-	-	1302	-	-
Mov Cap-2 Maneuver	344	348	-	335	348	-	-	-	-	-	-	-
Stage 1	611	602	-	683	640	-	-	-	-	-	-	-
Stage 2	672	630	-	602	592	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.6	14.9	1	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1148	-	-	507	335	805	1302	-	-
HCM Lane V/C Ratio	0.03	-	-	0.06	0.034	0.003	0.004	-	-
HCM Control Delay (s)	8.2	0	-	12.6	16.1	9.5	7.8	0	-
HCM Lane LOS	A	A	-	B	C	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↰	↱		↰	↱		↕	
Traffic Vol, veh/h	15	1	12	13	0	7	29	289	14	2	245	6
Future Vol, veh/h	15	1	12	13	0	7	29	289	14	2	245	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	16	1	13	14	0	8	32	314	15	2	266	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	664	667	270	659	655	314	273	0	0	329	0	0
Stage 1	274	274	-	378	378	-	-	-	-	-	-	-
Stage 2	390	393	-	281	277	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	6.24	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	371	377	764	374	383	722	1279	-	-	1219	-	-
Stage 1	728	680	-	640	612	-	-	-	-	-	-	-
Stage 2	630	602	-	721	678	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	358	365	764	358	370	722	1279	-	-	1219	-	-
Mov Cap-2 Maneuver	358	365	-	358	370	-	-	-	-	-	-	-
Stage 1	705	679	-	620	593	-	-	-	-	-	-	-
Stage 2	604	583	-	706	677	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	13.6	0.7	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1279	-	-	464	358	722	1219	-	-
HCM Lane V/C Ratio	0.025	-	-	0.066	0.039	0.011	0.002	-	-
HCM Control Delay (s)	7.9	0	-	13.3	15.5	10	8	0	-
HCM Lane LOS	A	A	-	B	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	16	9	0	2	27	189	13	4	298	26
Future Vol, veh/h	8	0	16	9	0	2	27	189	13	4	298	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	10	0	20	11	0	3	34	239	16	5	377	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	721	727	394	721	727	239	410	0	0	255	0	0
Stage 1	404	404	-	307	307	-	-	-	-	-	-	-
Stage 2	317	323	-	414	420	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.16	6.56	6.26	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.554	4.054	3.354	2.254	-	-	2.254	-	-
Pot Cap-1 Maneuver	337	346	646	337	346	790	1128	-	-	1287	-	-
Stage 1	615	592	-	694	654	-	-	-	-	-	-	-
Stage 2	686	643	-	608	583	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	326	332	646	316	332	790	1128	-	-	1287	-	-
Mov Cap-2 Maneuver	326	332	-	316	332	-	-	-	-	-	-	-
Stage 1	593	589	-	670	631	-	-	-	-	-	-	-
Stage 2	660	620	-	586	580	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.9	15.5	1	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1128	-	-	487	316	790	1287	-	-
HCM Lane V/C Ratio	0.03	-	-	0.062	0.036	0.003	0.004	-	-
HCM Control Delay (s)	8.3	0	-	12.9	16.8	9.6	7.8	0	-
HCM Lane LOS	A	A	-	B	C	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↰	↗		↰	↗		↕	
Traffic Vol, veh/h	15	1	12	13	0	7	29	307	14	2	260	6
Future Vol, veh/h	15	1	12	13	0	7	29	307	14	2	260	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	16	1	13	14	0	8	32	334	15	2	283	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	701	704	287	696	692	334	290	0	0	349	0	0
Stage 1	291	291	-	398	398	-	-	-	-	-	-	-
Stage 2	410	413	-	298	294	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	6.24	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	351	359	747	353	365	703	1260	-	-	1199	-	-
Stage 1	713	668	-	624	599	-	-	-	-	-	-	-
Stage 2	615	590	-	706	666	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	338	347	747	337	353	703	1260	-	-	1199	-	-
Mov Cap-2 Maneuver	338	347	-	337	353	-	-	-	-	-	-	-
Stage 1	690	667	-	604	580	-	-	-	-	-	-	-
