10/17/2022 **PLANNING COMMISSION AGENDA** 6:30 p.m.

****HYBRID COUNCIL CHAMBERS & VIRTUAL MEETING****

210 W. 6TH AVE, KENNEWICK WA 99336

1. **CALL TO ORDER:**

    a. Roll Call/Pledge of Allegiance

2. **CONSENT AGENDA:** All matters listed within the Consent Agenda have been distributed to each member of the Kennewick Planning Commission for reading and study. They are considered routine and will be enacted by the one motion of the Commission with no separate discussion. If separate discussion is desired, that item may be removed from the Consent Agenda and placed on the regular agenda by request.

    a. Approval of the Minutes dated September 19, 2022
    b. Approval of Agenda
    c. Motion to enter Staff Report(s) into Record

3. **PUBLIC HEARING**:

    a. Comprehensive Plan Amendment (CPA) #2022-0001 from Commercial (C) to High Density Residential (HDR), located at 11358 W. Clearwater Avenue.

    b. Comprehensive Plan Amendment (CPA) #2022-0003 for City initiated Comprehensive Plan text amendments to update tables and statistics. ****WITHDRAWN****

    c. Comprehensive Plan Amendment (CPA) #2022-0004 from Commercial (C) to High Density Residential (HDR), located at 8428 Bob Olson Parkway.

    d. Comprehensive Plan Amendment (CPA) #2022-0006 from Commercial (C) to High Density Residential (HDR), located at 8224 Bob Olson Parkway.

4. **VISITORS NOT ON AGENDA**:

5. **OLD BUSINESS**:

    a. City Council Action Updates

6. **NEW BUSINESS:**

7. **REPORTS, COMMENTS, OR DISCUSSION OF COMMISSIONERS AND STAFF**:

8. **ADJOURNMENT**:

KENNEWICK PLANNING COMMISSION
SEPTEMBER 19, 2022
MEETING MINUTES

CALL TO ORDER

Chairman Morris called the meeting to order at 6:30 p.m.

Commissioner Gregory led the Pledge of Allegiance.

Chairman Morris made the following statement:

"Tonight's meeting will be conducted through a hybrid platform which allows commissioners and the public to participate in the meeting both in person and through an online meeting platform. Should an individual Planning Commissioner become unexpectedly disconnected from the virtual platform, please rejoin the meeting at your first opportunity. The record will reflect your attendance. The meeting will proceed so long as a quorum of Planning Commissioners are present. Please activate your mute button when not speaking".

Community Planning Administrative Assistant Melinda Didier called the roll and found the following present:

Present: Commissioner Tina Gregory, Vice Chairman Clark Stolle, Chairman Victor Morris, (*all in person*) Commissioner Nikki Griffth, (*remotely*).

Excused: Commissioners Thomas Helgeson, James Hempstead, Ken Short

Unexcused: None

Staff: Anthony Muai, AICP Planning Director; Steve Donovan, AICP Planning Manager, Sorin Juster, Transportation Manager, Melinda Didier, CPT Community Planning Administrative Assistant/Recorder.

A quorum was met with three commissioners in person and one remotely.

Chairman Morris made the following statement:

"Next item is the Approval of the Consent Agenda. All matters listed within the Consent Agenda have been distributed to each member of the Kennewick Planning Commission for reading and study, are considered to be routine, and will be enacted by one motion of the Planning Commission with no separate discussion**."**

Chairman Morris called for a motion to approve the Consent Agenda.

Vice Chairman Stolle moved to approve the Consent Agenda; Commissioner Gregory seconded the motion.

** At this point in the meeting, Commissioner Griffith briefly lost her virtual connection and did not hear Chairman Morris restate the motion. Commissioner Griffith regained*

her online connection, Chairman Morris restated the motion and the second. The motion passed unanimously on a roll call vote.

CONSENT AGENDA

a. Approval of Agenda
b. Approval of August 15, 2022 Minutes
c. Motion to enter Staff Report(s) into the Record

PUBLIC HEARING(S):

Chairman Morris made the following statement:

Good evening and welcome to the September 19, 2022 Kennewick Planning Commission meeting:

It's important that everyone who wishes to do so has an opportunity to speak. Each person who has either signed-in (in person) or registered (via Zoom) will have one three-minute opportunity to address the Planning Commission.
If you are attending Via Zoom, please confirm your microphone has been unmuted before you begin your comments.
Please state your name and address for the record; once you begin your remarks the countdown timer will start. At the end of your time, please mute your microphone.
The order of the hearing shall be as follows:

1. Planning staff shall provide a staff report; the Commission may ask questions of staff;
2. The applicant or applicant's representative(s) presentation;
3. Testimony in FAVOR of the request;
4. Testimony either NEUTRAL or AGAINST the request;
5. Final APPLICANT comments;
6. Final staff comments;
7. Close the public hearing and discuss the request.

PUBLIC HEARINGS

Chairman Morris opened the public hearing at 6:37 pm for Comprehensive Plan Amendment (CPA) #2022-0005 proposing to change the land use designation for approximately 4.31 acres from Low Density Residential (LDR) to High Density Residential (HDR), and change 33.93 acres from Low Density Residential (LDR) to Medium Density Residential (MDR). The proposal is located at 2701 & 2711 S. Sherman Street. Applicant and property owner is Jose Chavallo & Tammy Steele-Chavallo, 5927 W. Quinault Avenue, Kennewick, WA 99338.

Mr. Donovan gave a brief overview of the staff report, and shared a Power Point presentation of the staff report; he also summarized the written comments received regarding the proposal.

Planning Commission questions: Verifying staff recommendation of denial of the proposal (yes); were there any comments received in favor of the request (no); was anyone in favor of one of the zoning requests versus the other.

Testimony of Applicant/Applicant's Representative:

Paul Christensen
Benton City

Project in the works for decades; the proposal is the best fit for the beautiful location and views; in support of proposal.

Testimony in Favor of the Request:

Jose Chavallo, Owner
5927 W. Quinault Avenue
Kennewick

Worked with the City for decades on the proposal; location is available anytime for surrounding property owners to visit, beautiful location and views; support the current proposal.

Testimony Neutral/Against the Request:

Dominic Sansotta
6925 W. 23rd Ct.
Kennewick

Bill Dixon
2500 S. Irving St.
Kennewick

Susan Dixon
2500 S. Irving St.
Kennewick

Monte LaDow
2643 S. Kellogg St.
Kennewick

Ron Mabry
2525 S. Irving St.
Kennewick

Gerry Berges
5311 W 25th Ave.

Kennewick

Don Barnes
2616 S. Kellogg St.
Kennewick

*Mary Weir
610 W. 26th Pl.
Kennewick

* Mary Weir withdrew her opportunity to comment and said she agreed with the previous comments against the proposal.

Sharon Isotalo
2719 S. Irving St.
Kennewick

Robin Duncan
5806 W. 25th Avenue
Kennewick

Jim Foster
6009 W. 26th Avenue
Kennewick

John Crosby
5300 W. 25th Avenue
Kennewick

Summary of comments and concerns with the request included potential impacts due to increased traffic, incompatibility with adjacent properties, steep slopes, providing utilities, storm water, and possible future uses.

Testimony of Those Registered on Virtual Format:

None

Chairman Morris asked for anyone present in the Council Chambers or online that did not have an opportunity to testify either in favor or neutral/against the proposal if they wished to do so; there were none.

Chairman Morris asked for final applicant/owner comments:

Applicant/Owner Final Testimony:

Paul Christensen
Benton City

Project in the works for decades; the proposal is the best fit for the beautiful location and views; in support of proposal; all the dirt that was moved was a City project for the reservoir, not our project; going to high density/medium density – property south is currently medium density; the only zoning that allows the hotel is high density, which is our goal for the top; there is already noise and traffic there with the existing high school, hotels and .hospital at Southridge area; what we have presented is what we have been directed to do from staff.

Staff Final Comments:

None

Public Testimony for CPA-2022-0005 closed at 7:42 p.m.

Chairman Morris asked for a motion.

Chairman Morris asked if any commissioner has additional questions of staff prior to a motion.

Additional Commissioner Questions of Staff:

Was the application denial from day one; confusion on when denial was recommended; if it was all just residential, how many houses could we fit up there.

Chairman Morris asked for a motion.

Vice Chairman Stolle moved to concur with the findings and conclusions in staff report CPA-2022-0005 and forward a recommendation to City Council DENIAL of the request.

Commissioner Griffith seconded the motion.

Planning Commission Discussion: Vice Chairman Stolle commented to follow up on the motion that he made, staff has done a good job with the staff report it is consistent with zoning and comp plan and forethought the City put into it; Chairman Morris commented on the high density proposal in the smaller area; appreciated the applicant for efforts to try to make the proposal more compatible for the neighboring properties; staff has done a good job with their report. Commissioner Gregory agreed with the staff doing a good job; has compassion with the surrounding properties and the effect on them; strongly disagrees with the apartment aspect of the proposal.

The motion passed on a unanimous roll call vote.

Chairman Morris opened the public hearing at 7:49 pm for Council Ward Boundary Re-Districting proposing adjustments to its ward boundaries, where needed, to ensure that each district contains approximately equal population and preserves existing communities of related mutual interest.

Chairman Morris thanked all who turned out to comment on the previous proposal and called for a brief recess to allow people to exit.

Mr. Muai reviewed the staff report for the Council Ward Boundary Re-Districting, displayed a Power Point of the proposal, and asked for any questions of staff.

Commissioner Questions of Staff:

How long do these re-districting boundaries remain in effect; the process to “jog” the boundaries to make them uniform; how do people that are placed in a different ward learn of that; what level of refinement does the census data provide you; does this also impact the Port of Kennewick districts.

Testimony in Favor of the Request:

None

Testimony Neutral/Against the Request:

None

Final Staff Comments:

None

Public Testimony for Council Ward Boundary Re-Districting closed at 8:01p.m.

Chairman Morris asked for a motion.

Commissioner Gregory moved to concur with the findings and conclusions in staff report Council Ward Boundary Re-Districting and forward a recommendation to City Council APPROVAL of the request.

Vice Chairman Stolle seconded the motion.

Planning Commissioner Discussion:

None

Motion approved unanimously on a roll call vote.

<u>VISITORS NOT ON AGENDA:</u>

None

OLD BUSINESS:

a. City Council Action Updates: 2022 Comprehensive Plan Amendment City Council will have a workshop on 9/27 for CPA's -0005, -0008, -0010. City Council will make the decision on those on October 4th; Planning Commission will have public hearings for CPA -0001, -0003, -0004, -0006 on October 17th, on October 25th City Council will have their workshop on those four and their decision on November 1st.

NEW BUSINESS:

None

REPORTS, COMMENTS, OR DISCUSSION OF COMMISSIONERS AND STAFF:

Chairman Morris will be on a business trip on October 3rd.

ADJOURNMENT:

The meeting concluded at 8:06 p.m.

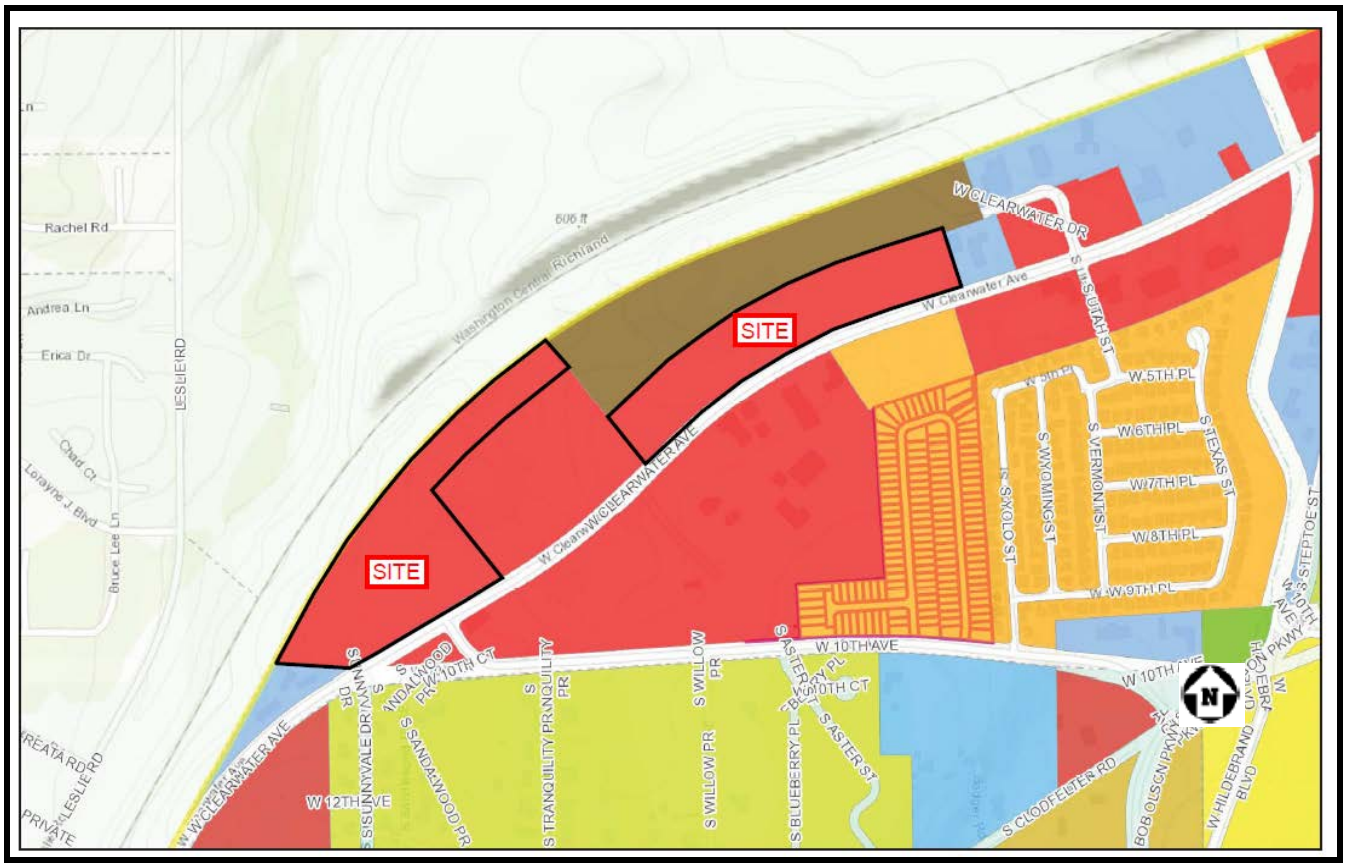
Community Planning Department
210 W 6th Avenue
Kennewick, WA 99336
Phone: (509) 585-4561

Comprehensive Plan Amendment CPA-2022-0001

REQUEST: Change 25.41 acres from Commercial to High Density Residential.

APPLICANT: Knutzen Engineering, c/o Nathan Machiela

OWNER: Tom & Vicki Solbrack



Not to scale

SITE INFORMATION

- ***Size:*** 25.41 acres
- ***Location:*** 11358 W Clearwater Ave
- ***Topography:*** Rolling with slight south-western descent
- ***Existing Comprehensive Plan Designation:*** Commercial
- ***Existing Zoning:*** Commercial, Community (CC)
- ***Existing Land Use:*** Vacant Land

EXHIBITS

- **Exhibit A-1:** Aerial Map
- **Exhibit A-2:** Land Use Map
- **Exhibit A-3:** Application
- **Exhibit A-4:** Environmental Determination
- **Exhibit A-5:** Bonneville Power Administration Comments
- **Exhibit A-6:** Kennewick Irrigation District Comments
- **Exhibit A-7:** Department of Archaeology and Historic Preservation Comments
- **Exhibit A-**8: Memorandum from Emily Estes-Cross, Economic Development Director
- **Exhibit A-9:** City of Kennewick Employment Lands Inventory

APPLICATION PROCESS

- Application Submitted February 1, 2022
- Application routed for comments June 9, 2022
- Determination of Non-Significance was issued on July 18, 2022
- Appeal Period for the DNS ended August 1, 2022
- Notice of Public Hearing was posted at the site on July 29, 2022.
- Notice of Public Hearing published July 31, 2022
- Notice of Notice Hearing mailed August 1, 2022
- August 15, 2022 Hearing was continued to October 17, 2022.

SURROUNDING COMPREHENSIVE PLAN, ZONING AND LAND USES

North	Richland
South	Comprehensive Plan – Commercial and Medium Density Residential Zoning – Commercial, Community (CC), Commercial, General (CG), Residential, Medium (RM) Existing Land Uses – Offices/Retail, Religious Services, Private School, and Vacant
East	Comprehensive Plan – Industrial and Commercial Zoning – Industrial, Light (IL) and Commercial, Community (CC) Existing Land Uses – Auto Services, Warehouse/Contractor Yard
West	Comprehensive Plan – Industrial and Richland Zoning – Commercial, Community (CC) Existing Land Uses – Vacant

REGULATORY CONTROLS

- City of Kennewick Comprehensive Plan
- Kennewick Municipal Code Title 4
- Kennewick Municipal Code Title 18

DESCRIPTION OF REQUEST

The applicant has requested to change the land us designation of 25.41 acres, which consists of a 14.21-acre parcel and 11.2-acre parcel, from Commercial to High Density Residential.

COMPLIANCE WITH TITLE 4 (ADMINISTRATIVE PROCEDURES)

KMC 4.12.110(7): Approval Criteria. The City may approve Comprehensive Plan Amendments and area-wide zone map amendments if it finds that the request meets one or more of the following:

1. The proposed amendment bears a substantial relationship to the public health, safety, welfare, and protection of the environment;
   The proposed amendment will not allow the property to be rezoned to a zoning district that will permit uses that may have the potential to negatively affect the public health, safety, welfare and protection of the environment.

2. The proposed amendment is consistent with the requirements of Chapter 36.70A RCW and with the portion of the City's adopted comprehensive plan not affected by the amendment;
   This amendment is consistent with the requirements of Chapter 36.70A RCW and with the portion of the City's adopted comprehensive plan not affected by the amendment.

3. The proposed amendment corrects an obvious mapping error; or
   This request does not correct a mapping error.

4. The proposed amendment addresses an identified deficiency in the Comprehensive Plan.
   The City of Kennewick's 2017-2037 Comprehensive Plan Table 2 shows that the City has a surplus of 91.5 acres for Commercial lands and deficit 159.2 acres for High Density Residential lands. The surplus of Commercial and deficit High Density Residential have been reduced by amendments made to the plan since it was completed in 2017.

   Although the City has a surplus of land designated Commercial, 10+ acre parcels with direct access onto an arterial are not common in the City. Due to the size and location of the parcels, they have the potential to provide for a large-scale commercial development that can provide the services needed to support residential development in the W Clearwater Avenue area see Exhibits A-8 and A-9.

KMC 4.12.110(8): Additional Factors. The City must also consider the following factors prior to approving Comprehensive Plan Amendments:

1. The effect upon the physical environment;
   Grading and clearing of vegetation will have to take place at the site for future development.

2. The effect on open space and natural features including, but not limited to topography, streams, rivers, and lakes;
   The site does not contain any designated open space, but slopes greater than 15% are along the northwest perimeter of the site. No negative impacts are anticipated from the proposed amendment or future development. Adequate measures within the Kennewick Municipal Code exist to mitigate any possible negative impacts to the natural environment.

3. The compatibility with and impact on adjacent land uses and surrounding neighborhoods;
   The proposed amendment is compatible with the surrounding land uses, all of the properties are zoned Commercial which is compatible with High Density Residential.

   Staff is concerned that once the larger commercial tract of land changes its land use designation, it will be difficult to replace it with a like property. Future residents of the adjacent area will need commercial and retail services that can provide for the various needs.

4. The adequacy of, and impact on community facilities, including utilities, roads, public transportation, parks, recreation, and schools;
   The future development of the site is required to provide infrastructure improvements to ensure adequacy of community facilities. Public transportation facilities and parks, needed for High Density Residential, are not currently in the adjacent area of the site.

5. <u>The quantity and location of land planned for the proposed land use type and density and the demand for such land;</u>
   There is a demand for more multi-family residences in Kennewick. It is unknown if approval of the proposed amendment will most likely result in a higher density than what would occur under the current land use designation. Commercial Lands may have multi-family mixed-use developments on them with no maximum density.

   Due the size and location of the site, it has the potential to accommodate future commercial/retail services needed by surrounding residents. Based on the City of Kennewick Employment Lands Inventory, it will be difficult to the replace the loss of commercial land with something that has similar size, location and access.

6. <u>The current and projected project density in the area; and</u>
   No maximum density exists for the current land use designation and the proposed land use designation has a maximum density of 27 units/acre.

7. <u>The effect, if any upon other aspects of the Comprehensive Plan.</u>
   The proposed change will not affect any other aspects of the Comprehensive Plan.

<u>PUBLIC COMMENT</u>

Staff has received no public comment concerning the proposal to date.

<u>AGENCY COMMENTS</u>

Comments were receive from Bonneville Power Administration (Exhibit A-5) and Kennewick Irrigation District (Exhibit A-6)

<u>ANALYSIS OF REQUEST</u>

This request is to amend the land use designation for 25.41 acres. Maximum density permitted for the site is 686 units. The parcel has street frontage on Clearwater Avenue, 10th Avenue is being realigned and will have a controlled intersection.

Staff has reviewed the comprehensive plan and City of Kennewick Employment Lands Inventory and determined that it would not be in the interest of the public to change the land use designation of such large parcels from Commercial to High Density Residential. Approval of the amendment would limit the ability to provide commercial and retail services that need larger parcels in order to operate.

Staff's review to the comprehensive plan has determined that the following goals and polices provides a basis to deny the request:

GOAL 2: Sustain and enhance viable commercial areas.
POLICY
1. Encourage a mixture of commercial, office and residential uses within commercial centers to support day and evening activities for all ages.

GOAL 3: Create a balanced system of commercial facilities reflecting neighborhood, community, and regional needs.
POLICY
1. Provide commercial areas sized and scaled appropriately for the neighborhood and community.

In addition to the comprehensive plan review, the City of Kennewick Employment Lands Inventory has determined that it will be difficult to replace commercial lands that are 10-acres and greater with good access onto arterial roads.

FINDINGS

1. The applicant is Knutzen Engineering c/o Nathan Machiela, 5401 Ridgeline Dr Unit 160, Kennewick, WA 99338.
2. The owner is Tom & Vicki Solbrack, 2555 W Highway 24 Othello, WA 99344.
3. The request is to change the site's land use designation from Commercial to High Density Residential.
4. The application was received on February 1, 2022 and was routed for review to various City Departments and other local, state and federal agencies for comment on June 9, 2022.
5. The site is served by City water and sewer utilities in W Clearwater Ave.
6. Access to the site is from W Clearwater Ave
7. The proposed amendment is adjacent to Industrial, Commercial, and Medium Density Residential designated lands.
8. A Determination of Non-Significance was issued for this application on July 18, 2022. The appeal period for the determination ended on August 1, 2021.
9. A public hearing notification sign was posted on site July 29, 2021.
10. Notice of the public hearing for this application was published in the Tri-City Herald on July 31, 2021. Notices were mailed to property owners within 300 feet of the site on August 1, 2021.
11. At the August 15, 2022 Planning Commission Hearing, staff requested that the hearing be continued to October 17, 2022, to allow for the completion of a Commercial Lands and Market Analysis.
12. The proposed amendment will not allow the property to be rezoned to a zoning district that will permit uses that may have the potential to negatively influence the public health, safety, welfare and protection of the environment.
13. This amendment is consistent with the requirements of Chapter 36.70A RCW and with the portion of the City's adopted comprehensive plan not affected by the amendment.
14. The proposed amendment does not correct an obvious mapping error.
15. This request will has a minimal impact on addressing the identified deficiency in the Comprehensive Plan.

CONCLUSIONS

1. Pursuant to Chapter 4.08 of the Kennewick Municipal Code, the lead agency has determined that the proposed amendment does not have a probable significant adverse impact on the environment.
2. The proposed amendment will change the land use designation for a 25.41-acre portion of the subject parcel from Commercial to High Density Residential.
3. The proposed loss of Commercial Land may influence the ability to provide commercial and retail services to the public in the area.
4. The proposed amendment is consistent with the City of Kennewick Comprehensive Plan and will have minimal impact on other aspects of the plan.
5. The proposed amendment will permit an increase to residential densities in the area.
6. Future development of the site has the potential to affect will influence the traffic and park system.

Recommendation

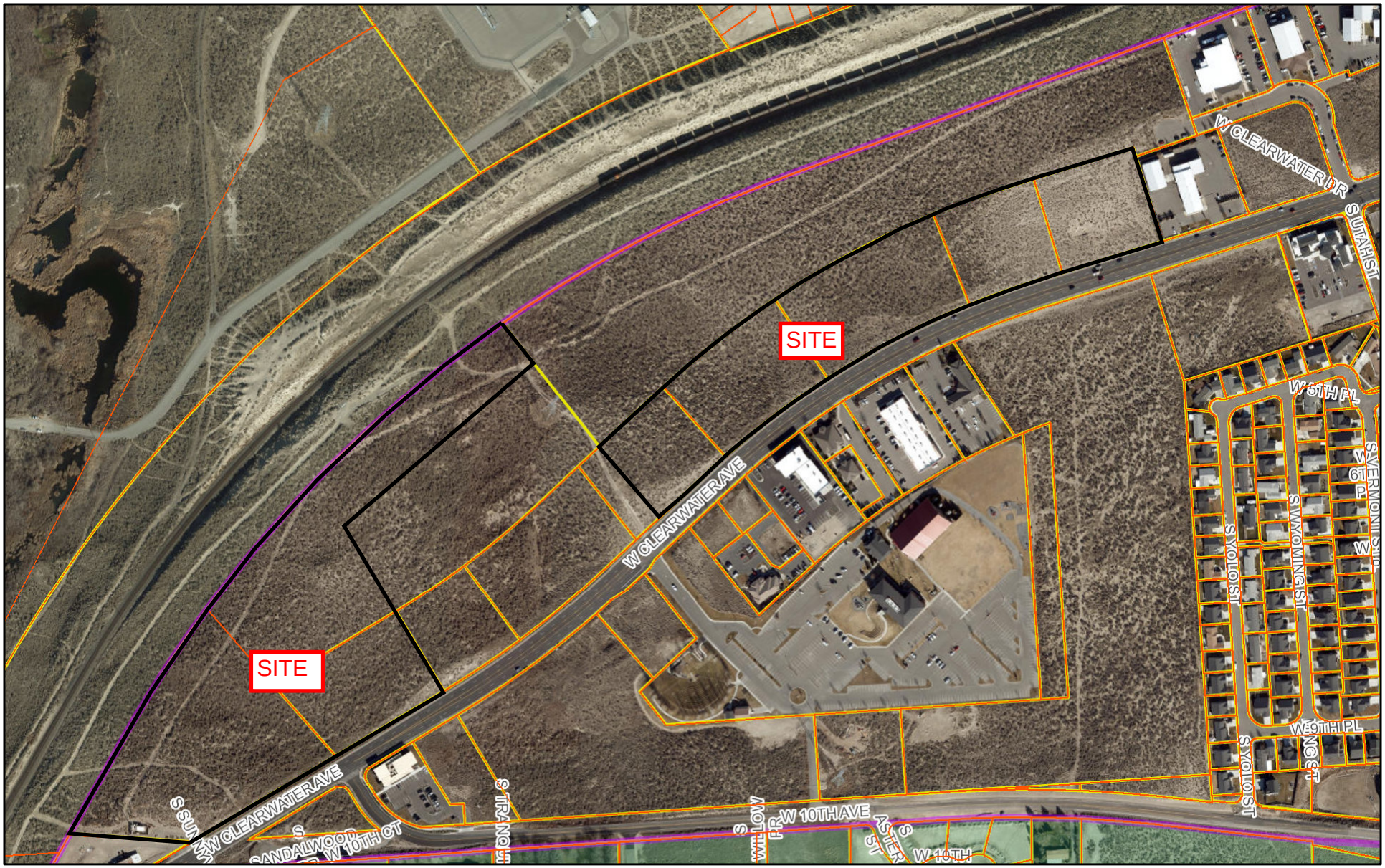
Staff recommends that the Planning Commission concur with the findings and conclusions of CPA-2022-0001 contained in the staff report and recommend denial to City Council.

Motion

I move that the Planning Commission concur with the findings and conclusions of CPA-2022-0001 contained in the staff report and recommend to City Council denial of the request.

Aerial Map

Exhibit A-1



1 inch = 400 feet 1:4,800

0 0.0375 0.075 0.15 mi

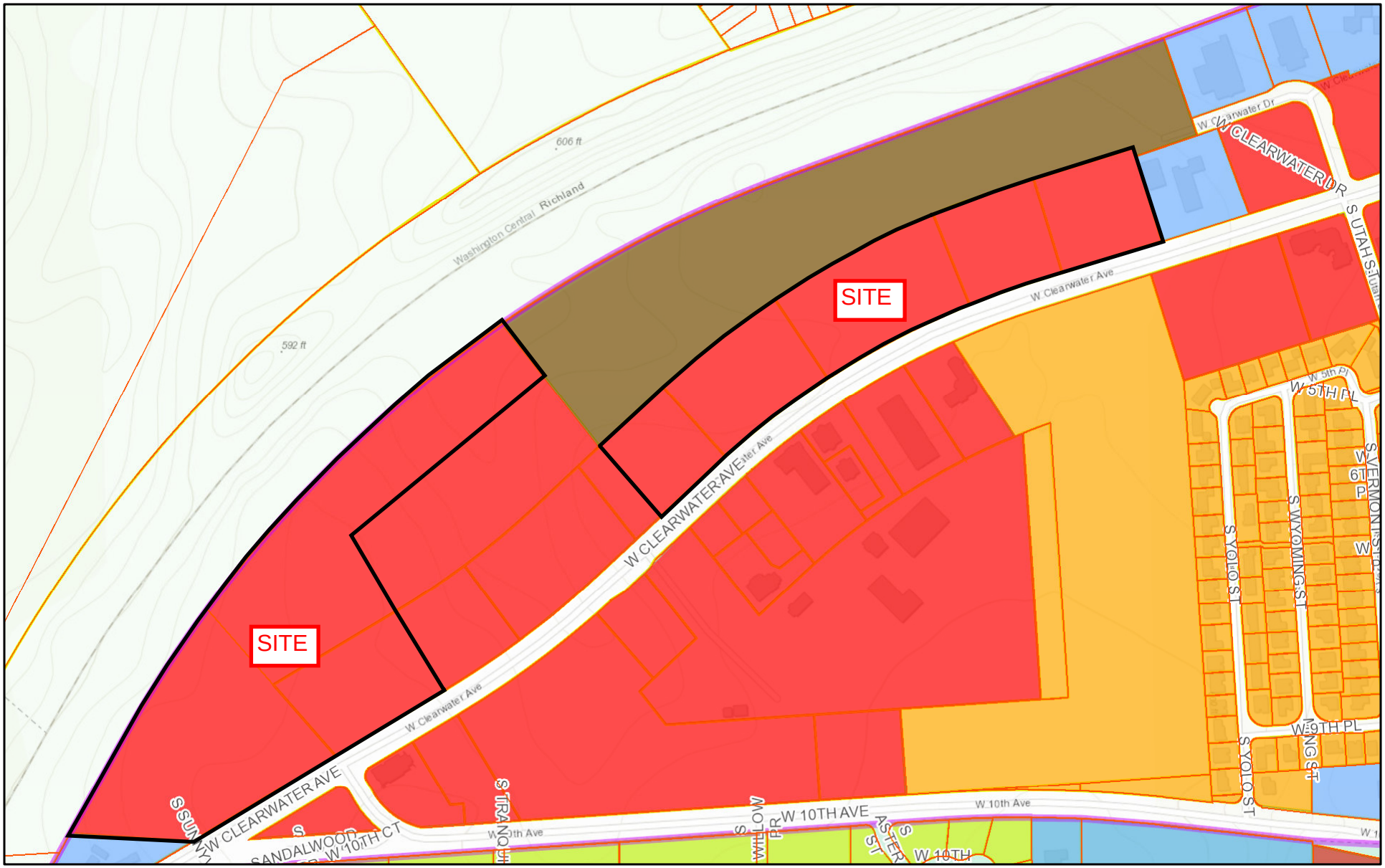
0 0.05 0.1 0.2 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp.,

ArcGIS WebApp Builder
City of Kennewick

Land Use Map

Exhibit A-2



1 inch = 400 feet 1:4,800

0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp.,

ArcGIS WebApp Builder
City of Kennewick

Exhibit A-3

CITY OF KENNEWICK
COMMUNITY PLANNING & DEVELOPMENT SERVICES
APPLICATION (general form)

PROJECT #_____-_____ PLN-_____-_____ FEE $_____

Please completely fill out this form and return it to Community Planning & Development Services, PO Box 6108, Kennewick, WA 99336, along with the application fee (see fee schedule). Attach a copy of the checklist for the land use application you are submitting. The application submittal must contain all of the information requested on the checklist in order to be processed. ***Incomplete applications will not be accepted.***

Check one of the following for the type of application you are submitting:

Site Plan Tier 1 ☐ Tier 2 ☐ Tier 3 ☐ Binding Site Plan ☐

Short Plat ☐ Conditional Use ☐ Other Comprehensive Plan Amendment

Environmental Determination PLN- _____ - _____ Pre Application Meeting PLN-_____-_____

Applicant: Nathan Machiela (Knutzen Engineering)

Address: 5401 Ridgeline Drive, Suite 160, Kennewick, WA 99338

Telephone: (509) 222-0959 Cell Phone:_____ Fax:_____ E-mail nathan@knutzenengineering.com

Property Owner (if other than applicant): Tom & Vicki Solbrack

Address: 2555 W Hwy 24, Othello, WA 99344

Telephone: (509) 989-0209 Cell Phone: _____ E-mail nathan@knutzenengineering.com

SITE INFORMATION

Parcel No. 1-0188-4BP-5063-001 Acres ~~17.82~~ 25.41 Zoning: CC

Address of property: 11358 W Clearwater Ave

Number of Existing Parking Spaces 0 Number of Proposed (New) Parking Spaces 0

Present use of property Undeveloped

Size of existing structure: 0 sq. ft. Size of Proposed addition/New structure: 0 sq. ft.

Height of building: 0 Cubic feet of excavation: 0 Cost of new construction 0

Benton County Assessor Market Improvement Value: ~~$1,091,530~~ $1,996,828

Description of Project: Amend the City of Kennewick Comprehensive Plan Designation from Commercial (C) to High Density Residential (HDR).

I, the undersigned, do hereby certify that, to the best of my knowledge, the information provided above is true and correct.

_____ Tom Solbrack

Applicant's Signature

Signature of owner or owner's authorized representative

Date: 1/31/2022

Comprehensive Plan Amendment Supplemental Information

The following questions will be reviewed by both the Planning Commission and City Council as a means of assisting in their consideration of the Comprehensive Plan Amendment request. Use additional pages if necessary.

1. State the requested amendment:

   Changing the ~~17.82-acre parcel 1-0188-4BP-5063-001~~ 25.41 total acres from commercial (C) to high density residential (HDR) in the City of Kennewick Comprehensive Plan.

2. What are the reasons for the requested amendment:

Much of the subject property is set back from Clearwater Ave and is not prime commercial property. While this property would not be able to be developed for commercial purposes, the owner also owns a significant amount of commercial property adjacent to Clearwater Ave that is available for sale. Due to the high demand for housing and being located near other residential developments, this property is better suited for residential development. This Comprehensive plan change would allow the owner to subdivide and develop the property into high density residential.

3. Which elements of the Comprehensive Plan will be affected and how. Include detailed information on the provision of utilities such as water, sewer, power, etc., and how such utilities correspond with the City's various utility plans. Detailed information must also be submitted regarding what effect the proposed change will have on such services as fire, police, parks, schools, etc:

The land use and housing elements of the Comprehensive Plan would be affected. This proposal would convert commercial property to high density residential, allowing the city to serve the high demand for housing. The additional housing would increase demand for public utilities, such as water and sewer, at the site but not more than the original commercial use. This would also slightly increase the demand for schools and parks in the area because of the increase in residents living in the area.

4. Indicate how the requested amendment will implement the Comprehensive Plan and be in the best interest of the Kennewick area, reference specific Comprehensive Plan policies that will be implemented:

The amendment implements Urban Area goal 2, Residential goals 1, 2, 3 and 4, Housing goals 1, 3 and Capital Facilities goals 1 and 3 of the comprehensive plan. The proposed amendment would enable the construction of a high density residential subdivision. The comprehensive plan states that the City is planning for a population increase of 32,924 by 2037. The proposed project would provide housing for the population increase. According to the City of Kennewick's Land Use Table #2 on pg 19 of the Comprehensive Plan, it states that commercial land is in a large surplus while high density residential is in a deficit. This plan amendment would help to distribute some of the existing commercial land to high density residential homes.

5. Include any other substantiated information in support of the requested amendment:

The proposed amendment is in conformance with existing land use in the area. The adjacent properties to the north east are existing single family residential developments which conforms to the proposed zoning for the City of Richland. There is approximately 33.81 acres of land designated for commercial use in the immediate vicinity along Clearwater Ave that is available for sale and development. This commercial land adjacent to Clearwater Ave will fulfill the demand for commercial develoment in the area for many years to come. A large portion of the subject parcel is currently at a disadvantage compared to the properties to the south of it. The properties to the south all have frontage along W Clearwater Ave whereas the subject parcel does not have the same access to the high traffic volume street.

CITY OF KENNEWICK
DETERMINATION OF NON-SIGNIFICANCE

FILE/PROJECT NUMBER: ED-2022-0008
DESCRIPTION OF PROPOSAL: Proposal to amend the Comprehensive Plan to change the Land Use from Commercial to High Density Residential
PROPONENT: Knutzen Engineering
LOCATION OF PROPOSAL, INCLUDING STREET ADDRESS, IF ANY: 11358 W Clearwater Ave

LEAD AGENCY: CITY OF KENNEWICK

DETERMINATION: The City of Kennewick has determined that this proposal does not have a probable significant adverse impact o the environment. An Environmental Impact Statement (EIS) will not be required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the City. This information is available to the public on request. Application for other required permits may require further review under SEPA procedures.

_**X**_ There is no comment period for this DNS.

_**_** This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

___ This DNS is issued under 197-11-340(2); the City will not act on this proposal for fifteen days

from the date below. Comments must be submitted by _____. After the review period has elapsed, all comments received will be evaluated and the DNS will be retained, modified, or withdrawn as required by SEPA regulations.

RESPONSIBLE OFFICIAL: Anthony Muai, AICP
POSITION/TITLE: Community Planning Director
ADDRESS: 210 W 6th Ave., P.O. Box 6108, Kennewick, WA 99336
PHONE: (509) 585-4463

_**X**_ Changes, modifications and /or additions to the checklist have been made on the attached Environmental Checklist Review.

This DNS is subject to the attached conditions:
_**X**_ No Condition(s).

Date: **7/18/2022** Signature:_____

****

Appeal: An appeal of this determination must be submitted to the Community Planning Department within fourteen (14) calendar days after the date issued. This appeal must be written and make specific factual objections to the City's threshold determination. Appeals shall be conducted in conformance with Section 4.12.090(9) of the Kennewick Municipal Code and the required fees pursuant to the City's adopted Fee Schedule shall be paid at time of appeal submittal.

Copies of this DNS were mailed to: CITY OF KENNEWICK ENGINEERING DEPT; Dept of Ecology; CTIUR; Yakima Nation, Environmental Determination; WS Dept of Fish & Wildlife, Benton County

A. BACKGROUND [help]

Evaluation for Agency Use Only

1. Name of proposed project, if applicable: [help]

11358 W Clearwater Comprehensive Plan Amendment and Rezone

2. Name of applicant: [help]

Nathan Machiela (Knutzen Engineering)

3. Address and phone number of applicant and contact person: [help]

5401 Ridgeline Drive Suite 160, Kennewick, WA 99338
(509) 222-0959

4. Date checklist prepared: [help]

1/31/2022

5. Agency requesting checklist: [help]

City of Kennewick

6. Proposed timing or schedule (including phasing, if applicable): [help]

City of Kennewick 2022 Comprehensive Plan Amendment docket and subsequent rezone

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. [help]

Following a comprehensive plan change, a change of zone application will be submitted to change the property to High Density Residential (RH). A future subdivision is expected to develop residential development.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. [help]

No environmental information has been prepared at this time or is expected to be prepared for this proposal.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. [help]

None known at this time.

10. List any government approvals or permits that will be needed for your proposal, if known. [help]

City of Kennewick Comprehensive Plan Amendment and a change of zone. Future residential development will require preliminary plat approval; City of Kennewick final plat approval; City of Kennewick building permit; City of Kennewick Grading Permit; General Construction Storm Water Permit (DOE); A future project specific environmental checklist; sign permits;

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.) [help]

The proposed comprehensive plan amendment and rezone covers the entire 17.82 acres of Benton County Parcel 1-0188-4BP-5063-001. The site is currently vacant and undeveloped. This proposal includes changing the City of Kennewick comprehensive plan designation from commercial (C) to high density residential (HDR). After the comprehensive plan is revised, a rezone is proposed from commercial (CC) to Residential High (RH). A residential subdivision with a density of 13-27 dwelling units per acre is the most likely development to take place at this site in the future.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. [help]

The proposal is located north of W. Clearwater Ave. The site address is 11358 W Clearwater Ave and the Benton County parcel number is 101884BP5063001.

Evaluation for Agency Use Only

B. ENVIRONMENTAL ELEMENTS [help]

Evaluation for Agency Use Only

1. Earth

a. General description of the site [help]
(check one): ☐ Flat, ☐ rolling, ☐ hilly, ☐ steep slopes, mountainous, ☑ other _____

Overall the property is gently sloping. Small portions to the north are steep slopes.

b. What is the steepest slope on the site (approximate percent slope)? [help]

The overall site does not exceed a slope of 15% at the steepest portion to the north.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. [help]

Hezel Loamy Fine Sand per the NRCS Web Soil Survey.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. [help]

There is no indication of unstable soils on the site.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill. [help]

None with this proposal. A future residential development would move approximately 40,000 CY of soil and cover the full 17.82-acre site. These numbers are subject to change depending on the direction of future development.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. [help]

Not with this proposal. Future development may give rise to the potential for erosion but best management practices will be utilized for the future development to prevent this from occurring.