Stage 2	589	571	-	691	665	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.7	14.1	0.7	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1260	-	-	442	337	703	1199	-	-
HCM Lane V/C Ratio	0.025	-	-	0.069	0.042	0.011	0.002	-	-
HCM Control Delay (s)	7.9	0	-	13.7	16.2	10.2	8	0	-
HCM Lane LOS	A	A	-	B	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	16	23	0	6	27	189	27	8	298	26
Future Vol, veh/h	8	0	16	23	0	6	27	189	27	8	298	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	10	0	20	29	0	8	34	239	34	10	377	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	742	755	394	731	737	239	410	0	0	273	0	0
Stage 1	414	414	-	307	307	-	-	-	-	-	-	-
Stage 2	328	341	-	424	430	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.16	6.56	6.26	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.554	4.054	3.354	2.254	-	-	2.254	-	-
Pot Cap-1 Maneuver	327	333	646	332	341	790	1128	-	-	1267	-	-
Stage 1	608	586	-	694	654	-	-	-	-	-	-	-
Stage 2	676	632	-	600	577	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	313	318	646	310	325	790	1128	-	-	1267	-	-
Mov Cap-2 Maneuver	313	318	-	310	325	-	-	-	-	-	-	-
Stage 1	586	580	-	669	630	-	-	-	-	-	-	-
Stage 2	645	609	-	575	571	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.1	16.1	0.9	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1128	-	-	477	310	790	1267	-	-
HCM Lane V/C Ratio	0.03	-	-	0.064	0.094	0.01	0.008	-	-
HCM Control Delay (s)	8.3	0	-	13.1	17.8	9.6	7.9	0	-
HCM Lane LOS	A	A	-	B	C	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.3	0	0	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	1	12	27	0	11	29	307	28	6	260	6
Future Vol, veh/h	15	1	12	27	0	11	29	307	28	6	260	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	16	1	13	29	0	12	32	334	30	7	283	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	720	729	287	706	702	334	290	0	0	364	0	0
Stage 1	301	301	-	398	398	-	-	-	-	-	-	-
Stage 2	419	428	-	308	304	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	6.24	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	341	347	747	348	360	703	1260	-	-	1184	-	-
Stage 1	704	661	-	624	599	-	-	-	-	-	-	-
Stage 2	608	581	-	698	659	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	325	333	747	331	346	703	1260	-	-	1184	-	-
Mov Cap-2 Maneuver	325	333	-	331	346	-	-	-	-	-	-	-
Stage 1	681	656	-	604	580	-	-	-	-	-	-	-
Stage 2	579	562	-	680	654	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14	15	0.6	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1260	-	-	429	331	703	1184	-	-
HCM Lane V/C Ratio	0.025	-	-	0.071	0.089	0.017	0.006	-	-
HCM Control Delay (s)	7.9	0	-	14	16.9	10.2	8.1	0	-
HCM Lane LOS	A	A	-	B	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.3	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	16	9	0	2	27	280	13	4	442	26
Future Vol, veh/h	8	0	16	9	0	2	27	280	13	4	442	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	10	0	20	11	0	3	34	354	16	5	559	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1018	1024	576	1018	1024	354	592	0	0	370	0	0
Stage 1	586	586	-	422	422	-	-	-	-	-	-	-
Stage 2	432	438	-	596	602	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.16	6.56	6.26	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.554	4.054	3.354	2.254	-	-	2.254	-	-
Pot Cap-1 Maneuver	212	232	509	212	232	681	964	-	-	1167	-	-
Stage 1	489	491	-	602	581	-	-	-	-	-	-	-
Stage 2	594	572	-	483	483	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	203	220	509	196	220	681	964	-	-	1167	-	-
Mov Cap-2 Maneuver	203	220	-	196	220	-	-	-	-	-	-	-
Stage 1	467	488	-	575	555	-	-	-	-	-	-	-