Staff notes that appropriate erosion control measures shall be implemented.

May 2014

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? [help]

The impervious area will not change with this proposal. Future development may cover approximately 40% of the site based on similar developments. Impervious surface coverage will be consistent with City of Kennewick Development Standards.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: [help]

None with this proposal. Silt fencing, construction entrance, ground cover, waddles, and site watering for dust control may be used for future developments.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. [help]

Not applicable since no construction is associated with this proposal. Only the comprehensive plan change and rezone are proposed at this time. Future development may include dust emissions and emissions from construction equipment during construction. Long term emissions typical with residential development are likely to be

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. [help]

None known.

c. Proposed measures to reduce or control emissions or other impacts to air, if any: [help]

None at this time. Future development will comply with all Benton County Clean Air Authority requirements.

3. Water

a. Surface Water: [help]

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. [help]

There is no water body on or in the immediate vicinity of the site.

Evaluation for Agency Use Only

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2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. [help]

No.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. [help]

N/A.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. [help]

No.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. [help]

No.

Staff notes that the proposed project does not lie within a known floodplain.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. [help]

No.

b. Ground Water:

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known. [help]

No.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number

of animals or humans the system(s) are expected to serve. [help]

No waste material will be discharged.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. [help]

Runoff from future development will likely come from impervious surfaces such as asphalt, concrete and residential homes. All stormwater that may be generated due to future development will likely be collected and infiltrated within a stormwater easement and in

2) Could waste materials enter ground or surface waters? If so, generally describe. [help]

This will be addressed more specifically in a future environmental checklist associated with project actions of a future development. It is important to note however that well logs in the vicinity indicate the static groundwater level is approximately 68 feet below the ground surface, therefore the site is not at an increased risk of contamination. All runoff generated

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

Not applicable. Only the Comprehensive Plan change and rezone are proposed at this time. Future development will include stormwater facilities that will closely mimic the existing drainage patterns.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any: [help]

Future development will fully contain all run off on site and use infiltration which will best mimic the natural predeveloped conditions. The storm water disposal system will be designed and approved by a licensed civil engineer and submitted for review and approval by the City of Kennewick.

4. Plants [help]

a. Check the types of vegetation found on the site: [help]

deciduous tree: ☐ alder ☐ maple ☐ aspen ☐ other
evergreen tree: ☐ fir ☐ cedar ☐ pine ☐ other

shrubs ☑

grass ☐

pasture ☐
crop or grain ☐
☐ bullrush
Orchards, vineyards or other permanent crops. ☐
wet soil plants: ☐ cattail ☐ buttercup
skunk cabbage ☐

other water plants: ☐ water lily ☐ eelgrass ☐ milfoil
other types of vegetation ☐

b. What kind and amount of vegetation will be removed or altered? [help]

None with this proposal. Future development will remove native grasses, weeds, plants and trees. Removal of vegetation will occur during the grading and clearing operations of a future development.

Staff notes that if existing trees are damaged or removed, they will be replaced with like-kind in complaince with KMC 18.21 and any previous landscaping conditions as applicable.

c. List threatened and endangered species known to be on or near the site. [help]

None known according to the Washington Department of Natural Resource GIS data.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: [help]

None with this proposal. Any landscaping for future developments will be consistent with City of Kennewick landscaping requirements.

Staff notes that all landscaping will be done in compliance with KMC 18.21 and the Commercial Design Standards or any previous landscaping conditions as applicable

e. List all noxious weeds and invasive species known to be on or near the site.

None known according to the WSDA Noxious Weeds Data Viewer.

5. Animals

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include: [help]

birds: ☑ hawk ☐ heron ☐ eagle ☐ songbirds ☐ other:

mammals: ☐ deer ☐ bear ☐ elk ☐ beaver ☐ other:

fish: ☐ bass ☐ salmon ☐ trout ☐ herring ☐ shellfish ☐ other ✔ Comp Plan Amendment

b. List any threatened and endangered species known to be on or near the site. [help]

Townsends Squirrel is a candidate to be threatened species and the Ferruginous Hawk is a threatened species all near the site according to the Washington State Department of Fish and Wildlife. While the WDFW lists the Ferruginous Hawk as a threatened species at this site, it is important to note that this data has a display resolution at the township level which is an

c. Is the site part of a migration route? If so, explain. [help]

Yes, the Columbian Basin is part of a migration route for several species of fowl.

Staff notes that the whole of the Columbia River Basin region is within a migration route, however, no impacts to specific migration routes are anticipated with this project.

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d. Proposed measures to preserve or enhance wildlife, if any: [help]

None needed at this time.

e. List any invasive animal species known to be on or near the site.

None known.

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. [help]

None for this proposal however a future development will require electricity for appliances and possibly natural gas for heating homes.

Staff notes that any street lighting and parking lot lighting to be replaced or modified must be in complaince with the current State of Washington energy codes.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. [help]

Not expected from future developments as a result of this proposal.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any: [help]

None as part of this proposal however future development will comply with Washington State Residential Energy Code requirements.

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe. [help]

No toxic chemicals, hazardous waste or health hazardous materials will be used at this site as a result of this proposal or future development.

1) Describe any known or possible contamination at the site from present or past uses. [help]

None known.

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

None known.

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

None for this proposal.

4) Describe special emergency services that might be required.

None for this proposal however a completed future development will require typical emergency services of a residential subdivision.

5) Proposed measures to reduce or control environmental health hazards, if any: [help]

None needed for this proposal. Future development will require care to prevent fuel spills during construction.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? [help]

Noise is not expected to have an effect on the project. The main source of noise comes from traffic on nearby streets.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site. [help]

None for this proposal. A future development may include short term traffic and construction noise activities during construction. Long term noise will include traffic from residents of a future development.

3) Proposed measures to reduce or control noise impacts, if any: [help]

None needed for this proposal.

Staff notes the site activities are to comply with KMC 9.52 (Noise)

8. Land and shoreline use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe. [help]

The parcels are currently undeveloped lots. Nearby uses are Light Industrial (IL) including IWI (Intermountain West Insulation) and Commercial Tire to the east and south east. Undeveloped Land to the south are also zoned as commercial (CC). This proposal will not adversely affect surrounding properties.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or non-forest use? [help]

No.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

No.

c. Describe any structures on the site. [help]

There is a 125 ft BPA easement with a large transmission tower located on the site.

d. Will any structures be demolished? If so, what? [help]

None with this proposal.

e. What is the current zoning classification of the site? [help]

The parcel is currently zoned as Community Commercial (CC)

May 2014

f. What is the current comprehensive plan designation of the site? [help]

The parcel has a comprehensive plan designation of Commercial (C).

g. If applicable, what is the current shoreline master program designation of the site? [help]

N/A.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify. [help]

Minor portions at the north of the parcel have been designated as a steep slope critical area by the City of Kennewick.

i. Approximately how many people would reside or work in the completed project? [help]

None with this proposal. Assuming a maximum density of 27 units/acre and an average of 2.5 people per unit, the maximum number possible would be approximately 1,203 people residing

j. Approximately how many people would the completed project displace? [help]

None.

k. Proposed measures to avoid or reduce displacement impacts, if any: [help]

Not applicable.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: [help]

A review of the current surrounding land uses insures that the proposal is compatible with the existing land uses. The adjacent property to the north east is classified by the City of Richland as a Medium Density Residential and matches the proposed land use. With the City of Kennewick Comprehensive Plan Amendment, on Page 19 of the 2021 Comprehensive Plan, It clearly states that the city is short on High Density Residential by 159.2 acres and have too

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

N/A.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. [help]

None with this proposal. The maximum number of units allowed for a future development would be approximately 481 dwelling units assuming the maximum density of 27 units/acre is achieved.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. [help]

None.

c. Proposed measures to reduce or control housing impacts, if any: [help]

N/A.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? [help]

Future development will have a maximum height of 45 feet for a structure on-site in accordance with City of Kennewick high density residential development standards.

b. What views in the immediate vicinity would be altered or obstructed? [help]

None.

c. Proposed measures to reduce or control aesthetic impacts, if any: [help]

None with this proposal. All future development will follow the City of Kennewick's Residential Design Standards for high density residential.

Staff notes that street landscaping and corner treatments must remain in compliance with the Residential Design Standards.

11. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur? [help]

None with this proposal. Future development will include lighting from high density residential dwelling units as well as street lighting for public ROW.

b. Could light or glare from the finished project be a safety hazard or interfere with views? [help]

No.

May 2014

c. What existing off-site sources of light or glare may affect your proposal? [help]

None known of at this time.

Staff notes site lighting must remain in compliance with KMC 18.39 (Outdoor Lighting)

d. Proposed measures to reduce or control light and glare impacts, if any: [help]

None with this proposal. Future development will comply with City of Kennewick regulations for lighting within a high density residential development.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity? [help]

Desert Hills Middle School and associated facilities are located approximately 0.8 miles from the site to the south. Amon Creek is located 0.3 Miles to the north of the site.

b. Would the proposed project displace any existing recreational uses? If so, describe. [help]

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: [help]

None with this proposal. Future development will pay appropriate park impact fees as determined by the City of Kennewick and may include parks, trails and open spaces.

13. Historic and cultural preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe. [help]

No.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources. [help]

Pursuant to RCW 27.52.060, on the private and public lands of this state it shall be unlawful for any person, firm, or corporation, or any agency or institution of the state or a political subdivision thereof to knowingly remove, alter, dig into, or excavate by use of any mechanical, hydraulic, or other means, or to damage, deface, or destroy any historic or prehistoric archaeological object from such site, except for Native American graves or Cairns, or any glyptic or painted record of any tribe or peoples, or historic graves as defined in Chapter 68.05 RCW. Disturbances of which shall be a class C felony punishable under Chapter 9A.20 RCW, without having obtrained a written permit from the Director of Washington State Office of Archaeology and Historc Preservation for such activities.

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The site is in an area where the confederated tribes of the warm springs, Yakima nation, and the Umatilla tribes that have an area of interest to those tribes. No artifacts have been found according to the Washington State Department of Archeology and Historic Preservation.

Exhibit A-4

Upon any discovery of potential or known archaeological resources at the subject properties prior to or during future on-site construction, the developer, contractor, and any/or any other parties involved in construction, shall act to protect the potential or known historical and cultural resources area from outside intrusion, and shall notify, within a maximum period of twenty-four hours from the time of discovery, the City of Kennewick Community Development Department of said discovery.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc. [help]

Internet search for project site. Washington State Department of Archeology and Historic Preservation, National Register of Historic Places in Benton County.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

None with this proposal. An archaeological resource study or inadvertent discovery plan will be conducted if required for a future development.

14. Transportation

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any. [help]

The site can be accessed by N. Clearwater Dr. A future signal at the intersection of 10th and Clearwater is expected in the near future.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? [help]

The nearest Ben Franklin Transit stop is located approximately 1.35 miles away on Columbia Center Boulevard at the intersection of 7th Ave and Columbia Center Boulevard.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? [help]

The amount of parking provided will be highly dependent on the type of high density residential development that will occur in the future. The amount of parking provided will however by consistent with City of Kennewick residential development standards. An example would be approximately 621 parking stalls if the maximum number of possible multi family units were to be developed. This however does not reflect exactly what will occur in the future.

May 2014

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). [help]

None will be required with this proposal. A future development will require the construction of new roads.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. [help]

The site is located approximately 380 feet from the Yakima Valley Subdivision Railroad, this project will not utilize or disturb operations of this railroad.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and non-passenger vehicles). What data or transportation models were used to make these estimates? [help]

None with this proposal. The amount of trips generated will be highly dependent on the type of high density residential development that will occur in the future. If the maximum number of multi family units were to be developed, up to 3,199 weekday trips could be generated based on ITE Land Use Code 220. This will be much lower however if the maximum density is not

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe. [help]

No.

h. Proposed measures to reduce or control transportation impacts, if any: [help]

Traffic impact fees will be payed as determined by the City of Kennewick for any finished housing project that results from the comprehensive plan amendment.

15. Public services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. [help]

Changing from a commercial to high density residential comprehensive plan designation and zoning could result in an increased need for health care, public transit and schools in the future. More families would be living in the area resulting in an increased demand for mentioned public services.

b. Proposed measures to reduce or control direct impacts on public services, if any. [help]

Impact fees will be payed as determined by the City of Kennewick. Any finished housing project will also generate additional tax revenue for the City.

16. Utilities

a. Check utilities currently available at the site: [help]
☐ electricity, ☐ natural gas, water ☐ refuse service, ☐ telephone, ☐ sanitary sewer, ☐ septic system, other_____

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. [help]

No construction will be required for this proposal. Future development will likely extend existing utilities in W Clearwater Drive and will require utility trenching throughout the site.

C. SIGNATURE [help]

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee Nathan Machiela

Position and Agency/Organization Knutzen Engineering

Date Submitted: 01/31/2022

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS [help]

(IT IS NOT NECESSARY to use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

The proposal would not increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise.

Proposed measures to avoid or reduce such increases are:

None at this time.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

The proposal would not affect plants, animals, fish or marine life.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

None at this time.

3. How would the proposal be likely to deplete energy or natural resources?

Changing from a commercial to residential usage could result in a less usage of natural resources, resulting in an decreased demand for electricity, water and other natural resources. Otherwise no affect on energy or natural resources is expected.

Proposed measures to protect or conserve energy and natural resources are:

None at this time.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Changing the comprehensive plan designation from commercial to high density residential, or a subsequent zoning change, is not expected to affect any environmentally sensitive areas or areas designated for governmental protection.

Proposed measures to protect such resources or to avoid or reduce impacts are:

None at this time.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

The comprehensive plan change would enable the owner to apply for a zone change from commercial to high density residential. This would enable development of the land into multi family residential as opposed to commercial.

The proposal will have no effect on shoreline use.

Proposed measures to avoid or reduce shoreline and land use impacts are:

None at this time.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

The revised land use will most likely result in a decrease on demand for public services and utilities compare to the current land use.

Proposed measures to reduce or respond to such demand(s) are:

Development impact fees will be payed as determined by the City of Kennewick by any project resulting from the designation change. A finished housing project will also generate additional tax revenue for the City.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

The proposal is not believed to conflict with any local, state or federal laws of any nature.

ESA LISTED SALMONIDS CHECKLIST

The Listed Salmonids Checklist is provided in order that the City can identify a project's potential impacts (if any) on salmonids that have been listed as "threat ened" or "endangered" under the Federal Endangered Species Act (ESA). A salmonid is any fish species that spends part of its life cycle in the ocean and returns to fresh water. Potential project impacts that may result in a "taking" of listed salmonids must be avoided, or mitigated to insignificant levels. Generally, under ESA, a "taking" is broadly defined as any action that causes the death of, or harm to, the listed species. Such actions include those that affect the environmental in ways that interfere with or reduce the level of reproduction of the species.

If ESA listed species are present or ever were present in the watershed where your project will be located, your project has the potential for affecting them, and you need to comply with the ESA. The questions in this section will help determine if the ESA listing will impact your project. The Fish Program Manager at the appropriate Department of Fish and Wildlife (DFW) regional office can provide additional information. Please contact the Dept. of Fish and Wildlife at 1701 S. 24th, Yakima WA 98902-5720, Phone No. 509-575-2740.

1. Are ESA listed salmonids currently present in the watershed in which your project will be?
   Yes _X_ No_

Please Describe.

2. Has there ever been an ESA listed salmonid stock present in this watershed?
   Yes _X_ No_

Please Describe.

NOTE: Kennewick is located in the upper Mid-Columbia watershed. Salmonids are present in the watershed - questions no. 1 and no. 2 already answered "yes". Questions A-1 and A-2 are also answered.

PROJECT SPECIFIC: The questions in this section are specific to the project and vicinity.

A1. Name of watershed: Upper Mid-Columbia

A2. Name of nearest waterbody: Columbia River

A3. What is the distance from this project to the nearest body of water?

Aproximately 2.8 miles.

Often a buffer between the project and a stream can reduce the chance of a negative impact to fish.

A4. What is the current land use between the project and the potentially affected water body (parking lots, farmland, etc.)

Public Facility, Commercial, Residential and vacant land.

A5. What percentage of the project will be impervious surface (including pavement & roof area)?

N/A.

FISH MIGRATION: The following questions will help determine if this project could interfere with migration of adult and juvenile fish. Both increases and decreases in water flows can affect fish migration.

B1. Does the project require the withdr a

a. Surface water? Yes No ✔
Amount
Name of surface water body

b. Ground water? Yes No ✔
Amount
From Where
Depth of well

B2. Will any water be rerouted? Yes No ✔
If yes, will this require a channel change?

B3. Will there be retention ponds? Yes No ✔
If yes, will this be an infiltration pond or a surface discharge to either a municipal storm water system or a surface water body?

If to a surface water discharge, please give the name of the waterbody.

B4. Will this project require the building of new roads? (Increased road mileage may affect the timing of water reaching a stream and may, thus, impact fish habitat.)

No.

B5. Are culverts proposed as part of this project? Yes No ✔

B6. Are stormwater drywells proposed as part of this project? Yes No ✔

B7. Will topography changes affect the duration/direction of runoff flows? Yes No ✔

If yes describe the changes.

B8. Will the project involve any reduction of a floodway or floodplain by filling or other partial blockage of flows? Yes No ✔

If yes, how will the loss of flood storage be mitigated by your project?

WATER QUALITY: The following questions will help determine if this project could adversely impact water quality. Degraded water quality can affect listed species. Water quality can be made worse by runoff from impervious surfaces, altering water temperature, discharging contaminants, etc.

C1. Will your project either reduce or increase shade along or over a waterbody?
Yes No ✔ (Removal of shading vegetation or the building of structures such as docks or floats often result in a change in shade.)

C2. Will the project increase nutrient loading or have the potential to increase nutrient loading or contaminants (fertilizers, other waste discharges, or runoff) to the waterbody?
Yes No ✔

C3. Will turbidity (dissolved or partially dissolved sediment load) be increased because of construction of the project or during operation of the project? (In-water or near water work will often increase turbidity.)
Yes No ✔

C4. Will your project require long term maintenance, i.e., bridge cleaning, highway salting, chemical sprays for vegetation management, clearing of parking lots?
Yes No ✔
Please Describe.

Vegetation: The following questions are designed to determine if the project will affect riparian vegetation, which can impact listed species.

D1. Will the project involve the removal of any vegetation from the stream banks?
YES NO ✔

If yes, please describe the existing conditions and the amount and type of vegetation to be removed.

D2. If any vegetation is removed, do you plan to re-plant? YES NO ✔

If yes, what types of plants will you use?

E. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand the City is relying on them to make its decision.

Signature Date 01/31/2022

Department of Energy

Bonneville Power Administration
2211 North Commercial Avenue
Pasco, WA 99301

TRANSMISSION SERVICES

June 24, 2022

In reply refer to: CPA-2022-0001
Located within a Portion of Section 1, Township 8 North,
Range 28 East, W.M., Benton County, Washington

Tract Nos.: ABH-16-A-1, ABH-16-AR-1P1
Facility/Line Name: Franklin Badger-Canyon No. 1
McNary-Badger Canyon No. 1
Structure Nos. 16/2 and 29/2

Steve Donovan
City of Kennewick
Community Planning/Planner
210 W. 6th Avenue - PO Box 6108
Kennewick, WA 99336

Dear Steve:

Bonneville Power Administration (BPA) has had the opportunity to review CPA-2022-0001. The application is to change 25.41 acres from Commercial to High Density Residential. The property is located at 11358 Clearwater Avenue in Kennewick, WA

BPA easements are taken with certain restrictions on the underlying land. In order to maintain operation and safety criteria, all activities planned within the BPA easement need to be approved by BPA prior to their occurrence. Activities that block maintenance crews (such as the installation of fences) or safety concerns (such as buildings, driveways, utilities, or small structures) need to be addressed prior to construction in order to avoid later modification, at the landowner's expense.

The owner will need to submit a land use application and acquire a Land Use Agreement from BPA, along for any portion of the owner's future development plans that will lie within BPA's transmission line or access road easement.

Thank you for the opportunity to review this application. If you have any questions regarding this request or need additional information, please feel free to contact me. I can be reached at (509) 544-4747 or by email at jecottrell@bpa.gov.

Sincerely,

Joseph E. Cottrell II

Joseph E. Cottrell II
BPA Field Realty Specialist

Exhibit A-6

2015 South Ely Street
Kennewick, WA 99337
Customer Service 509-586-9111
Business 509-586-6012
FAX 509-586-7663
www.kid.org

June 15, 2022

Chris Bowman
City of Kennewick/Development Services Division
PO Box 6108
Kennewick, WA 99336

Subject: Review Comments for CPA-2022-0001/SEPA ED-2022-0008

Dear Mr. Bowman:

The Kennewick Irrigation District has received your Comprehensive Plan Amendment and SEPA documents submitted by Nathan Machiela (Knutzen Engineering), 5401 Ridgeline Dr Suite 160, Kennewick, WA 99338, for a Comprehensive Plan Amendment to change the land designation of 25.41 acres lot at 11358 W Clearwater Ave from Commercial (C) to High Density Residential (HDR).

1. This parcel is within the Kennewick Irrigation District (KID) boundaries, but is not considered irrigable lands; therefore, the Kennewick Irrigation District does not assess them.
2. Please note that permanent structures are not allowed within irrigation easements.
3. Please protect all existing irrigation facilities.

If you have any questions regarding these comments, please contact me at the address/phone number listed above.

Sincerely,

Chris D. Sittman
CAD Specialist

cc: LB\correspondence\File 01-08-28
Applicant via mail – Nathan Machiela/Knutzen Engineering, 5401 Ridgeline Dr Suite 160, Kennewick, WA 99338

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

June 22, 2022

Steve Donovan
Planning Manager
City of Kennewick
210 W Sixth Avenue
Kennewick, WA

In future correspondence please refer to:
Project Tracking Code: 2022-06-04186
Property: City of Kennewick_11358 W Clearwater Comprehensive Plan Amendment and Rezone (SEPA ED-2022-0008)
Re: Survey Requested

Dear Steve Donovan:

Thank you for contacting the Washington State Historic Preservation Officer (SHPO) and Department of Archaeology and Historic Preservation (DAHP) and providing documentation regarding the above referenced project. These comments are based on the information available at the time of this review and on behalf of the SHPO in conformance Washington State law. Should additional information become available, our assessment may be revised.

Our statewide predictive model indicates that there is a high probability of encountering cultural resources within the proposed project area. Further, the scale of the proposed ground disturbing actions would destroy any archaeological resources present. Identification during construction is not a recommended detection method because inadvertent discoveries often result in costly construction delays and damage to the resource. Therefore, we recommend a professional archaeological survey of the project area be conducted and a report be produced prior to ground disturbing activities. This report should meet DAHP's Standards for Cultural Resource Reporting.

We also recommend that any historic buildings or structures (45 years in age or older) located within the project area are evaluated for eligibility for listing in the National Register of Historic Places on Historic Property Inventory (HPI) forms. We highly encourage the SEPA lead agency to ensure that these evaluations are written by a cultural resource professional meeting the SOI Professional Qualification Standards in Architectural History.

Please note that the recommendations provided in this letter reflect only the opinions of DAHP. Any interested Tribes may have different recommendations. We appreciate receiving any correspondence or comments from Tribes or other parties concerning cultural resource issues that you receive.

Thank you for the opportunity to comment on this project. Please ensure that the DAHP Project Tracking Number is shared with any hired cultural resource consultants and is attached to any

communications or submitted reports. Please also ensure that any reports, site forms, and/or historic property inventory (HPI) forms are uploaded to WISAARD by the consultant(s).

Should you have any questions, please feel free to contact me.

Sincerely,

Sydney Hanson
Transportation Archaeologist
(360) 280-7563
Sydney.Hanson@dahp.wa.gov

Leading the Way

MEMORANDUM

DATE: October 10, 2022

TO: Kennewick Planning Commission

FROM: Emily Estes-Cross, Economic Development Director

SUBJECT: CPA-2022-0001, CPA-2022-0004, and CPA-2022-0006

This evaluation of Comprehensive Plan Amendments CPA-2022-0001, CPA-2022-0004, and CPA-2022-0006 is comprised of economic implications and a commercial land constraint analysis generalizable to all three proposed amendments, and concludes with comments specific to each site.

Should commercial growth occur as projected through 2040, a meager surplus of 62 acres of commercially zoned and 33 acres of industrially zoned land demonstrates a land constraint vulnerability for City of Kennewick economic development objectives. Redesignation of current employment lands, parcels used for commercial industries that contribute to our economy and accommodate jobs, will limit development opportunities in the City of Kennewick.

An Employment Lands Inventory (ELI) (attached) used to inform future infrastructure investment and make data-driven decisions on zoning and land use, shows Kennewick will need 552 acres of commercial land and 426 acres of industrially zoned land to accommodate commercial growth through 2040. Demand projections are based on historical trends in the Tri-Cities Metropolitan Statistical Area (MSA), indicating Kennewick's employment will increase by 14,000 jobs between now and 2040. Facility square footage and land acreage to accommodate growth is unique to each industry (healthcare, retail, professional services, manufacturing, etc.)

According to the developable lands analysis contained in the ELI, as of September 2022, Kennewick has a commercial land supply of 614 acres and an industrial land supply of 459 acres. Commercial land supply is calculated by adding 667 acres vacant and 72 acres underutilized commercially zoned land, reduced by a market factor rate of 15% for vacant and 35% for underutilized land (land remains undeveloped due to market factors outside of the city's control). Industrial land supply is based on 492 vacant and 63 acres underutilized industrial zoned land, reduced by the same market factor rates. Reducing the projected surplus

City of Kennewick Economic Development Office
business@ci.kennewick.wa.us • O: (509) 585-4450 • F: (509) 585-4445
210 W 6th Ave • PO Box 6108 • Kennewick, WA 99336-0108

Leading the Way

of 62 acres commercially zoned and 33 acres of industrially zoned land prematurely restricts target industry recruitment possibilities through 2040.

Several factors drive recruitment of target industries. First, we seek out the services our citizens and existing business want or need, which have also been identified as gaps in neighborhood or marketplace services. For instance, citywide needs include daycare centers for current residents and the 3,380 units approved through the pre-plat process. As residential units develop to the west and commercial follows, gaps in grocery stores and neighborhood amenities are evident. Facilitated by West Clearwater Avenue and Bob Olson Parkway, neighbors in west Kennewick have easy access to Richland for the purchase of needed services, resulting in economic leakage. A second factor of marketability is the number of completed and occupied residential units and the mix of complimentary industry that motivate a business to locate. Grocery stores, for example, will not break ground on speculation of development.

A third and significant commercial recruitment consideration is availability of properly zoned property and access to infrastructure. To locate or expand, prospective businesses seek commercially-designated land with existing access and visibility from primary arterials, in proximity to utility connections, and accessible by multimodal transportation. While the City of Kennewick invests in such infrastructure to plan for and accommodate commercial growth, it's under the premise the ongoing maintenance costs of roads, utilities, and greenways will be offset by retail sales tax generated.

While housing is also undoubtedly recognized as supportive to economic development, redesignating commercial zoning to residential is potentially trading one problem for another. A rental housing market study conducted in March 2022 showed the Tri-Cities regional vacancy rate has remained below 5% since 2017, and was 3.6% as of first quarter 2022. The market vacancy is forecast to increase to 4.0% in 2023 considering the moderate number of new multifamily projects in the development pipeline (317 traditional units and 700 micro units), and does not consider construction of single family homes. Rezoning the commercial land intended to support jobs and services for residential development reduces the opportunities and access to quality of life amenities for the workforce we're recruiting and endeavoring to retain in Kennewick. Comprehensive housing solutions that don't involve creating a shortage of commercial employment lands to the long-term detriment of the economy should be sought. Furthermore, the City's threshold for eliminating employable lands as a precedent for future Comprehensive Plan Amendments should be considered.

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Leading the Way

CPA-2022-0001

The proposed amendment to change the land use designation of 25.41 acres from Commercial to High Density Residential at 11358 W. Clearwater Avenue would hamper economic development efforts to attract a grocery store and neighborhood services to support existing households and 1,961 residential units in the pipeline west of Highway 395 and north of 10th Avenue, in the proximity of West Clearwater. Aside from Costco, which requires a membership, the closest grocery store is in Richland. Retail sales tax generated in Richland does not support City of Kennewick infrastructure. Furthermore, if the amendment is approved, the less than 10 contiguous acres of commercially zoned land remaining in the vicinity would limit development opportunities.

CPA-2022-0004 and CPA-2022-0006

Combined, the proposed amendments at 8428 Bob Olson Parkway (11.29 acres of Commercial) and 8224 Bob Olson Parkway (13.76 acres of Commercial) to High Density Residential is problematic for two reasons. First, rezoning 25 acres of 30 undeveloped acres fronting a major arterial significantly eliminates the likelihood of attracting a lifestyle development (grocery, restaurant, and daily services) for nearby residential neighborhoods, a consideration in the original commercial zoning designation of the 30-acre swath. Approval of the amendments would prematurely reduce the citywide inventory of large contiguous parcels with existing access for sizeable commercial development opportunities through 2040.

Second, the City expanded its original conception of Bob Olson Parkway from a 2-lane to 4-lane road, and invested in 9 linear miles of greenway to attract frontage commercial development, under the premise retail sales tax generated would help offset ongoing maintenance costs. With existing homes and an additional 1,028 residential units in the pipeline west of Highway 395 and south of 10th Avenue, neighbors are being pushed to Richland to purchase services. The result is economic leakage with no cost recovery for the ongoing irrigation, vegetation management, and care of more than 600 trees along Bob Olson Parkway.

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City of Kennewick Employment Lands Inventory

Economic Development Strategic Plan

October 11, 2022

Prepared by:

CAI
COMMUNITY ATTRIBUTES INC

Prepared for:

KENNEWICK WASHINGTON

FINDINGS & IMPLICATIONS

This Employment Lands Inventory (ELI) analyzes key conditions for development opportunities in the City of Kennewick. Findings from the ELI will complement the Existing Conditions and Landscape Assessment to support the framework for a future Economic Development Strategic Plan. Findings from the ELI are described below.

General Findings

- A significant portion of employment lands in Kennewick have some level of development capacity (from 37-42%). However, nearly two-thirds of this developable land is located in peripheral areas outside of downtown and does not fall in Kennewick's two federally-designated opportunity zones. (**Exhibits 8 & 9**)
- Kennewick's developable land is comprised of a mixture of large, vacant parcels or large aggregations of vacant parcels near the eastern, southern, and western City limits, while there are smaller vacant, partially vacant, or underutilized sites around Vista Field, the West Highlands, Downtown, and along SR-395. (**Exhibit 7**)
- An assessment of employment land demand based on an increased capture of regional growth in certain target industries found that there is a 95 acre surplus of developable employment land supply that is sufficient to meet the estimated demand for the period 2020-2040 for both commercial and industrial use (**Exhibit 15**).

Business Development

- The distribution of developable land across different zoning categories has implications for the ability to attract certain target industries. For instance, the majority of employment land development capacity is commercial- or mixed-use-zoned (57%) (**Exhibit 10**). This may limit the extent to which certain industrial and production uses could be attracted to the area. The draft landscape assessment indicates that the city and its regional partners primarily target production industries that rely on industrial sites: energy, food processing, logistics/warehousing, distribution, and construction. Higher income jobs are in wholesale trade, public administration, and professional services and much of the existing and forecast employment is connected to institutional uses (health, education, government, and professional services). The final landscape assessment will point to target industries and how the land use categories are aligned or incongruent with city targets for industry and occupation growth.
- Over a third of the City's employment lands current use is retail (33%) - an industry that continues to experience significant transformation related to the worldwide COVID-19 pandemic impacts. (**Exhibit 4**)

Infrastructure

- The decentralized location of much of the City's developable employment lands and redevelopment locations has implications for transportation and other infrastructure service provision, alignment will be needed between the programming of transportation resources and the developable lands.
- In addition, a number of the vacant and underutilized sites are located further away from major transportation corridors and envisioning development on these sites may require significant transportation and utility investment prior to realizing marketability among prospective developers.

Specific Locations of Interest

- **Bob Olson Parkway Site:** 73 acres of vacant land, zoned Community Commercial. The site is currently surrounded by vacant land and is somewhat constrained by steep slopes and erosion hazard areas.
- **Industrially-Zoned UGA Additions:** A large, vacant 223-acre site is located south of I-82, and a smaller site located east of the sewer treatment facility. The timeline and locations for utility service are being explored.
- **Portion of Rivershore Redevelopment Zone:** 35 acres adjacent to Pioneer Memorial Bridge (Blue Bridge). The vacant portion of this site is 32.3 acres.
- **Port of Kennewick Columbia Gardens and Clover Island Properties:** Contains some existing redevelopment activity for a winery and other uses. Much of this area is owned by the Port of Kennewick.
- **Port of Kennewick Vista Field Redevelopment:** 102 acres of land zoned urban mixed use. A portion or the redevelopment already underway is dedicated to single family residential development.

INTRODUCTION

Background and Purpose

The City of Kennewick has undertaken significant efforts to date to develop a coherent roadmap for economic development, including a 2012 economic development strategic plan, a 2016 industrial land assessment, a 2019 economic development marketing plan, the City's 2021 Comprehensive Plan, as well as a 2014 study on recruitment and workforce development for target industries. The City now desires to consolidate these plans into a holistic economic development framework, building upon previous strategies, the City's capabilities, and current economic considerations. Completion of the economic development strategy is organized into two phases. The first phase encompasses a detailed employment lands inventory and the second phase

provides an analysis of existing conditions and landscape assessment. This report presents analysis and findings for the employment lands inventory.

Methods and Data

Employment land sites were identified through parcel-level Geographic Information Systems (GIS) analysis. Benton County Assessor data forms the basis of the employment land study, providing parcel-based data including zoning, ownership, land use, and improvements within the City of Kennewick and within the Urban Growth Area (UGA). Development readiness or developable lands assessments include a detailed analysis of existing uses and ratios of improvement value to parcel area, confirmed in some cases using ortho-imagery or additional data sources.

Organization of this Report

The remainder of this report is organized as follows:

- **Employment Lands Methodology.** A detailed description of employment land analysis methodology.
- **Zoning and Land Use.** A summary of all City of Kennewick and unincorporated UGA parcels by zone and current use.
- **Developable Land Supply.** A detailed summary of developable employment lands within the City of Kennewick and the unincorporated UGA.
- **Employment Land Demand.** A detailed overview of employment forecast, assumptions, land demand estimates, and a reconciliation of demand with supply.

Employment Lands Methodology

The Employment Lands Inventory (ELI) is an analysis and characterization of the supply - or inventory - of employment lands in the City of Kennewick and its unincorporated UGA, including number of parcels, parcel acreage, parcel sizes, vacancy, underutilization, development status, and any environmental or other constraints.

The ELI covers all commercial, industrial, and mixed use zoned parcels in the City of Kennewick and the incorporated UGA. It also covers unincorporated UGA Benton County parcels zoned light industrial and general commercial.

Categories of Developable Land

To better assess the City of Kennewick's developable lands, available parcels are organized into the following categories.

- **Developed:** An employment land parcel that has built, permanent structures and existing economic activities.
- **Physically Vacant:** An employment land parcel that is either unbuilt (no permanent structures), or whose structures are valued at less than $.01 per square foot of parcel area.
- **Partially Vacant:** An employment land parcel acres that, while developed, retains a contiguous, undeveloped, and buildable portion greater than 0.5 acre in size. Remaining buildable area on these parcels is estimated.
- **Potentially Underutilized:** An employment land parcel whose physical improvements are valued at or less than $3 per square foot of parcel area.

In addition, developable properties that are in current use as surface parking lots have been flagged in the data.

Zoning and Land Use

Overall, across both the incorporated and unincorporated Kennewick UGA, there are a total of 3,052 parcel acres of employment lands on 2,042 parcels. The greatest concentration of employment acreage is located within Kennewick's Commercial, Community zone (34%). Large concentrations are also located within the Industrial, Light (22%), and Commercial, Regional (15%) zones.

Exhibit 1. Kennewick Employment Lands by Zone, Incorporated & Unincorporated UGA, 2022

Zoning Code	Zoning Description	Parcels	Acres	Share of Acres
CC	Commercial, Community	788	1,034.4	34%
CR	Commercial, Regional	154	459.1	15%
IL	Industrial, Light	238	666.6	22%
UMU	Urban Mixed-Use	270	242.5	8%
CG	Commercial, General	150	182.8	6%
IH	Industrial, Heavy	96	177.6	6%
CO	Commercial, Office	100	69.7	2%
BP	Business Park	36	40.8	1%
CAR	Commercial, Auto Row	75	32.8	1%
CN	Commercial, Neighborhood	33	23.5	1%
CC-L	Commercial, Community - Limited	10	22.9	1%
CR-L	Commercial, Regional - Limited	23	20.2	1%
CM	Commercial, Marina	39	15.8	1%
CG-L	Commercial, General - Limited	2	2.4	0%
CO-L	Commercial, Office - Limited	1	0.5	0%
GenCom	General Commercial (Benton)	2	16.6	1%
LtInd	Light Industrial (Benton)	25	43.6	1%
Total		**2,042**	**3,051.7**	**100%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.
Note: All zones except GenCom and LtInd are City of Kennewick zones, while GenCom and LtInd are Benton County UGA zones.

In aggregate, nearly two-thirds of Kennewick's employment lands parcel acreage is zoned some type of commercial (1,921 acres), 888 acres of land are in industrial zones, and 242 acres are in a mixed-use zone. (**Exhibit 2**)

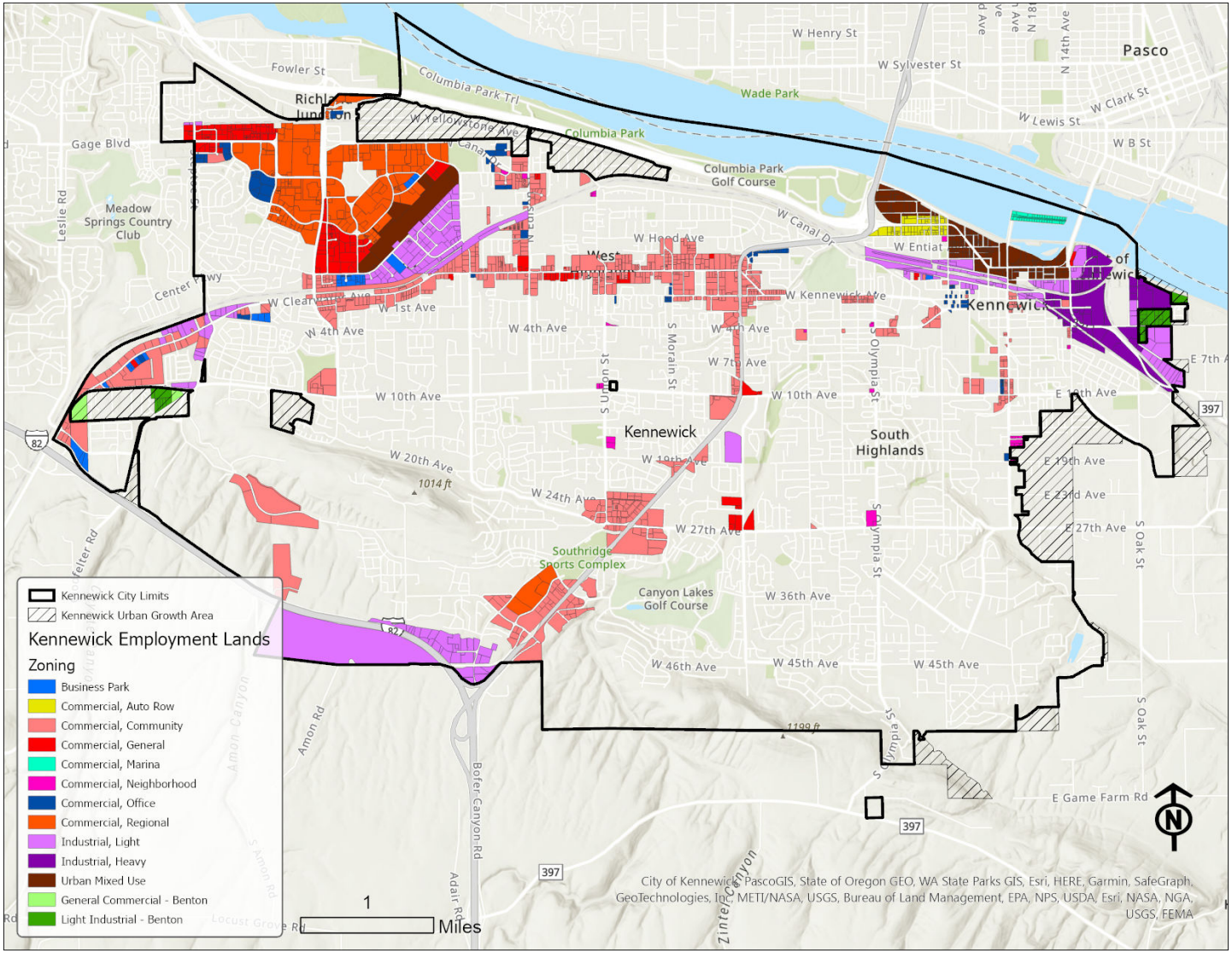
Exhibit 2. Kennewick Employment Lands Zones by Type, Incorporated & Unincorporated UGA, 2022

Zoning Code	Zoning Description	Parcels	Acres	Share of Acres
Commercial Zones		**1,413**	**1,921.4**	**63%**
CC	Commercial, Community	788	1,034.4	34%
CR	Commercial, Regional	154	459.1	15%
CG	Commercial, General	150	182.8	6%
CO	Commercial, Office	100	69.7	2%
BP	Business Park	36	40.8	1%
CAR	Commercial, Auto Row	75	32.8	1%
CN	Commercial, Neighborhood	33	23.5	1%
CC-L	Commercial, Community - Limited	10	22.9	1%
CR-L	Commercial, Regional - Limited	23	20.2	1%
GenCom (Benton)	UGA General Commercial	2	16.6	1%
CM	Commercial, Marina	39	15.8	1%
CG-L	Commercial, General - Limited	2	2.4	0%
CO-L	Commercial, Office - Limited	1	0.5	0%
Industrial Zones		**359**	**887.8**	**29%**
IL	Industrial, Light	238	666.6	22%
IH	Industrial, Heavy	96	177.6	6%
LtInd (Benton)	UGA Light Industrial	25	43.6	1%
Mixed-Use Zone				
UMU	Urban Mixed-Use	270	242.5	8%
Total		**2,042**	**3,051.7**	**100%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.