Stage 2	565	546	-	461	480	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.7	21.9	0.7	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	964	-	-	339	196	681	1167	-	-
HCM Lane V/C Ratio	0.035	-	-	0.09	0.058	0.004	0.004	-	-
HCM Control Delay (s)	8.9	0	-	16.7	24.5	10.3	8.1	0	-
HCM Lane LOS	A	A	-	C	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↰	↱		↰	↱		↕	
Traffic Vol, veh/h	15	1	12	13	0	7	29	455	14	2	385	6
Future Vol, veh/h	15	1	12	13	0	7	29	455	14	2	385	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	16	1	13	14	0	8	32	495	15	2	418	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	997	1000	422	992	988	495	425	0	0	510	0	0
Stage 1	426	426	-	559	559	-	-	-	-	-	-	-
Stage 2	571	574	-	433	429	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	6.24	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	221	241	627	223	245	571	1124	-	-	1045	-	-
Stage 1	602	582	-	510	508	-	-	-	-	-	-	-
Stage 2	502	500	-	597	581	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	211	231	627	211	234	571	1124	-	-	1045	-	-
Mov Cap-2 Maneuver	211	231	-	211	234	-	-	-	-	-	-	-
Stage 1	578	580	-	490	488	-	-	-	-	-	-	-
Stage 2	475	480	-	582	579	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.6	19.1	0.5	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1124	-	-	296	211	571	1045	-	-
HCM Lane V/C Ratio	0.028	-	-	0.103	0.067	0.013	0.002	-	-
HCM Control Delay (s)	8.3	0	-	18.6	23.3	11.4	8.5	0	-
HCM Lane LOS	A	A	-	C	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	16	23	0	6	27	280	27	8	442	26
Future Vol, veh/h	8	0	16	23	0	6	27	280	27	8	442	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	10	0	20	29	0	8	34	354	34	10	559	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1039	1052	576	1028	1034	354	592	0	0	388	0	0
Stage 1	596	596	-	422	422	-	-	-	-	-	-	-
Stage 2	443	456	-	606	612	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.16	6.56	6.26	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.554	4.054	3.354	2.254	-	-	2.254	-	-
Pot Cap-1 Maneuver	205	223	509	209	228	681	964	-	-	1149	-	-
Stage 1	483	486	-	602	581	-	-	-	-	-	-	-
Stage 2	586	561	-	477	478	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	194	210	509	192	215	681	964	-	-	1149	-	-
Mov Cap-2 Maneuver	194	210	-	192	215	-	-	-	-	-	-	-
Stage 1	461	480	-	575	555	-	-	-	-	-	-	-
Stage 2	553	536	-	452	472	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17	23.6	0.7	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	964	-	-	330	192	681	1149	-	-
HCM Lane V/C Ratio	0.035	-	-	0.092	0.152	0.011	0.009	-	-
HCM Control Delay (s)	8.9	0	-	17	27.1	10.3	8.2	0	-
HCM Lane LOS	A	A	-	C	D	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.5	0	0	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	1	12	27	0	11	29	455	28	6	385	6
Future Vol, veh/h	15	1	12	27	0	11	29	455	28	6	385	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	350	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	16	1	13	29	0	12	32	495	30	7	418	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1016	1025	422	1002	998	495	425	0	0	525	0	0
Stage 1	436	436	-	559	559	-	-	-	-	-	-	-
Stage 2	580	589	-	443	439	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	6.24	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	215	233	627	219	242	571	1124	-	-	1032	-	-
Stage 1	595	576	-	510	508	-	-	-	-	-	-	-
Stage 2	497	492	-	590	575	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	203	222	627	206	230	571	1124	-	-	1032	-	-
Mov Cap-2 Maneuver	203	222	-	206	230	-	-	-	-	-	-	-
Stage 1	571	571	-	490	488	-	-	-	-	-	-	-
Stage 2	467	472	-	571	570	-	-	-	-	-	-	-

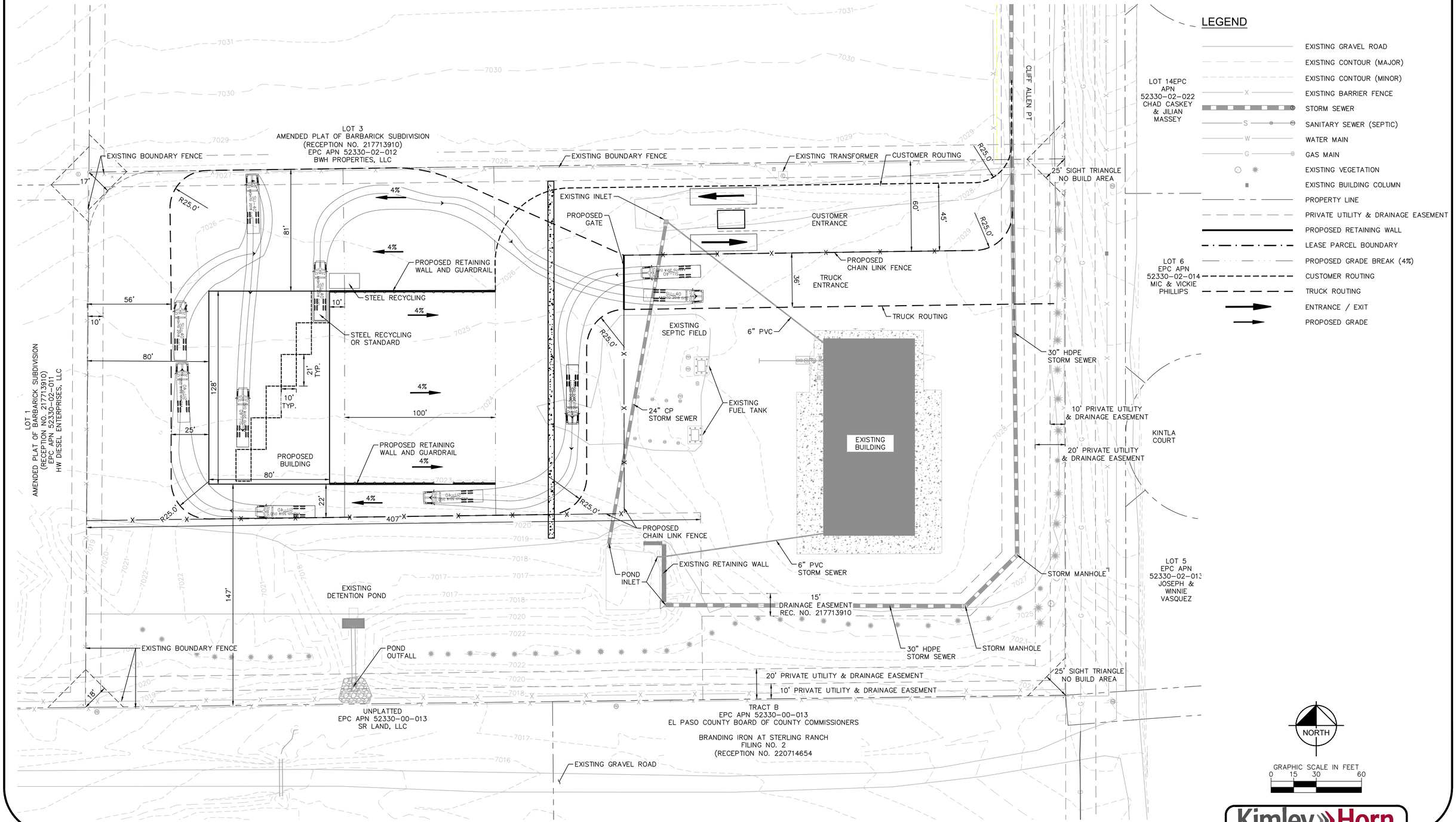
Approach	EB	WB	NB	SB
HCM Control Delay, s	19	21.3	0.5	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1124	-	-	287	206	571	1032	-	-
HCM Lane V/C Ratio	0.028	-	-	0.106	0.142	0.021	0.006	-	-
HCM Control Delay (s)	8.3	0	-	19	25.4	11.4	8.5	0	-
HCM Lane LOS	A	A	-	C	D	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.5	0.1	0	-	-