Most of the 178 acres of land zoned heavy industrial are located in the Downtown/Waterfront Opportunity Zone, while the 845 combined acres of light industrial zoning are located in the Downtown/Waterfont zone, southeast of Vista Field, and at the intersection of I-82 and SR-395 at the southern border of the City. The sizable commercial zones follow major transportation corridors with a concentration of zoned land in the Vista Field Opportunity Zone. (**Exhibit 3**)

Exhibit 3. Kennewick Employment Lands by Zone, Incorporated and Unincorporated UGA, 2022



Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.

Existing land uses are the activities that are currently located on each parcel according to use codes assigned by the Benton County Assessor's office. The largest share of existing active land uses is all retail uses combined with over 33% of the total (by area). This is followed by all services combined (20%) and manufacturing (8%). The 370 acres of undeveloped land on 54 parcels represents around 12% of total employment lands – though it should be noted that the acreage of undeveloped land per the assessor's use codes differ substantially from land assessed as vacant in this analysis.

Exhibit 4. Existing Land Uses with More than 40 Acres on Kennewick Employment Lands, 2022

Land Use Description	Parcels	Acres	Share of Acres
Retail Other	408	626.2	20.5%
Retail General Merchandise	94	257.6	8.4%
Manufacturing Other	89	252.1	8.3%
Service Professional	177	173.5	5.7%
Service Miscellaneous	139	168.0	5.5%
Undeveloped*	54	369.7	12.1%
Service Business	118	148.1	4.9%
Transportation Aircraft**	3	80.8	2.6%
Retail Eating	91	72.2	2.4%
Service Contruction	45	66.3	2.2%
Service Repair	82	62.6	2.0%
Retail Auto	61	61.8	2.0%
Recreational	10	53.3	1.7%
Other Residential	25	52.4	1.7%
Transportation Parking	64	40.3	1.3%
All Other	*582*	*567.0*	18.6%
Total	**2,042**	**3,051.7**	**107.5%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.
*Notes: *Undeveloped land is defined differently in subsequent analysis of developable lands. Undeveloped land here is defined by the Benton County Assessor land uses. **Transportation Aircraft land use is an outdated code that refers to the former Vista Field parcels.*

Developable Land Supply

Unlocking economic development growth potential requires a detailed inventory of available land supply that may be available for development. As of September 2022, 1,009 acres of the 3,052 acres of employment land in the City of Kennewick, were physically vacant employment land (commercial or industrial), and another 374 acres comprised partially vacant or potentially underutilized parcels (Exhibit 5).

Exhibit 5. Kennewick Developable Employment Lands by Status, Incorporated & Unincorporated UGA, 2022

Developability Status	Parcels	Acres	Share of Acres
Developed	1,450	1,668.3	55%
Physically Vacant	464	1,009.4	33%
Partially Vacant	23	239.5	8%
Potentially Underutilized	105	134.6	4%
Totals	**2,042**	**3,051.7**	**100%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.
Note: Partially Vacant includes 102 acres in the Vista Field redevelopment and refers to both developed and developable area of each parcel.

In total, there are an estimated 1,383 acres of developable employment lands as of this writing. There are 1,139 acres of developable employment lands within the Kennewick UGA when you exclude the approximately 102 acres of the Vista Field redevelopment, the developed portion of partially vacant parcels, and 54 acres of currently active surface parking lots. (**Exhibit 6**) This figure represents 37% of the total Kennewick employment lands base. Additional analysis is underway to understand how this aligns with existing and future land demand.

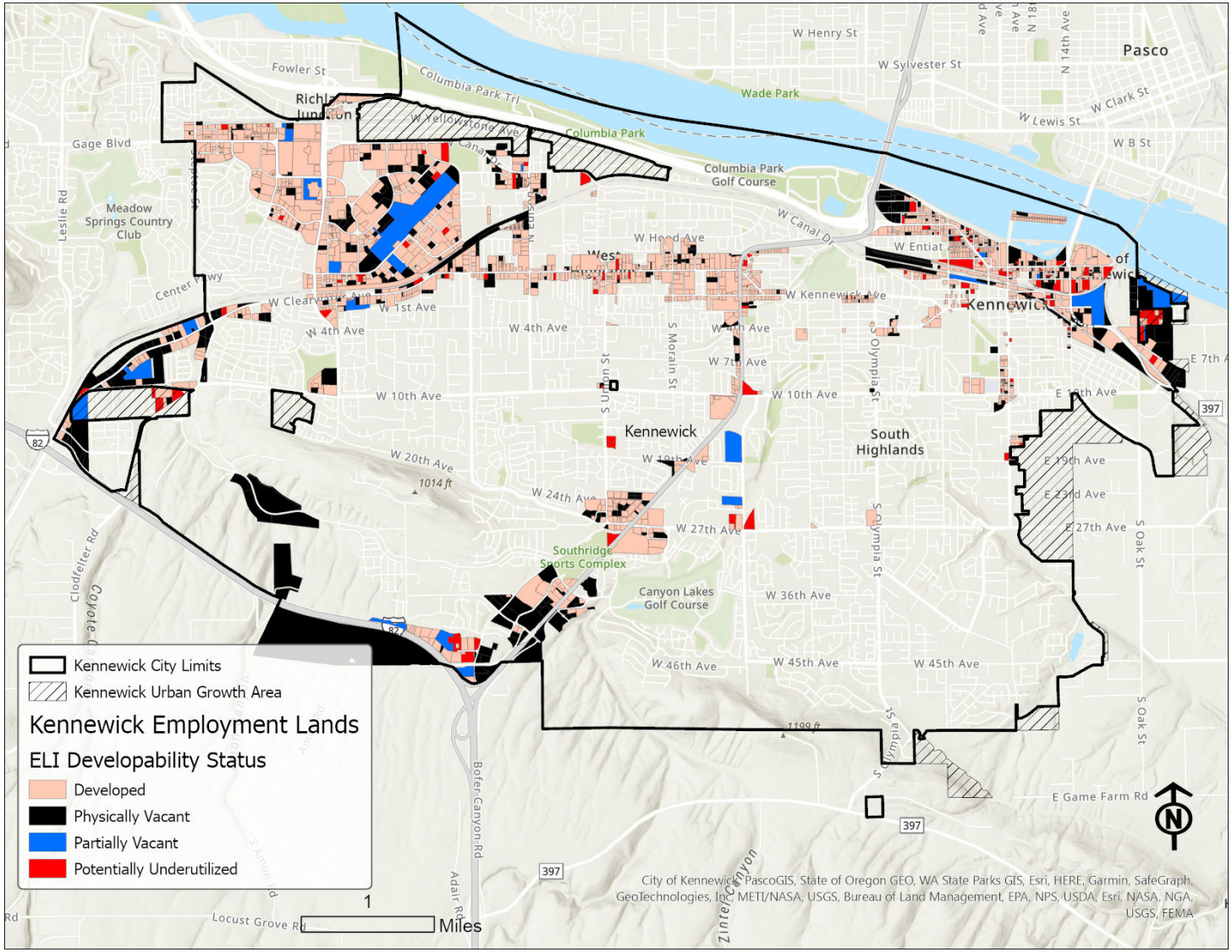
Exhibit 6. Kennewick Developable Employment Lands Detail by Status, Incorporated & Unincorporated UGA, 2022

Developability Status	Parcels	Acres	% of Developable Lands* (By Area)	% of All Employment Lands (By Area)
Physically Vacant	464	1,009.4	78%	33%
Partially Vacant	23	150.1	12%	5%
Potentially Underutilized	105	134.6	10%	4%
Subtotal	**592**	**1,294.2**	**100%**	**42%**
Less Planned Vista Field Development	(6)	(102.1)		
Less Portion in Active Surface Parking Lots	(54)	(53.5)		
Total	**532**	**1,138.5**	**88%**	**37%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022. Note: Partially Vacant acres are comprised of the developable portion of partially vacant parcels only.

The largest concentrations of developable employment land are located at the eastern, southern, and southwestern peripheries of the city (**Exhibit 7).**

Exhibit 7. Kennewick Employment Lands by Developability Status, Incorporated & Unincorporated UGA, 2022



Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.

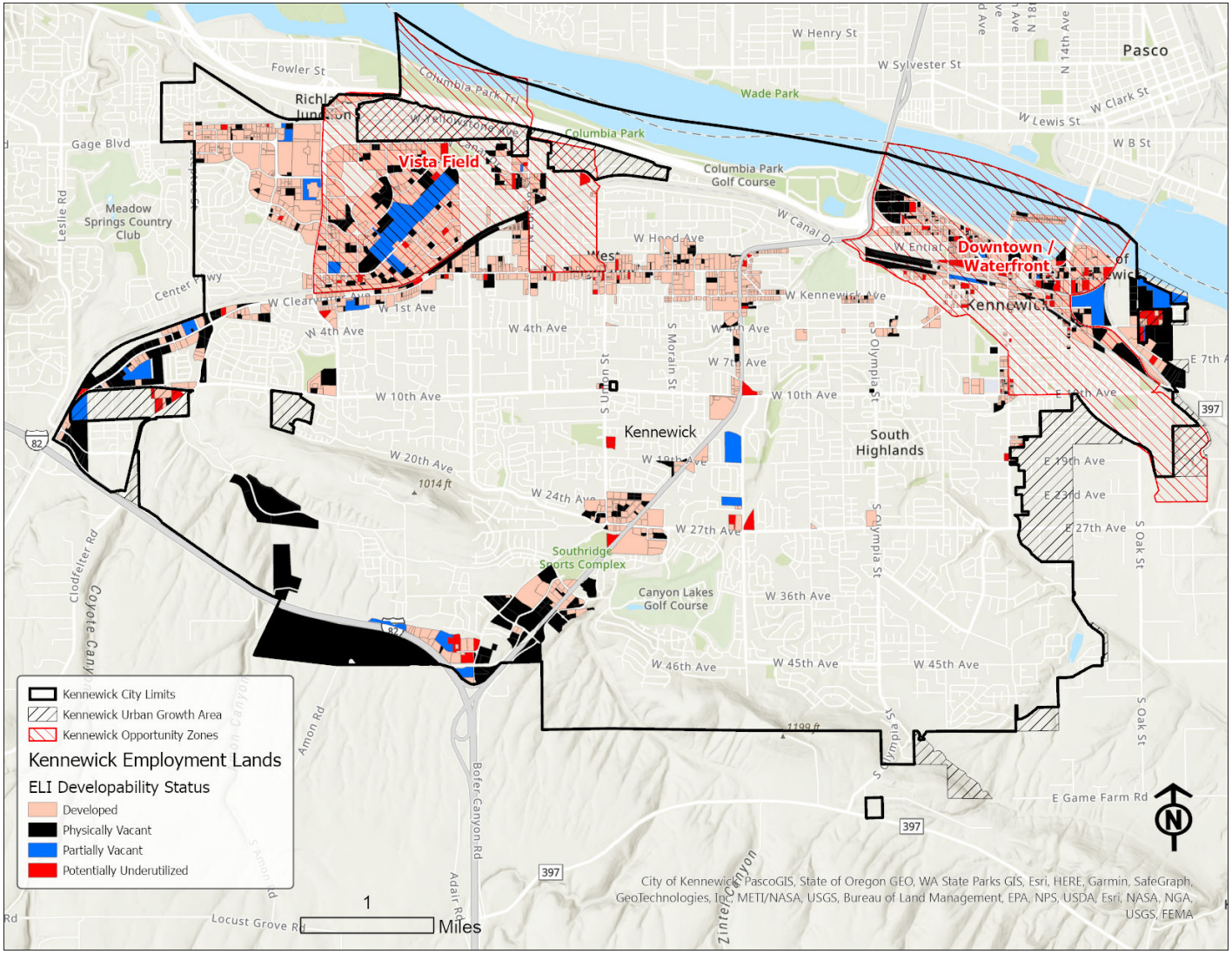
Less than one-third of this developable land is located in the central Vista Field and Downtown Opportunity Zone areas of the city (**Exhibits 8 & 9).**

Exhibit 8. Kennewick Developable Employment Lands by Opportunity Area, Incorporated & Unincorporated UGA, 2022

Opportunity Area	Parcels	Acres	% of Developable Lands* (By Area)	% of All Employment Lands (By Area)
Vista Field (Tract 109.01)**	93	206.5	16%	7%
Downtown / Waterfront (Tract 113)	198	175.8	14%	6%
Subtotal	**291**	**382.2**	**30%**	**13%**
Outside Opportunity Zones	301	911.9	70%	30%
Total	**592**	**1,294.2**	**100%**	**42%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022
*Notes: *"Developable Lands" includes physically vacant, potentially underutilized, and the developable portion of partially vacant employment lands parcels. **Almost half of the Vista Field Opportunity Zone developable acreage lies in the Vista Field redevelopment.*

Exhibit 9. Kennewick Employment Lands by Developability Status & Opportunity Zones, Incorporated & Unincorporated UGA, 2022



Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.

Of the 579 acres of developable commercial land on 319 parcels, the largest portion is zoned Community Commercial at 412 acres or 32% of the total developable area. Industrial zones contain 43% of the developable acreage with 555 acres on 166 parcels. Light industrial zoning represents the largest portion of industrial zones and contains 464 acres or 36% of the developable land. The remaining 91 acres of developable heavy industrial zoned land represents 7% of the total. Urban mixed-use zones contain 157 acres or 12% of the developable acreage.

Exhibit 10. Kennewick Developable Employment Lands by Zone, Incorporated & Unincorporated UGA, 2022

Zoning Code	Zoning Description	Parcels	Acres	% of Developable Lands* (By Area)	% of All Employment Lands (By Area)
Commercial Zones		**319**	**579.0**	**45%**	**19%**
CC	Commercial, Community	207	412.2	32%	14%
CR	Commercial, Regional	33	76.1	6%	2%
CG	Commercial, General	25	34.5	3%	1%
BP	Business Park	15	20.6	2%	1%
CO	Commercial, Office	16	12.5	1%	0%
GenCom (Benton)	UGA General Commercial	2	10.1	1%	0%
CN	Commercial, Neighborhood	8	6.6	1%	0%
CAR	Commercial, Auto Row	12	5.0	0%	0%
CM	Commercial, Marina	1	1.5	0%	0%
Industrial Zones	**All**	**166**	**554.8**	**43%**	**18%**
IL	Industrial, Light	103	435.0	34%	14%
IH	Industrial, Heavy	48	91.3	7%	3%
LtInd (Benton)	UGA Light Industrial	15	28.5	2%	1%
Mixed-Use Zone**					
UMU	Urban Mixed-Use	**102**	**157.1**	12%	5%
Total		**587**	**1,290.9**	**100%**	**42%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022
*Notes: *"Developable Lands" includes physically vacant, potentially underutilized, and the developable portion of partially vacant employment lands parcels. **Includes 102 acres in the Vista Field redevelopment.*

Employment Land Demand

It is necessary to attempt to quantify the market demand for employment lands into the future to understand whether Kennewick's land supply is sufficient to meet its needs for growth, as well as potential targeting of specific industries or informing other economic development strategies.

The first step in a demand assessment involves identifying a range of forecast employment by industry sector for a twenty-year time horizon (2020-2040) and adjusting the forecast to reflect Kennewick's anticipated growth trajectory. Next, occupancy and density assumptions must be made to translate forecast employment into built space and land consumption.

Finally, assessed land demand by category (commercial and industrial) is compared with land supply from the previous section to identify any potential surplus or shortage. The following sections detail this analysis.

Employment Forecasts

A range of employment forecasts by major sector were developed for the City of Kennewick based on both historical performance at the regional level, plus anticipated growth trends for individual industries using a combination of U.S. Census Local Employer Household Dynamics (LEHD) data, and Washington Employment Security Department (ESD) data. **Exhibit 11** illustrates a baseline forecast scenario that extrapolates regional sectoral performance to the Kennewick local area. **Exhibits 12 & 13** illustrate what the forecast might look like if increased rates of capture for certain target industries in Kennewick – namely Warehousing, Transportation and Utilities (WTU), and Manufacturing – were to be achieved via successful implementation of economic development policies and programs targeting growth in these specific sectors.

Exhibit 11. Estimated City of Kennewick Employment, Baseline, 2005 - 2040

Major Sector	2005	2010	2015	2020	2025	2030	2035	2040	2020-2040 Growth
Healthcare, Education & Government	6,400	8,200	9,300	9,600	10,700	11,600	12,500	13,500	3,900
Services	8,900	10,700	9,400	9,400	11,100	11,900	12,600	13,500	4,100
Retail	5,900	6,900	6,000	6,300	7,100	7,500	7,800	8,200	1,900
Construction & Resources	2,500	2,400	2,600	3,500	4,000	4,300	4,800	5,200	1,700
Finance, Insurance & Real Estate	1,700	1,900	1,800	2,100	2,200	2,200	2,300	2,300	200
Wholesale, Transportation & Utilities	1,000	1,200	1,300	1,400	1,600	1,700	1,700	1,800	400
Manufacturing	600	700	600	600	600	600	700	700	100
Total	**27,000**	**32,000**	**31,000**	**32,900**	**37,300**	**39,800**	**42,400**	**45,200**	**12,300**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Community Attributes Inc., 2022.

Exhibit 12 assumes a minor increase in the capture of regional employment within Wholesale, Transportation and Utilities and Manufacturing sectors. For example, Kennewick's share of regional WTU employment in 2021 was estimated at 24.6%, while the share of regional Manufacturing employment was estimated at 7.4%. This scenario envisions a modestly increased 30% share of regional WTU growth, and 10% share of Manufacturing growth, through 2040.

Exhibit 12. Estimated City of Kennewick Employment, Alternative Growth Scenario 1, 2005 - 2040

Major Sector	2020-2040 Growth
Services	4,100
Healthcare, Education & Government	3,900
Retail	1,900
Construction & Resources	1,700
Finance, Insurance & Real Estate	200
Wholesale, Transportation & Utilities	800
Manufacturing	300
Total	**12,900**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Community Attributes Inc., 2022. Notes: Assumes increases in capture of regional employment within Wholesale, Transportation and Utilities and Manufacturing. Assumes 30% capture of regional WTU employment by 2040. Assumes 10% capture of regional Manufacturing employment by 2040. Assumes no changes to regional capture of other sectors compared to baseline growth projections. For 2021, Kennewick share of regional WTU employment is estimated at 24.6%. For 2021, Kennewick share of regional Manufacturing employment is estimated at 7.4%.

Exhibit 13 – the preferred scenario for this analysis - assumes more significant increases in the capture of regional employment within Wholesale, Transportation and Utilities and Manufacturing sectors via successful implementation of economic development policies and programs. This scenario envisions an increased capture of 40% of regional WTU growth, and 15% of the region's manufacturing growth through 2040.

Exhibit 13. Estimated City of Kennewick Employment, Alternative Growth Scenario 2, 2005 - 2040

Major Sector	2020-2040 Growth
Services	4,100
Healthcare, Education & Government	3,900
Retail	1,900
Construction & Resources	1,700
Wholesale, Transportation & Utilities	1,500
Finance, Insurance & Real Estate	200
Manufacturing	800
Total	**14,100**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Community Attributes Inc., 2022. Notes: Assumes increases in capture of regional employment within Wholesale, Transportation and Utilities and Manufacturing. Assumes 40% capture of regional WTU employment by 2040. Assumes 15% capture of regional Manufacturing employment by 2040. Assumes no changes to regional capture of other sectors compared to

baseline growth projections. For 2021, Kennewick share of regional WTU employment is estimated at 24.6%. For 2021, Kennewick share of regional Manufacturing employment is estimated at 7.4%.

Occupancy & Density Assumptions

In order to translate forecast employment from Scenario 2 into land demand figures, certain assumptions must be identified around occupancy – such as the use of built space per employee – and density / intensity of land use – expressed as Floor-Area Ratio, or FAR, a measure of total built floor area to parcel land area on a site. For built square footage per employee, widely-used industry standard figures were utilized ranging from higher occupancy rates (e.g., 400 square feet per employee for Services; Finance, Insurance, and Real Estate; and Healthcare, Education, and Government sectors) to lower occupancy (e.g., 1,100 sf per employee for the Warehousing, Transportation, and Utilities sector) rates. See Appendix 1 for detailed assumptions.