APPENDIX D

Conceptual Site Plan

BARBARICK WASTE TRANSFER STATION
SITE PLAN EXHIBIT



Kimley»Horn

2 N. NEVADA AVE, SUITE 300, COLORADO SPRINGS, CO 80903
PHONE: 719-453-0180

WASTE TRANSFER STATION
IMMEDIATE VICINITY - AERIAL MAP

Kimley»Horn

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PHONE: 719-453-0180

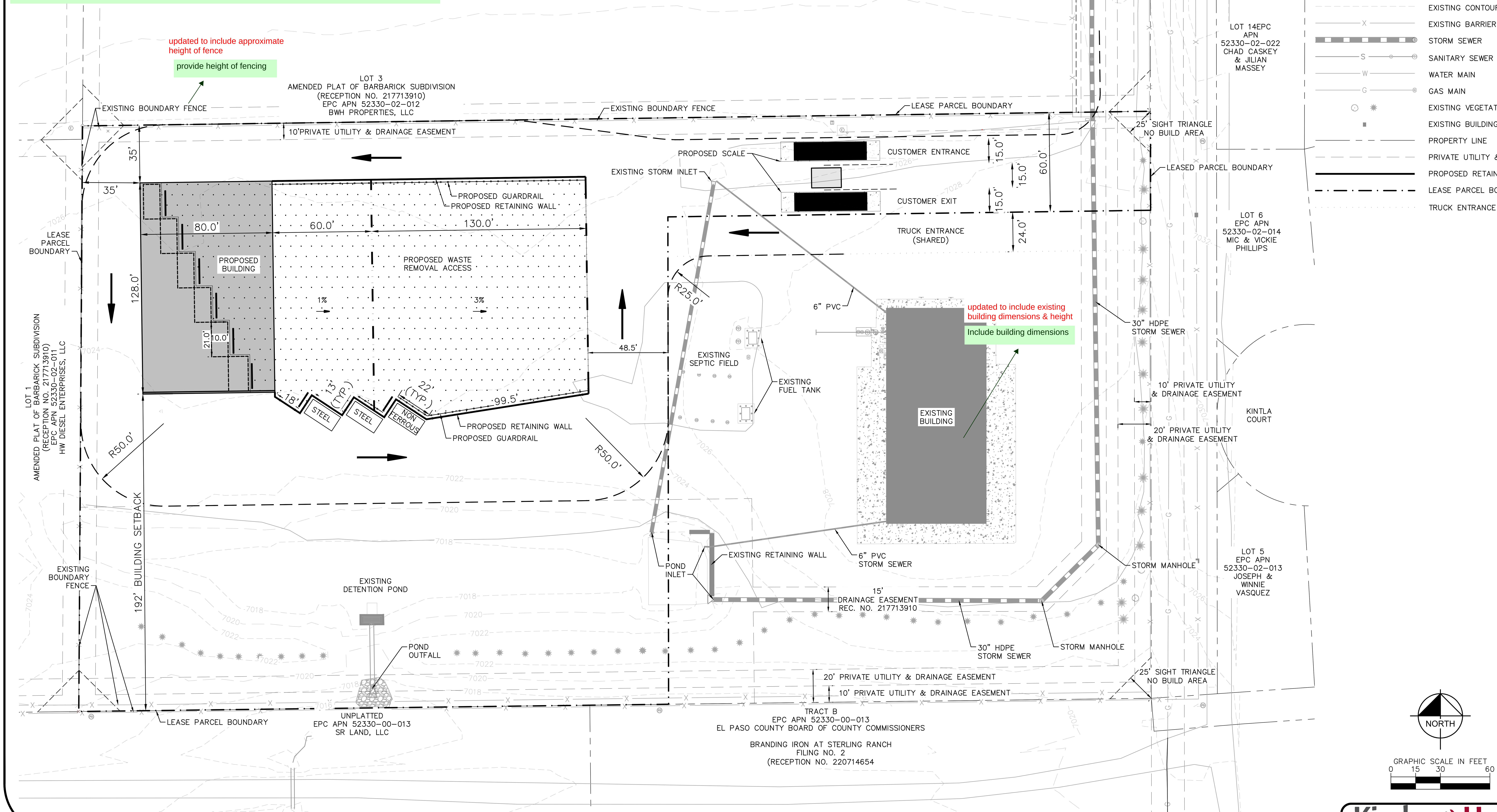
COMMENT RESPONSE 2-28-2023

BARBARICK WASTE TRANSFER STATION

SITE PLAN EXHIBIT - ALTERNATIVE A

Please include:
- -location and dimension of rights of ways Updated to indicate Cliff Allen Pt (Private Dr)
- -dimensions of property lines Updated to include dimensions of property line/lease boundary
- -location and width of side walks (if applicable, if not please specify) n/a
- -location of lay out of off street parking, loading and other vehicular use areas (if applicable, if none, please specify) n/a - no offstreet parking, loading, etc.
- -location of ada parking spaces, ramps and pathways n/a
- -location height and intensity of outdoor illumination n/a - No outdoor illumination is proposed for the site. Exterior lighting for transfer station building is anticipated.
- -location and screening of all dumpsters n/a - Removal bins to be located per site plan
- -existing/proposed land use parcel size and zoning updated to include land use, parcel size, and zoning