In addition to occupancy and density, a range of commercial to industrial land utilization ratios, and market factors, were also identified. Market factor refers to a discount rate meant to approximate lands that may not transact even if redevelopable or vacant, due to unwillingness of an owner to transact for reasons such as speculative holding, land banking, and personal use, among others.

Demand Analysis

Using the assumptions outlined above, the preferred employment forecast from Alternative Scenario 2 by major sector was translated into an estimate of demand for built space and land by major sector (**Exhibit 14**). Using commercial versus industrial land utilization rates, this demand was further segmented by type.

Exhibit 14. Kennewick Employment Growth and Employment Lands Demand (Alternative Scenario 2)

Industry	Employment Growth (2020-2040)	Emp Density (sq ft/employee)	Emp Built Space	Emp Land Demand	Com Land Demand	Ind Land Demand
Healthcare, Education & Government	3,900	400	1,560,000	89.5	67.1	22.4
Services	4,100	400	1,640,000	125.5	94.1	31.4
Retail	1,900	550	1,045,000	80.0	80.0	0.0
Construction & Resources	1,700	1,000	1,700,000	260.2	156.1	104.1
Finance, Insurance & Real Estate	200	400	80,000	4.6	3.4	1.1
Wholesale, Transportation & Utilities	1,500	1,100	1,650,000	252.5	126.3	126.3
Manufacturing	800	900	720,000	165.3	24.8	140.5
Total	**14,100**		**8,395,000**	**977.6**	**551.8**	**425.7**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Benton County Assessor, 2022; Community Attributes Inc., 2022.

The resulting estimate of total employment land demand for the period 2020 – 2040 in the City of Kennewick totals approximately 978 acres. Thus, the

current land supply, including a market factor portion assumed not to transact, of 1,073 acres, appears to be sufficient to accommodate even this high-growth scenario of the forecast demand, with a surplus of around 95 acres (**Exhibit 15**).

Exhibit 15. Kennewick Employment Land Supply and Demand Summary

	Vacant	Underutilized	Total
Commercial Land	667.3	72.1	**739.4**
Industrial Land	492.3	62.5	**554.8**
Market Factor	15%	35%	
Commercial Land Supply	567.2	46.9	**614.1**
Industrial Land Supply	418.4	40.6	**459.1**
Commercial Land Demand			**551.8**
Industrial Land Demand			**425.7**
Commercial Land Gap (surplus)			**62.2**
Industrial Land Gap (surplus)			**33.3**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Benton County Assessor, 2022; Community Attributes Inc., 2022. Note: Vacant includes both Physically Vacant and Partially Vacant Developable Lands. Mixed Use lands are grouped with Commercial.

APPENDIX 1

This section outlines the detailed occupancy, density, commercial use ratio, and market factor assumptions underlying the Employment Land Demand analysis section of this report.

Exhibit A1. Occupancy: Employment Density Assumptions by Major Sector (Built SF/Employee)

Employment Density Assumptions by Major Sect	
Healthcare, Education & Government	400
Services	400
Retail	550
Construction & Resources	1,000
Finance, Insurance & Real Estate	400
Wholesale, Transportation & Utilities	1,100
Manufacturing	900

These occupancy assumptions were informed by a comparative survey of space utilization by sector and / or zone, throughout the region and country:

Kitsap County Buildable Lands Study
https://www.kitsapgov.com/dcd/Pages/Buildable_Lands_Report.aspx

Commercial/Non-Industrial	300-600	*square feet per employee*
Industrial	700-1200	*square feet per employee*

Thurston County Buildable Lands Study
https://www.trpc.org/DocumentCenter/View/8542/2021-Buildable-Lands-Repor

Industrial	1,470	*square feet per employee*
Commercial	430	*square feet per employee*

Pierce County Buildable Lands Study
https://www.piercecountywa.gov/923/Buildable-Lands

Commercial	500	*square feet per employee*
Industrial/Warehouse	900	*square feet per employee*

Orlando Florisa Fiscal Impact Analysis Model (FIAM)
http://www.sfrpc.com/fiam.htm

Office - 1-Story	300	*square feet per employee*
Office - Class A	350	*square feet per employee*
Office - Med	250	*square feet per employee*
Retail - Community	600	*square feet per employee*
Restaurant - Sit Down	450	*square feet per employee*
Restaurant - Fast Food	100	*square feet per employee*
Industrial	2,500	*square feet per employee*
Warehouse	5,000	*square feet per employee*

Portland Gresham Vista Examples (Actual Developments):
https://www.portofportland.com/greshamvista

Industrial

E6 Adv. Manu	1,000	*square feet per employee*
ON Semiconductors	2,000	*square feet per employee*
Subaru Dist. Fac.	20,000	*square feet per employee*

Large Commercial

Kohls	874	*square feet per employee*
Lowes	773	*square feet per employee*
Fred Meyer	630	*square feet per employee*

Snohomish County Buildable Lands Study
https://snohomishcountywa.gov/1352/Buildable-Lands

Industry

Food Service	200	*square feet per employee*
Other Services	400	*square feet per employee*
FIRE (mini-storage)	20,000	*square feet per employee*
FIRE (other)	350	*square feet per employee*
Retail	700	*square feet per employee*
Manufacturing	500	*square feet per employee*
Wholesale, Transportation and Utilities	1,000	*square feet per employee*
Government/Education	300	*square feet per employee*

Exhibit A2. Density: Land Intensity Assumptions as Floor-Area Ratios (FAR) by Major Sector

Variable	Rate
Assumed Density (FAR)	
Healthcare, Education & Government	0.40
Services	0.30
Retail	0.30
Construction & Resources	0.15
Finance, Insurance & Real Estate	0.40
Wholesale, Transportation & Utilities	0.15
Manufacturing	0.10

Source: Assumptions based on parcel-level surveys in other Washington cities and Benton County development intensity by land use / building typology data from CoStar. Note: The only permitted maximum commercial FAR in Kennewick is .5 for the Business Park Zone. FARs for industrially-zoned land in City of Kennewick Industrial Zoned Land Assessment, 2016, by EcoNorthwest average .07 for the 20 years previous to the study.

Exhibit A3. Commercial to Industrial Land Utilization Ratio by Major Sector

Share Commercial Land Use by Major Sector	
Healthcare, Education & Government	0.75
Services	0.75
Retail	1.00
Construction & Resources	0.60
Finance, Insurance & Real Estate	0.75
Wholesale, Transportation & Utilities	0.50
Manufacturing	0.15

Source: Assumptions based on Benton County Assessor data, 2022.

Exhibit A4. Market Factor, City of Kennewick Employment Lands, 2022

Vacant	0.15
Underutilized	0.35

These market factor rates were informed by a comparative survey of other commercial and industrial market factors utilized in buildable lands studies in GMA counties in the state of Washington:

Kitsap County Buildable Lands Study

Market Factor	
Low	5%-20%
Medium	20%-35%
High	35%-50%

Thurston County Buildable Lands Study

Market Factor	
Partially Developed	10%-40%
Vacant	10%-20%

Pierce County Buildable Lands Study

Market Factor	
Vacant	15% *Bonney Lake*
Underutilized	35% *Bonney Lake*
Vacant	50% *Buckley*
Underutilized	50% *Buckley*
	30% *Fife*

Snohomish County Buildable Lands Study

Market Factor	
Vacant	15%
Underutilized	30%

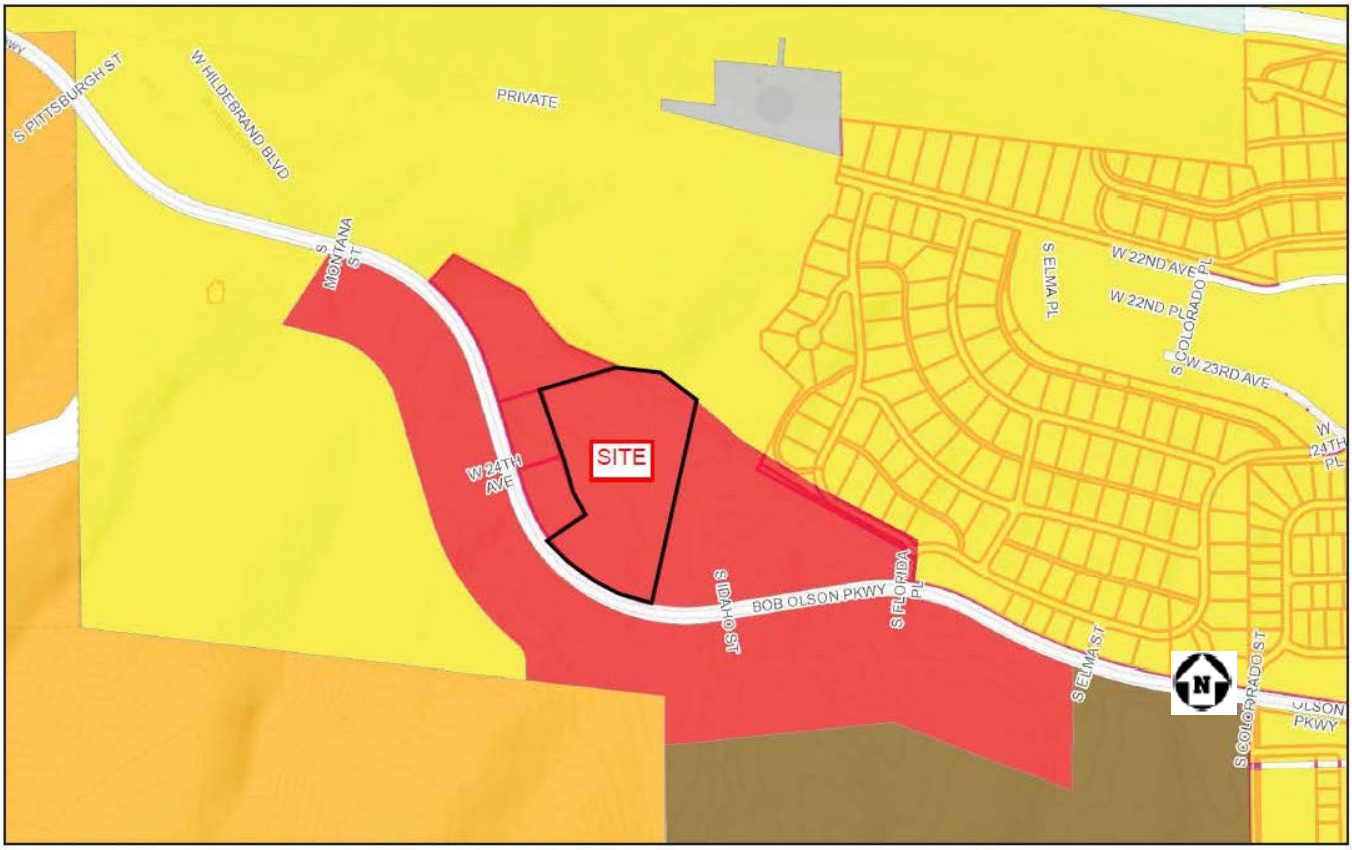
Community Planning Department
210 W 6th Avenue
Kennewick, WA 99336
Phone: (509) 585-4561

Comprehensive Plan Amendment CPA-2022-0004

REQUEST: Change 11.29 acres from Commercial to High Density Residential.

APPLICANT: Bauder Young Properties, LLC, c/o Nick Wright

OWNER: Bauder Young Properties, LLC



Not to scale

Site Information

- ***Size:*** 11.29 acres
- ***Location:*** 8428 Bob Olson Parkway
- ***Topography:*** Flat with steep slopes on north side, along with and abandoned irrigation ditch along the east property.
- ***Existing Comprehensive Plan Designation:*** Commercial
- ***Existing Zoning:*** Commercial, Community (CC)
- ***Existing Land Use:*** Vacant Land

EXHIBITS

- **Exhibit A-1:** Aerial Map
- **Exhibit A-2:** Land Use Map
- **Exhibit A-3:** Supplemental Questions
- **Exhibit A-4:** Environmental Determination
- **Exhibit A-5:** Bonneville Power Administration Comments
- **Exhibit A-6:** Kennewick Irrigation District
- **Exhibit A-7:** Applicant's Supporting Information
- **Exhibit A-8:** Memorandum from Emily Estes-Cross, Economic Development Director
- **Exhibit A-9:** City of Kennewick Employment Lands Inventory

APPLICATION PROCESS

- Application Submitted April 11, 2022.
- Application routed for comments June 8, 2022.
- Determination of Non-Significance was issued on July 18, 2022.
- Appeal Period for the DNS ended August 1, 2022.
- Notice of Public Hearing was posted at the site on July 29, 2022.
- Notice of Public Hearing published July 31, 2022.
- Notice of Notice Hearing mailed July 29, 2022.
- August 15, 2022 Public Hearing was continued to October 17, 2022

SURROUNDING COMPREHENSIVE PLAN, ZONING AND LAND USES

North	Comprehensive Plan – Low Density Residential Zoning – Residential, Low Density (RL) Existing Land Uses – Vacant
South	Comprehensive Plan – Commercial Zoning – Commercial, Community (CC) Existing Land Uses – Vacant
East	Comprehensive Plan – Commercial, proposed to be changed to High Density Residential (CPA-2022-0006). Zoning – Commercial, Community (CC) Existing Land Uses – Vacant
West	Comprehensive Plan – Commercial Zoning – Commercial, Community (CC) Existing Land Uses – Vacant

REGULATORY CONTROLS

- City of Kennewick Comprehensive Plan
- Kennewick Municipal Code Title 4
- Kennewick Municipal Code Title 18

DESCRIPTION OF REQUEST

The applicant has requested to change the land us designation of 11.29 acres from Commercial to High Density Residential.

COMPLIANCE WITH TITLE 4 (ADMINISTRATIVE PROCEDURES)

KMC 4.12.110(7): Approval Criteria. The City may approve Comprehensive Plan Amendments and area-wide zone map amendments if it finds that the request meets one or more of the following:

1. The proposed amendment bears a substantial relationship to the public health, safety, welfare, and protection of the environment;
   The proposed amendment will not allow the property to be rezoned to a zoning district that will permit uses that may have the potential to negatively affect the public health, safety, welfare and protection of the environment.

2. The proposed amendment is consistent with the requirements of Chapter 36.70A RCW and with the portion of the City's adopted comprehensive plan not affected by the amendment;
   This amendment is consistent with the requirements of Chapter 36.70A RCW and with the portion of the City's adopted comprehensive plan not affected by the amendment.

3. The proposed amendment corrects an obvious mapping error; or
   This request does not correct a mapping error.

4. The proposed amendment addresses an identified deficiency in the Comprehensive Plan.
   The City of Kennewick's 2017-2037 Comprehensive Plan Table 2 shows that the City has a surplus of 91.5 acres for Commercial lands and deficit 159.2 acres for High Density Residential lands. The surplus of Commercial and deficit High Density Residential have been reduced by amendments made to the plan since it was completed in 2017.

   Although the City has a surplus of land designated Commercial, 10+ acre parcels with direct access onto an arterial are not common in the City. Due to the size and location of parcel, it has the potential to provide for a large-scale commercial development that can provide the services needed to support residential development in the Southridge Area, see Exhibits A-15 and A-16.

KMC 4.12.110(8): Additional Factors. The City must also consider the following factors prior to approving Comprehensive Plan Amendments:

1. The effect upon the physical environment;
   Grading and clearing of vegetation will have to take place at the site for future development. The site already been subject to mass grading.

2. The effect on open space and natural features including, but not limited to topography, streams, rivers, and lakes;
   The site does not contain any designated open space, but slopes greater than 15% and erosion hazard soils exist on the northern portion of the site. No negative impacts are anticipated from the proposed amendment or future development. Adequate measures within the Kennewick Municipal Code exist to mitigate any possible negative impacts to the natural environment.

3. The compatibility with and impact on adjacent land uses and surrounding neighborhoods;
   Approval will provide a buffer between Commercial and Low Density Residential lands to the north. At this time, no direct traffic access is proposed between the High Density Residential and Low Density Residential properties. Future multi-family development will most likely increase traffic on Bob Olson Parkway, but should have little impact on the adjacent residential streets.

   Staff is concerned that once the larger commercial tract of land changes its land use designation, it will be difficult to replace it with a like property. Future residents of the adjacent area will need commercial and retail services that can provide for the various needs. The site's access, size and location make it unique compared to other commercial lands in the City.

4. The adequacy of, and impact on community facilities, including utilities, roads, public transportation, parks, recreation, and schools;
   The future development of the site is required to provide infrastructure improvements to ensure adequacy of community facilities. Public transportation facilities and parks, needed for High Density Residential, are not currently in the adjacent area of the site.

5. <u>The quantity and location of land planned for the proposed land use type and density and the demand for such land;</u>
   There is a demand for more multi-family residences in Kennewick. It is unknown if approval of the proposed amendment will most likely result in a higher density than what would occur under the current land use designation. Commercial Lands may have multi-family mixed-use developments on them with no maximum density.

   Due the size and location of the site, it has the potential to accommodate future commercial/retail services needed by surrounding residents. Based on the City of Kennewick Employment Lands Inventory, it will be difficult to the replace the loss of commercial land with something that has similar size, location and access.

6. <u>The current and projected project density in the area; and</u>
   No maximum density exists for the current land use designation and the proposed land use designation has a maximum density of 27 units/acre.

7. <u>The effect, if any upon other aspects of the Comprehensive Plan.</u>
   The proposed change will not affect any other aspects of the Comprehensive Plan.

<u>PUBLIC COMMENT</u>

Staff has received no public comment concerning the proposal to date.

<u>AGENCY COMMENTS</u>

Staff has received comments from the Kennewick Irrigation District (KID) and the Bonneville Power Administration (BPA). KID states that irrigation water is available to the site. The BPA requires that the applicant submit a land use application in order to acquire a Land Use Agreement for future development within its access road right-of-way.

<u>ANALYSIS OF REQUEST</u>

This request is to amend the land use designation for 11.29-acres of a 19.28-acre parcel. The applicant has applied to for a Binding Site Plan to create the 11.29-acre site, but the Binding Site Plan has not been recorded.

The applicant has not proposed any type of future development for the site. If approved, development will be subject to the maximum development of 27 units per acre.

The comprehensive plan still states that there is a surplus of Commercial Lands and a deficit of High Density Residential Lands. The amount of each land type is very close to balancing out as a result of recent land use designation amendments and if current proposals are approved.

Staff has reviewed the comprehensive plan and City of Kennewick Employment Lands Inventory and determined that it would not be in the interest of the public to change the land use designation of such large parcels from Commercial to High Density Residential. Approval of the amendment would limit the ability to provide commercial and retail services that need larger parcels in order to operate.

Staff's review to the comprehensive plan has determined that the following goals and polices provides a basis to deny the request:

GOAL 2: Sustain and enhance viable commercial areas.
POLICY
1. Encourage a mixture of commercial, office and residential uses within commercial centers to support day and evening activities for all ages.

GOAL 3: Create a balanced system of commercial facilities reflecting neighborhood, community, and regional needs.
POLICY

1. Provide commercial areas sized and scaled appropriately for the neighborhood and community.

In addition to the comprehensive plan review, the City of Kennewick Employment Lands Inventory has determined that it will be difficult to replace commercial lands that are 10-acres and greater with good access onto arterial roads.

FINDINGS

1. The applicant is Bauder Young Properties, LLC, c/o Nick Wright, 1955 Jadwin Avenue, Richland, WA 99352.
2. The owner is Bauder Young Properties, LLC, 1955 Jadwin Avenue, Richland, WA 99352.
3. The request is to change the site's land use designation from Commercial to High Density Residential.
4. The application was received on April 11, 2022 and was routed for review to various City Departments and other local, state and federal agencies for comment on June 8, 2022.
5. The site is served by City water and sewer utilities in Bob Olson Parkway.
6. Access to the site is from Bob Olson Parkway.
7. The proposed amendment is adjacent to Industrial and Commercial designated lands.
8. A Determination of Non-Significance was issued for this application on July 18, 2022. The appeal period for the determination ended on August 1, 2022.
9. A public hearing notification sign was posted on site July 29, 2022.
10. Notice of the public hearing for this application was published in the Tri-City Herald on July 31, 2022. Notices were mailed to property owners within 300 feet of the site on July 29, 2022.
11. At the August 15, 2022 Planning Commission Hearing, staff requested that the hearing be continued to October 17, 2022, to allow for the completion of a Commercial Lands and Market Analysis.
12. The proposed amendment will not allow the property to be rezoned to a zoning district that will permit uses that may have the potential to negatively influence the public health, safety, welfare and protection of the environment.
13. This amendment is consistent with the requirements of Chapter 36.70A RCW and with the portion of the City's adopted comprehensive plan not affected by the amendment.
14. The proposed amendment does not correct an obvious mapping error.
15. This request has a minimal impact on addressing the identified deficiency in the Comprehensive Plan.