- -% of open space, landscaping, and lot coverage updated to call out proposed landscaping (trees), as well as percent of open space and approximate impervious lot coverage
- -parking table showing required vs provided Parking requirement not listed for this use in the LDC. No proposed parking. Customers to pull up to removal bay, remove waste/recyclable materials, and exit the facility
- -owner/applicant contact info (provided on aerial image, please add here too) Owner/applicant contact info included

The following note should be added to all site development plans or non-residential site plans, as applicable, prior to PCD approval:
The parties responsible for this plan have familiarized themselves with all current accessibility criteria and specifications and the proposed plan reflects all site elements required by the applicable ADA design standards and guidelines as published by the United States Department of Justice. Approval of this plan by El Paso County does not assure compliance with the ADA or any regulations or guidelines enacted or promulgated under or with respect to such laws.



LEGEND

	EXISTING GRAVEL ROAD
	EXISTING CONTOUR (MAJOR)
	EXISTING CONTOUR (MINOR)
	EXISTING BARRIER FENCE
	STORM SEWER
	SANITARY SEWER (SEPTIC)
	WATER MAIN
	GAS MAIN
	EXISTING VEGETATION
	EXISTING BUILDING COLUMN
	PROPERTY LINE
	PRIVATE UTILITY & DRAINAGE EASEMENT
	PROPOSED RETAINING WALL
	LEASE PARCEL BOUNDARY
	TRUCK ENTRANCE (SHARED)