CONCLUSIONS

1. Pursuant to Chapter 4.08 of the Kennewick Municipal Code, the lead agency has determined that the proposed amendment does not have a probable significant adverse impact on the environment.
2. The proposed amendment will change the land use designation for an 11.29-acre portion of the subject parcel from Commercial to High Density Residential.
3. The proposed amendment is not consistent with the City of Kennewick Comprehensive Plan Commercial Goals 2 and 3.
4. The proposed amendment will increase population densities in the area.
5. Future development will be required to meet applicable concurrency of the traffic and park systems.

Recommendation

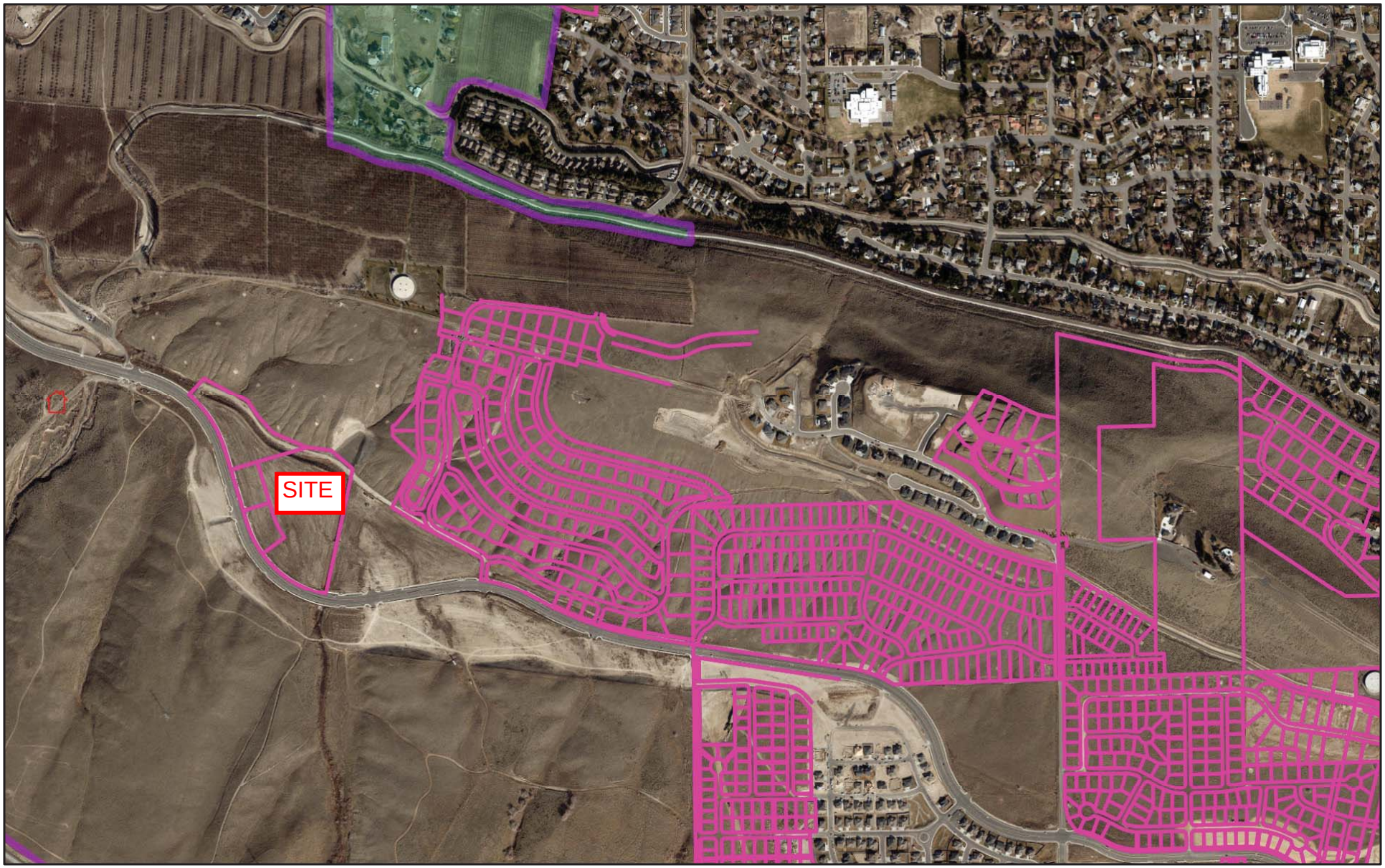
Staff recommends that the Planning Commission concur with the findings and conclusions of CPA-2022-004 contained in the staff report and recommend denial to City Council.

Motion

I move that the Planning Commission concur with the findings and conclusions of CPA-2022-0004 contained in the staff report and recommend to City Council denial of the request.

Aerial Map

Exhibit A-1



August 5, 2022

This plan is suitable for informational use only. City of Kennewick accepts no liability for any error whatsoever.

1 inch = 1,000 feet

1:12,000

0 0.075 0.15 0.3 mi

0 0.125 0.25 0.5 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp.,

StreetName

SurveyCityLimits

SV_CI_KENNEWICK_10

SV_CI_RICHLAND_10

SV_CI_COUNTY_10

SurveyUrbanGrowthBoundary

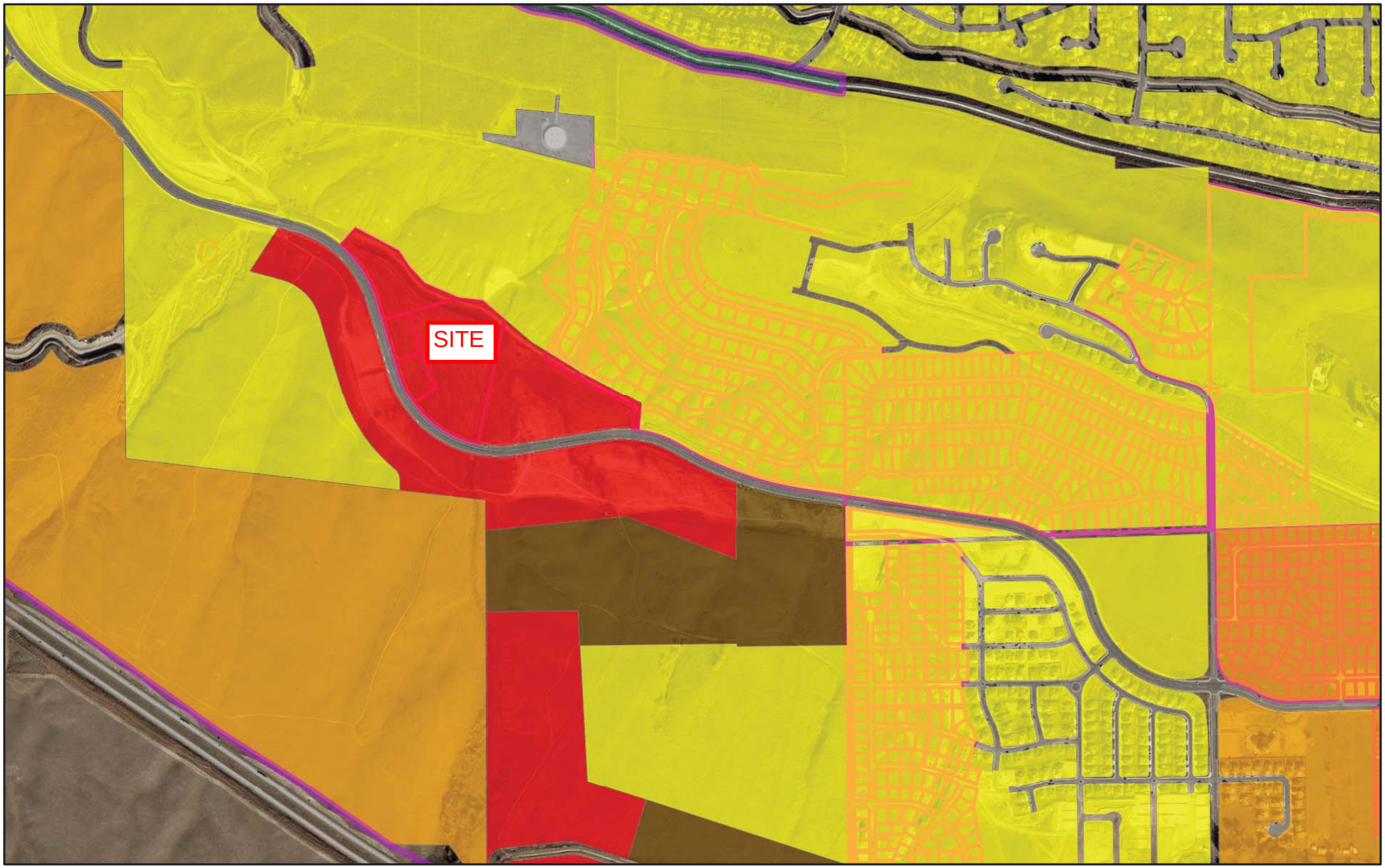
Preliminary Parcel

Historic Bldg on Registry

ArcGIS WebApp Builder
City of Kennewick

Land Use Map

Exhibit A-2



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Sources: Esri, HERE, Garmin, Intermap, increment P Corp.,

StreetName

SurveyCityLimits

SV_CI_KENNEWICK_10

SV_CI_RICHLAND_10

SV_CI_COUNTY_10

SurveyUrbanGrowthBoundary

ArcGIS WebApp Builder
City of Kennewick

Exhibit A-3

1. What are the reasons for the requested amendment?

We have had this land on the market for sale for several years and the only inquiries we have had are for multi-family use. Also, there is a housing shortage in the Tri-Cities. In an effort to solve both these issues, we would like to rezone 11.29 to high density residential.

2. Which elements of the comprehensive plan will be affected?

- [ ] Capital Facilities
- [ ] Economic Development
- **Housing**
- **Land Use**
- [ ] Transportation
- [ ] Utilities

3. Please explain how the affected elements will be impacted if the proposal is approved. Include detailed information on utilities and their associated plans as well as the effect on emergency services, parks, schools, etc.

More housing will be offered to this area of Kennewick.

4. Please explain how the proposed amendment will implement the comprehensive plan and be in the best interest of Kennewick referencing appropriate goals and policies contained in the plan.

Given the current status of the housing market, and with the exponential growth of the Tri-Cities, we need more housing in Kennewick.

5. Please explain any other substantiated information in support of the proposed amendment.

None.

CITY OF KENNEWICK
DETERMINATION OF NON-SIGNIFICANCE

FILE/PROJECT NUMBER: ED-2022-0014

DESCRIPTION OF PROPOSAL: To change the land use designation of 11.29 acres from Commercial to High Density Residential and to rezone the property from Commercial, Community to Residential, High Density.

PROPONENT: Bauder Young Properties, LLC, c/o Nick Wright, 859 Meadow Hills Drive, Richland, WA 99352

LOCATION OF PROPOSAL, INCLUDING STREET ADDRESS, IF ANY: 8428 Bob Olson Parkway

LEAD AGENCY: City of Kennewick

DETERMINATION: The City of Kennewick has determined that this proposal does not have a probable significant adverse impact on the environment. An Environmental Impact Statement (EIS) will not be required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the City. This information is available to the public on request. Application for other required permits may require further review under SEPA procedures.

_X_ There is no comment period for this DNS.

___ This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

___ This DNS is issued under 197-11-340(2); the City will not act on this proposal for fifteen days from the date below. Comments must be submitted by _____. After the review period has elapsed, all comments received will be evaluated and the DNS will be retained, modified, or withdrawn as required by SEPA regulations.

RESPONSIBLE OFFICIAL: Anthony Muai, AICP
POSITION/TITLE: Planning Director
ADDRESS: 210 W 6th Ave., P.O. Box 6108, Kennewick, WA 99336
PHONE: (509) 585-4386

___ Changes, modifications and/or additions to the checklist have been made on the attached Environmental Checklist Review.

This DNS is subject to the attached conditions:
_X_ No conditions.
___ See attached condition(s).

Date: July 18, 2022 Signature: _____

****

Appeal: An appeal of this determination must be submitted to the Community Planning Department within fourteen (14) calendar days after the date issued and no later than 5 p.m. This appeal must be written and make specific factual objections to the City's threshold determination. Appeals shall be conducted in conformance with Section 4.12.090(9) of the Kennewick Municipal Code and the required fees pursuant to the City's adopted Fee Schedule shall be paid at time of appeal submittal.

Copies of this DNS were mailed to:

Dept. of Ecology
WA Dept. of Fish & Wildlife
WSDOT
Yakama Nation
CTUIR
ED-2022-0014 File

Department of Energy

Bonneville Power Administration
2211 North Commercial Avenue
Pasco, WA 99301

TRANSMISSION SERVICES

June 24, 2022

In reply refer to: CPA-2022-0004
Located within a Portion of Section 7, Township 8 North,
Range 29 East, W.M., Benton County, Washington

Tract Nos.: ABH-14-AR-6, ABH-14-AR-1P2, ABH-14-AR-3P2
Facility/Line Name: Franklin Badger-Canyon No. 1
McNary-Badger Canyon No. 1
Structure Nos. 14/2 -14/4, 27/2 – 27/4

Steve Donovan
City of Kennewick
Community Planning/Planner
210 W. 6th Avenue - PO Box 6108
Kennewick, WA 99336

Dear Steve:

Bonneville Power Administration (BPA) has had the opportunity to review CPA-2022-0004. The application is to change 11.29 acres from Commercial to High Density Residential. The property is located at 8428 Bob Olsen Parkway in Kennewick, WA.

BPA access road easements are taken with certain restrictions on the underlying land. In order to maintain operation and safety criteria, all future activities planned within a BPA easement needs to be approved by BPA prior to their occurrence. Activities that block maintenance crews (such as the installation of fences) access to the transmission line (such as buildings, driveways, utilities, or small structures) need to be addressed prior to construction in order to avoid later modification, at the landowner's expense.

The owner will need to submit a land use application and acquire a Land Use Agreement from BPA, along for any portion of the owner's future development plans that will lie within BPA's access road right-of-way.

Thank you for the opportunity to review this application. If you have any questions regarding this request or need additional information, please feel free to contact me. I can be reached at (509) 544-4747 or by email at jecottrell@bpa.gov.

Sincerely,

Joseph E. Cottrell II
BPA Field Realty Specialist

2015 South Ely Street
Kennewick, WA 99337
Customer Service 509-586-9111
Business 509-586-6012
FAX 509-586-7663
www.kid.org

June 15, 2022

Steve Donovan
City of Kennewick/Development Services Division
PO Box 6108
Kennewick, WA 99336

Subject: Review Comments for CPA-2022-0004/SEPA ED-2022-0014

Dear Mr. Donovan:

The Kennewick Irrigation District has received your Comprehensive Plan Amendment and SEPA documents submitted by Bauder Young Properties, 859 Meadow Hills Drive, Richland, WA 99352, for a Comprehensive Plan Amendment to change the land designation of 11.29 acres lot at 8428 Bob Olson Parkway from Commercial (C) to High Density Residential (HDR).

1. This parcel is within the Kennewick Irrigation District (KID) boundaries, but is not considered irrigable lands; therefore, the Kennewick Irrigation District does not assess them. However, in October of 2014, the KID Board of Directors reserved a water allocation for this property, providing KID the option and ability to become the irrigation purveyor if KID determined it was in the best interest to do so. KID intends to work with the Applicant to provide an allocation of KID irrigation water.
2. Irrigation water is available for this development. An application must be made to KID to obtain the water allocation. Please contact Lori Gibson at lgibson@kid.org for more information and to obtain a "Water Allotment Allocation Application".
    a. This property is within the Southridge Master Plan Benefit Area. Compliance with the Southridge Master Irrigation Facilities Plan and KID Resolution No. 2016-14 will be required if KID irrigation water is used.
        i. Please contact KID Engineering Department for more details and determined connection point.
3. Please note that permanent structures are not allowed within irrigation easements.
4. Please protect all existing irrigation facilities.

If you have any questions regarding these comments, please contact me at the address/phone number listed above.

Sincerely,

Chris D. Sittman
CAD Specialist

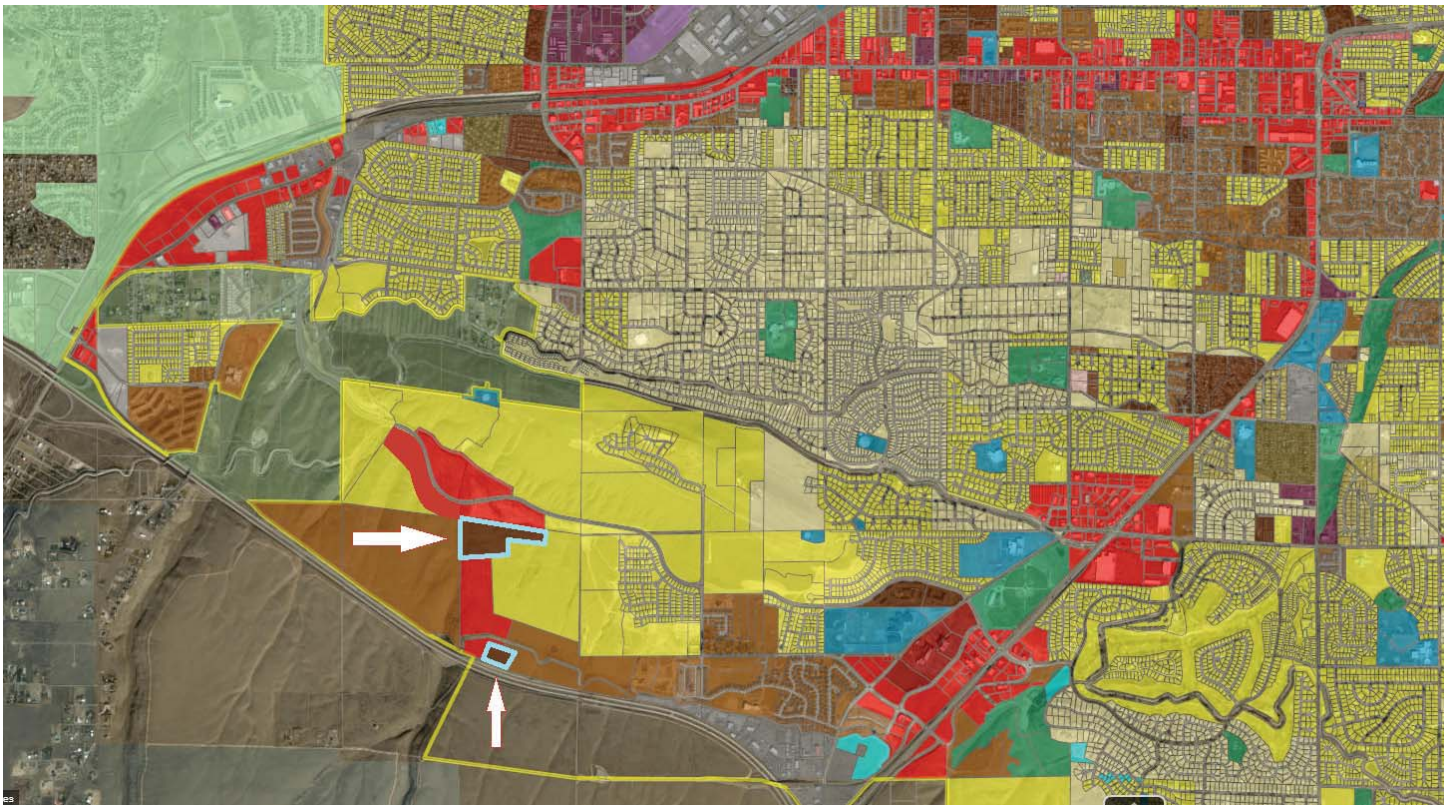
cc: LB\correspondence\File 01-08-28
Applicant via mail – Bauder Young Properties, 859 Meadow Hills Drive, Richland, WA 99352

Steve Donovan

From: Nick Wright <nwright@younginv.com>
Sent: Thursday, August 25, 2022 8:10 AM
To: Bob Garrison
Cc: Marie Mosley; Evelyn Lusignan; Anthony Muai; Steve Donovan; Grant Young; Teri Hash; Ron Wu; Malcolm Sun; Tyler White; Kelly Nguyen
Subject: Re: 8/10/22 - Meeting Minutes - 8248 & 8224 Bob Olson Pkwy - CPA's 2022-0004 & 06

Marie,

I would also like to follow up on Bob's email. Per our investigation into the City's zoning map, it appears that there are only two undeveloped parcels in the entire City of Kennewick that are zoned high density residential, totaling 29.5 acres. (See the map below – parcels are highlighted in blue). As you can see, both of these parcels are currently landlocked and the intent of the property owners is unclear.



In researching the MLS, I have found only one listing for multi-family land in Kennewick: a 4.5 acre *medium density* parcel near the Canyon Lake area (max 13 units per acre). We strongly believe that demand far outstrips supply of multi-family parcels, while the opposite is true of commercial parcels.

As you will see in the articles that Bob sent you (I have reattached them for your convenience), there is a huge housing shortage in Kennewick - we hope that staff and the City Council will not only take a look at available commercial land, but also focus on the extraordinary demand for residential dwellings in the coming years. And given municipalities' focus on preventing urban sprawl, we're confident the two rezone applications we have pending with Kenniwick are consistent with the long-term interest of the City.