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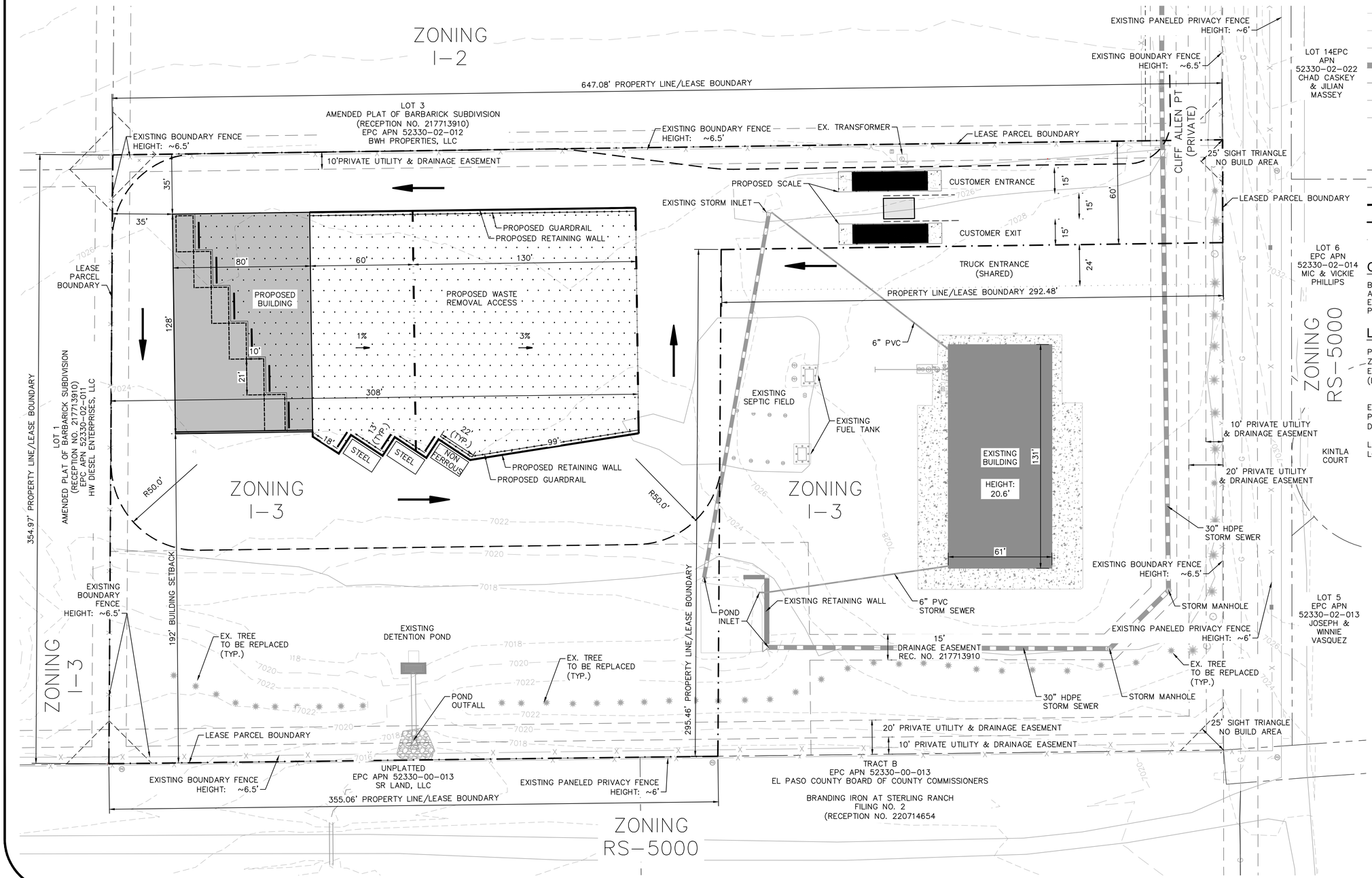
BARBARICK WASTE TRANSFER STATION

SITE PLAN EXHIBIT - ALTERNATIVE A



LEGEND

- EXISTING GRAVEL ROAD
- EXISTING CONTOUR (MAJOR)
- EXISTING CONTOUR (MINOR)
- EXISTING BARRIER FENCE
- STORM SEWER
- SANITARY SEWER (SEPTIC)
- WATER MAIN
- GAS MAIN
- EXISTING VEGETATION
- EXISTING BUILDING COLUMN
- PROPERTY LINE
- PRIVATE UTILITY & DRAINAGE EASEMENT
- PROPOSED RETAINING WALL
- LEASE PARCEL BOUNDARY
- TRUCK ENTRANCE (SHARED)

OWNER/APPLICANT

BR 8812 CLIFF ALLEN POINT LLC
ATTN: RICHARD GRAHAM
EMAIL: GRAHAMINVESTMENTS@GMAIL.COM
PHONE: 719-440-9414

LEASE PARCEL INFORMATION

PARCEL SIZE: 3.297 ACRES (143,638 S.F.)
ZONING: I-3 (HEAVY INDUSTRIAL)
EXISTING LAND USE: DIESEL MECHANIC SHOP / STORAGE YARD (LARGE VEHICLES, FREIGHT CONTAINERS, ETC.)

EXISTING SITE COVERAGE: GRAVEL/ASPHALT MILLINGS AND NATURAL PASTURE/MEADOW VEGETATIVE COVER WITHIN THE EXISTING DETENTION POND EASEMENT (RECEPTION NO. 217713910)

LANDSCAPING / OPEN SPACE: ~30% (44,001 S.F. OR 1.01 ACRES)
LOT COVERAGE (BUILDING & ACCESS): ~25% (36,461 S.F.)

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

Kimley»Horn

2 N. NEVADA AVE, SUITE 300, COLORADO SPRINGS, CO 80903
PHONE: 719-453-0180

Miranda Benson2

From: Joe Vasquez <vasquezjw@gmail.com>
Sent: Wednesday, April 12, 2023 12:28 PM
To: PCD Hearings
Cc: Joe Vasquez
Subject: FILE NAME: BOA232 Parcel: 52330002013

Joseph Vasquez
Cell # 719-663-1527
Reference: BOA232, BR8812 Cliff Allen Point LLC
8812 Cliff Allen Pt, COS, CO 80908

Dear Board of Adjustment,

I live at 8257 Kintla Ct, located adjacent to where the above recycling facility project is to be built. I oppose the granting of a dimensional variance due to:

1). Safe buffer must be maintained between full-time residents (me and others) and the recycling facility where there could be potential for an environmental disaster. **Safe buffer zone between an I3 zone facility and residences is the main premise of the standard (5.2.59.E.1.g).**
2). The I-3 zone's current buffer of 100 feet is the very minimum safe distance. Shrinking this safe zone creates 24/7 unnecessary risks to residents -more than those who work at the facility.
3). Vermin and other unwanted infestations have more opportunities to expand to residential units with less buffer; 100 feet vice 35 feet.
4). With a closer industrial facility to residences, noise and dust are also closer to negatively affect residents' daily lives.
5). A fire producing toxic gas is currently raging where 2,000 people are being evacuated from around a **recycling facility** in Richmond, Indiana. These cases are often unpredicted, spontaneous and explosive. A safe buffer will save lives.

Thank you for hearing my side on this matter.

--
Best,
Joe Vasquez

Ashlyn Mathy

From: James Morley <jmorley3870@aol.com>
Sent: Tuesday, April 18, 2023 11:13 PM
To: Kari Parsons; Andrea Barlow; Jennifer Shagin; Mike Bramlett; dstimple@classichomes.com; Loren Moreland; ca; ehowardpc@gmail.com; peggy.libbey@gmail.com; peter10morley@gmail.com; Lori Seago
Cc: Ashlyn Mathy

Kari, Ashlyn, The developers, builders, and residence of Sterling Ranch are very concerned about the " Dimensional Variance Barbarick Transfer Station BOA Setback ". We fought this landowner when he first bought this site and tried to slide the trash transfer station by us and the County 5 or 6 years ago. He changed his use to a truck maintenance garage instead of trash transfer station. There will be houses within 200 feet of this structure if approved. There is also be a concrete trail, which is already installed that will abut the trash transfer station property line. Just what we don't need in a residential neighborhood are trash trucks coming and going all day as well as the smell of trash within a couple of hundred feet of residents. I would like to go on record that we strongly disapprove of this use.
Thanks,
Jim Morley