Thanks again for your consideration Marie. We hope this information will be shared to Council alongside the commercial land report. Thanks!

N I C K W R I G H T
Young Asset Management LLC
Kelly Right Real Estate

nwright@younginv.com
younginv.com
Phone: *509-845-9411*

On Wed, Aug 24, 2022 at 3:27 PM Bob Garrison <bgarrison@murowdc.com> wrote:

Marie - Good afternoon and I hope all is well. I am following up with you on the email I sent you last Friday (see email chain below) to make sure that you rec'd it.

Please let me know, thank you,

Bob

Bob Garrison
Director of Consulting Services

MUROW DEVELOPMENT CONSULTANTS

1151 Duryea Ave, Irvine, CA 92614
Direct: (949)398-8349 | Cell: (949)648-1525
www.murowdc.com | bgarrison@murowdc.com

Please note our new website and my email address

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On Fri, Aug 19, 2022 at 4:37 PM Bob Garrison <bgarrison@murowdc.com> wrote:

Marie - As a follow up to our meeting with you, Evelyn, Anthony, and Steve on August 10th in which we discussed the City's decision to postpone our CPA's 2022-04 & 06 from the August 15th Planning Commission hearing to October 17th, we are submitting to you and your team our Meeting Minutes that recap the discussions of that meeting. We have also attached articles from the Tri-Cities Business News and NPR that identify the housing shortage in the Tri-Cities area and specifically Kennewick.

We would appreciate it if you would provide these attachments including the Meeting Minutes to the Council Members for their review.

Please let me know if you have any questions or concerns.

Thank you and we look forward to catching up with you in the coming weeks to further discuss.

Bob

Bob Garrison
Director of Consulting Services

MUROW
DEVELOPMENT CONSULTANTS

1151 Duryea Ave, Irvine, CA 92614
Direct: (949)398-8349 | Cell: (949)648-1525
www.murowdc.com | bgarrison@murowdc.com

Please note our new website and my email address

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From: Bob Garrison
To: Marie Mosley; Evelyn Lusignan; Anthony Muai; Steve Donovan
Cc: Grant Young; Teri Hash; Ron Wu; Malcolm Sun; Tyler White; Nick Wright; Kelly Nguyen
Subject: 8/10/22 - Meeting Minutes - 8248 & 8224 Bob Olson Pkwy - CPA"s 2022-0004 & 06
Date: Friday, August 19, 2022 4:39:00 PM
Attachments: Kennewick-8428 & 8224 Bob Olson Pkwy - City Mgr Mtg Mins 081022.pdf
Tri-Cities Business News Apt project brings needed units to Kennewick (Jan 2021).pdf
Tri-Cities Business News Housing Shortage in Tri-Cities (April 2022).pdf
NPR Housing shortages - U.S. News Article (July 2022).pdf

Marie - As a follow up to our meeting with you, Evelyn, Anthony, and Steve on August 10th in which we discussed the City's decision to postpone our CPA's 2022-04 & 06 from the August 15th Planning Commission hearing to October 17th, we are submitting to you and your team our Meeting Minutes that recap the discussions of that meeting. We have also attached articles from the Tri-Cities Business News and NPR that identify the housing shortage in the Tri-Cities area and specifically Kennewick.

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Please note our new website and my email address

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MUROW DEVELOPMENT CONSULTANTS

Meeting Minutes
8224 Bob Olson Parkway (CPA 2022-0006) & 8428 Bob Olson Pkwy (CPA 2022-0004), Kennewick, WA
August 10, 2022

Attendees: Marie Mosley (MM), Evelyn Lusignan (EL), Anthony Muai (AM), Steve Donovan (SD) – City of Kennewick; Grant Young (GY), Teri Hash (TH) – Bauder Young (Property Owners); Nick Wright (NW) Property Broker; Ron Wu (RW), Malcolm Sun (MS), Tyler White (TW) – Red Tail Multifamily; Bob Garrison (BG), Kelly Nguyen (KN) – Murow Development Consultants

---

BG requested MM to provide reasoning for postponing the above referenced properties (CPA's) from the scheduled Planning Commission hearing on 8/15/22.

MM stated that the Comp Plan Amendment process was set up to look at the entire city comprehensively and specifically to look at Land Use in the future. She went on to say that Council Members had questioned the amount of Commercial land use that was in the CPA process to convert to Residential land use.

MM noted that to support the process a study had been started with a 3rd party consultant to do a report identifying what amount of retail would be needed in the future. MM stated that "the numbers will speak for themselves."

The project team presented slides (Attached) showing the 48 acres of zoned retail, 8 acres on 8428 Bob Olson Parkway, and 40 acres directly across on the south side of Bob Olson Parkway that would still be available should the conversion of 8224 & 8428 Bob Olson Parkway to residential use be approved.

BG/NW noted that both of the above referenced properties have been on the market since 2015 and there have been no actual offers from any commercial developers/businesses. NW went on to note that they rec'd offers from residential developers at a 10 to 1 ratio.

TH stated that the ownership team had marketed aggressively over the years to retail organizations/gatherings to secure offers, none came. TH went on to say that she had worked with the city (Terry Walsh) for several years 2015-2018 in promoting the Bauder Young commercial area to the developer of the Village at Meridian, Fred Bruning of Center Cal. They were very interested in doing a lifestyle mall on 8114 & 8428 Bobb Olson Pkwy, but nothing came of it due to lack of the fundamentals, i.e. demand ("rooftops").

GY stated that there is significant housing demand in the area, and that for retail to occur on these properties, it will take many years for this to happen. BG stated that retail requires rooftops in the area, and what both of the CPA's are proposing would support the 48 acres of retail that would remain should both of these CPA's be approved.

BG requested MM to share the study the City commissioned and MM stated that the study would be presented at a City Council workshop on September 27, 2022 (Tentative Date) and that we could hear of the results at that "workshop". BG noted the City's "workshops" were not open for public comment and therefore not really workshops, MM stated that she understood and noted that the "workshops" were for staff to clarify the direction from PC & CC.

BG asked if there is a possibility these two CPA applications will be pushed into the next cycle. MM shared the City of Kennewick will try their best to come to a decision on CPAs by November 2022 and it will not roll over to the next CPA cycle period.

_source=TCJOB&utm_campaign=CD22)

(https://4aai724b033c18zdidlyy7ing-wpengine.netdna-ssl.com/wp-content/uploads/2022/04/REC-

Developers terrace home sites on the south side of Thompson Hill, near Kennewick's Southridge High School. (Photo by Wendy Culverwell)

GMA is aggravating housing shortage in Tri-Cities, officials say

Wendy Culverwell (https://www.tricitiesbusinessnews.com/author/wendy-culverwell-2/) | April 2022

A young relative asked Jeff Losey if he should wait for the housing market to cool down before purchasing his first home.

Losey, executive director of the Home Builders Association of Tri-Cities, said he advised against waiting.

"The water level is what it is," he said, referring to current home prices. "It's not going to precipitously go down."

Losey, together with Ron Almberg, president of the Tri-City Association of Realtors, provided their insights into what's driving the Tri-City housing market during a recent episode of the Tri-City Development Council's weekly Coffee with Karl Dye program.

What is driving the market? Low interest rates, job creation and population growth. And the 1990 Washington Growth Management Act.

The Federal Reserve may be raising interest rates in a bid to control inflation, but the other factors driving down inventory and driving up demand – and prices – aren't abating, they agreed.

Young and first-time buyers are the hardest hit, but they aren't alone, said Almberg, a designated broker with Keller Williams Tri-Cities when he's not leading the industry association that represents about 850 local real estate professionals.

Older residents looking to downsize into single-level homes have few choices also.

"It's not just first-time home buyers. It's older folks. They're having a challenge too."

Fewer getting built

Losey outlined how builders secured fewer permits for new homes in 2021 than the year prior, not because demand is abating but because buildable lots are scarce in some areas.

Tri-City homebuilders secured permits to construct 1,647 homes in 2021, down 1,695 from in 2020.

He blames Washington's Growth Management Act for making it difficult to expand city limits – and services.

"The GMA is the thorn in the side of every jurisdiction. It's more expensive because you've restricted the supply," he said.

Kennewick housing starts dipped to 238 in 2021, from 290. Losey anticipates a jump in 2022 as work proceeds in the Southridge area as land is prepared along the base of Thompson Hill. A drive along Bob Olson Parkway readily affirms that land is being prepared for future subdivisions.

Pasco saw a dip too and like Kennewick, it is not for lack of demand but rather available lots. When the urban growth boundary is approved, land will be developed.

"We expect that to pick up again," he said.

Richland and West Richland were strong performers thanks to the available lots at Badger Mountain South for the former and Aho Development's Heights at Red Mountain Ranch in the latter.

The numbers

Almberg painted a difficult portrait of the Tri-City residential market for buyers.

The median home price in the Tri-Cities rose to $400,000 by the end of 2021, up 20% from the year prior.

The average list price for a three-bedroom home – the most common sold – was about $369,000 in 2021. Tellingly, three-bedroom homes sold for slightly more than their average asking price, about $374,000 on average.

Agents now advise buyers not to put in offers that are less than full price.

There is a positive aspect, though.

The Tri-Cities is not Seattle, Portland or even Boise, where homes sometimes draw headlines by selling for hundreds of thousands of dollars more than the list price.

Local homes may sell for four figures over asking, but not six.

“Buyers aren’t that desperate,” he said. “They won’t way overpay.”

The price range for homes is on the rise.

A decade ago, most homes sold in the $120,000-$330,000 range. Five years ago, the bottom end shifted up to $160,000. Today, the range is closer to $330,000 to $500,000-plus.

“There’s a huge change,” Almberg said.

Interest rates

With inflation approaching 8% in early April, homebuilders anticipate the Fed will take a series of steps to bring it under control.

Robert Dietz, NAHB’s chief economist, outlined his expectations in his e-newsletter, Eye on the Economy, in March.

“The economic projections provided by the (Federal Reserve) indicate that markets may expect six additional 25 basis-point increases through the end of 2022,” he wrote.

Losey warned buyers – and others – to be mindful that the cost to borrow will go up.

“Absolutely, rates are going up,” Losey said. “If you want to get that pool, you’d better do it now.”

Almberg said when the Federal Reserved approved a rate hike of 0.25 percentage points in March – its first in more than three years – it shaved $40,000 off the buying power of a typical buyer.

Affordability

According to Losey, the Tri-City housing market is increasingly unaffordable.

Only 20% of families in the community have the income to afford a median new home price of $569,000. Statewide, only 24% can.

And he notes that for every $1,000 in added cost in the Tri-Cities, another 80 families are moved out.

That matters a lot to the Tri-Cities, which has traditionally marketed itself as an affordable place to live.

Almberg said one unintended consequence is the community is building out – with people choosing to commute to Tri-City jobs from homes in Prosser, Connell and in his own case, Benton City.

Rising gas prices may dent the trend, but he said he's noticed builders are moving further out. He said he moved to Benton City about seven years ago because he wanted new construction. But the alfalfa field next door now has 42 homes on it.

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(https://www.tricitiesbusinessnews.com/2022/08/port-event-rescheduled/)

Port reschedules Columbia Gardens wine park event

(https://4aai724b033c18zdidyyy2021-wpengine.netdna-ssl.com/wp-content/uploads/2021/01/Jan-

Jason Zook of Smile A Mile Painting is developing an infill apartment complex at 3120 W. Fourth Ave., Kennewick. (Photo by Wendy Culverwell)

In-fill apartment project brings needed units to central Kennewick

Wendy Culverwell (https://www.tricitiesbusinessnews.com/author/wendy-culverwell-2/) | January 2021

Jason Zook is best known in the Tri-Cities for Smile A Mile Painting, a residential and commercial painting business with operations in the Tri-Cities and Central Oregon.

Jason Zook

But Zook has a background in construction and has always built projects for himself, something he treats as a hobby.

“I know the steps from the concept on paper to design through sweeping the carpet and making sure all the water is flowing in the right direction,” he said.

His latest project is a three-story, 26-unit apartment project at 3120 W. Fourth Ave. in the heart of Kennewick. Demand drove the investment in the $3.1 million project. The vacancy rate for Kennewick was just 1.2%, according to the most recent survey by the University of Washington’s Runstad Center for Real Estate.

Pasco and Richland were similarly tight, at 0.5% and 1.7%, respectively, for all unit types.

“I have other apartments in town. I’m always getting calls. There’s just a shortage of housing,” he said.

The unnamed Zook project will be the first new multifamily construction in the neighborhood and will offer units at market rates, about $900 to $1,100 per unit.

“I can basically build the newest and nicest in the neighborhood because it’s 2020. Everything else is ’70s and ’80s,” he said in December.

Zook said the property was ready-made for a smallish, no-frills apartment project.

The one-acre property had single-family home on it but was zoned for apartments and had utilities at the site. The city was eager to see denser residential development, he said.

Zook demolished the home and upgraded the utilities to support the added demand.

The project consists of two-bedroom, one-bathroom apartments. Zook said he is targeting the middle market. Units will have laminate flooring, carpeted bedrooms, “nice” cabinets and some hard surfaces.

It is unlike most apartment development in the Tri-Cities, which tends to cater to higher income demographics with riverside locations and luxury touches such as granite countertops and clubhouses with recreational amenities including pools.

Zook said the site is too constrained for a clubhouse. While the project is unsubsidized, he is committed to keeping rents in the midrange.

“We’re really excited about offering a new unit at this level because unfortunately there’s a lot of people out there whose only options are older units,” he said. “Rent has gone through the ceiling for them.”

Exhibit A-7

He is targeting a summer occupancy and is taking reservations now. Zook and his wife intend to hold onto the complex as an investment and will manage it themselves.

Zook grew up building single-family homes with his father in The Redmond/Bend/Madras region of Central Oregon. He began in 2003 and ran into the teeth of the Great Recession a few years later. Bend led the nation for foreclosures when the housing bubble collapsed. Projects dried up so he turned to painting.

There was so much demand from customers wanting to change the color of their homes that he focused on that instead of building.

He has about 20 employees in Redmond and more in the Tri-Cities because it is a larger market.

“We are looking to other markets for expansion,” he said.

Call Preferred Rentals, 509-579-9393, for leasing information.

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(https://www.tricitiesbusinessnews.com/2022/08/vangiesen-detours/)

Expect detours at Van Giesen-bypass highway intersection

(https://www.tricitiesbusinessnews.com/2022/08/p

Exhibit A-7

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ECONOMY

There's a massive housing shortage across the U.S. Here's how bad it is where you live

July 14, 2022 · 5:00 AM ET

CHRIS ARNOLD | ROBERT BENINCASA | JACQUELINE GANUN | HAIDEE CHU

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Contractors work on the roof of a house under construction in Louisville, Ky. A new study shows the U.S. is 3.8 million homes short of meeting housing needs.

Luke Sharrett/Bloomberg via Getty Images

Exhibit A-7

Danielle and Colin Lloyd spent the past year trying to buy a house in Atlanta, which went about as you'd expect these days.

"There is just nothing in this whole area, just nothing," says Danielle. The couple was looking for a place with at least a small yard and space for their three young kids.

"The prices were just ridiculous," says Colin. "People were just bidding much higher than what the house was listed for."

Exhibit A-7

Danielle and Colin Lloyd spent much of the past year looking at homes in Atlanta but couldn't find anything they could afford.

Danielle and Colin Lloyd

"I only cried twice," Danielle chimes in.

Meanwhile, their landlord was about to raise their rent by $450 a month, which also was caused by the same problem — not enough homes to rent or buy.

"We're seeing a shortage, or housing underproduction, in all corners of the U.S.," says Mike Kingsella, the CEO of Up for Growth, which on Thursday released a study about the problem. The nonprofit research group is made up of affordable housing and industry groups.

"America's fallen 3.8 million homes short of meeting housing needs," he says. "And that's both rental housing and ownership."

Sponsor Message

Exhibit A-7

Home prices are up more than 30% over the past couple of years, making homeownership unaffordable for millions of Americans. Rents are rising sharply too. The biggest culprit is this historic housing shortage. Strong demand and low supply mean higher prices.

Part of the problem goes back to the last housing crash, which happened around 2008. After that, many homebuilders went out of business, and economists say we didn't build enough for a decade.

So Up for Growth's study took a look at what's happening in 800 cities and towns.

How severe are housing shortages in your area?

Housing shortages have remained problematic or worsened in hundreds of metro areas around the U.S. in the past decade, according to nonprofit research group Up for Growth.

Search in table

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RANK	METRO AREA	2012-2014 STATUS	2017-2019 STATUS	ESTIMATED AVAILABLE UNITS	<% SHORTAGE	% SURPLUS>
1	Oxnard-Thousand Oaks-Ventura, CA	Shortage	Shortage got worse	31,310 units short	–11%	
2	Laredo, TX	Shortage	Shortage got worse	9,011 units short	–11%	
3	Gainesville, GA	Shortage	Shortage got worse	7,107 units short	–10%	
4	Riverside-San Bernardino-Ontario, CA	Shortage	Shortage got worse	138,137 units short	–9%	
5	McAllen-Edinburg-Mission, TX	Shortage	Shortage but recovering	22,887 units short	–9%	
6	Los Angeles-Long Beach-Anaheim, CA	Shortage	Shortage got worse	392,132 units short	–8%	
7	Brownsville-Harlingen, TX	Shortage	Shortage got worse	11,077 units short	–8%	
8	Miami-Fort Lauderdale-Pompano Beach, FL	Shortage	Shortage got worse	178,592 units short	–8%	
9	Salem, OR	Shortage	Shortage got worse	9,484 units short	–8%	
10	San Jose-Sunnyvale-Santa Clara, CA	Shortage	Shortage got worse	49,582 units short	–7%	
	Washington-					

Exhibit A-7

11	Washington-Arlington-Alexandria, DC-VA-MD-WV	Shortage	Shortage got worse	151,463 units short	–7%
12	Salinas, CA	Shortage	Shortage got worse	8,308 units short	–7%
13	Salt Lake City, UT	Shortage	Shortage got worse	27,851 units short	–7%
14	San Antonio-New Braunfels, TX	Shortage	Shortage got worse	54,812 units short	–7%
15	Modesto, CA	Shortage	Shortage got worse	11,859 units short	–7%
16	East Stroudsburg, PA	Shortage	Shortage got worse	4,094 units short	–6%
17	Portland-Vancouver-Hillsboro, OR-WA	Shortage	Shortage got worse	59,017 units short	–6%
18	Ogden-Clearfield, UT	Shortage	Shortage got worse	12,408 units short	–6%
19	San Francisco-Oakland-Berkeley, CA	Shortage	Shortage got worse	111,445 units short	–6%
20	Kennewick-Richland, WA	Shortage	Shortage got worse	5,347 units short	–6%

"In Los Angeles, for instance, which is the most underproduced metro in the country, it's lacking 8.4% — nearly 400,000 homes missing across the region," Kingsella says. In other words, given the population of Los Angeles, there should be that many more units to meet the demand.

It's not just LA. In hundreds of big cities and small towns, from Boston to Boise, there's a housing shortage. But Kingsella says this is a solvable problem: "It doesn't have to be this way, is a key message coming out of this report."

Perhaps the biggest issue, he says, is that states and towns desperately need to change their zoning rules.

Changing outdated zoning rules is key

In Atlanta, Ernest Brown heads up the local chapter of housing advocacy organization YIMBY Action.

Ernest Brown heads up the Atlanta chapter of YIMBY Action, a housing advocacy organization. He says much of Atlanta is zoned for either big apartment towers downtown or single family homes. "There's nothing in between," he says. "We're really focused on what about those other options."

Ernest Brown

"The YIMBY movement, which stands for 'yes in my backyard,' is kind of poking fun at the idea of NIMBY, 'not in my backyard,'" he says, referring to the long-standing issue of existing homeowners objecting to efforts to bring more affordable housing to their neighborhoods. Often they worry about greater density changing the character of the neighborhood or causing traffic and parking problems.

Brown says many places like Atlanta have outdated zoning rules that allow for either big apartment buildings downtown or single family homes on big lots — and nothing in between. He says that this results in a "missing middle" of more affordable town houses or smaller starter homes closer together.

Brown hears people complaining all the time about not being able to afford a house. He tries to get them to go to zoning meetings and call their representatives.

"They actually want to hear from you, particularly at the local level," he says. Brown says what he likes about the housing issue is that if you get involved, you're not just yelling into the wind about far-off federal politicians in Washington. Big changes have to happen at the state and local levels, he says.

"I have the phone number and regularly chat with my council person."

On this economists agree: We need more housing

There is some debate about just how bad the shortage is in terms of the number of homes the U.S. needs. Mark Zandi, the chief economist of Moody's Analytics, estimates the shortfall is closer to 1.6 million homes. He was not a part of this study.

"It's very difficult to know precisely what the shortage is," Zandi says. "But the bottom line is, no matter what the estimate is, it's a lot of homes that we're undersupplied." And he adds there's no doubt that many more homes need to be built to ensure that housing becomes more affordable, whether it's rental housing or homeownership.

You don't have to convince Andrea Iaroc of that. She works for nonprofit art museums and lived in Seattle for many years, where buying a house has long been very expensive. "It was just too much for me," she says.

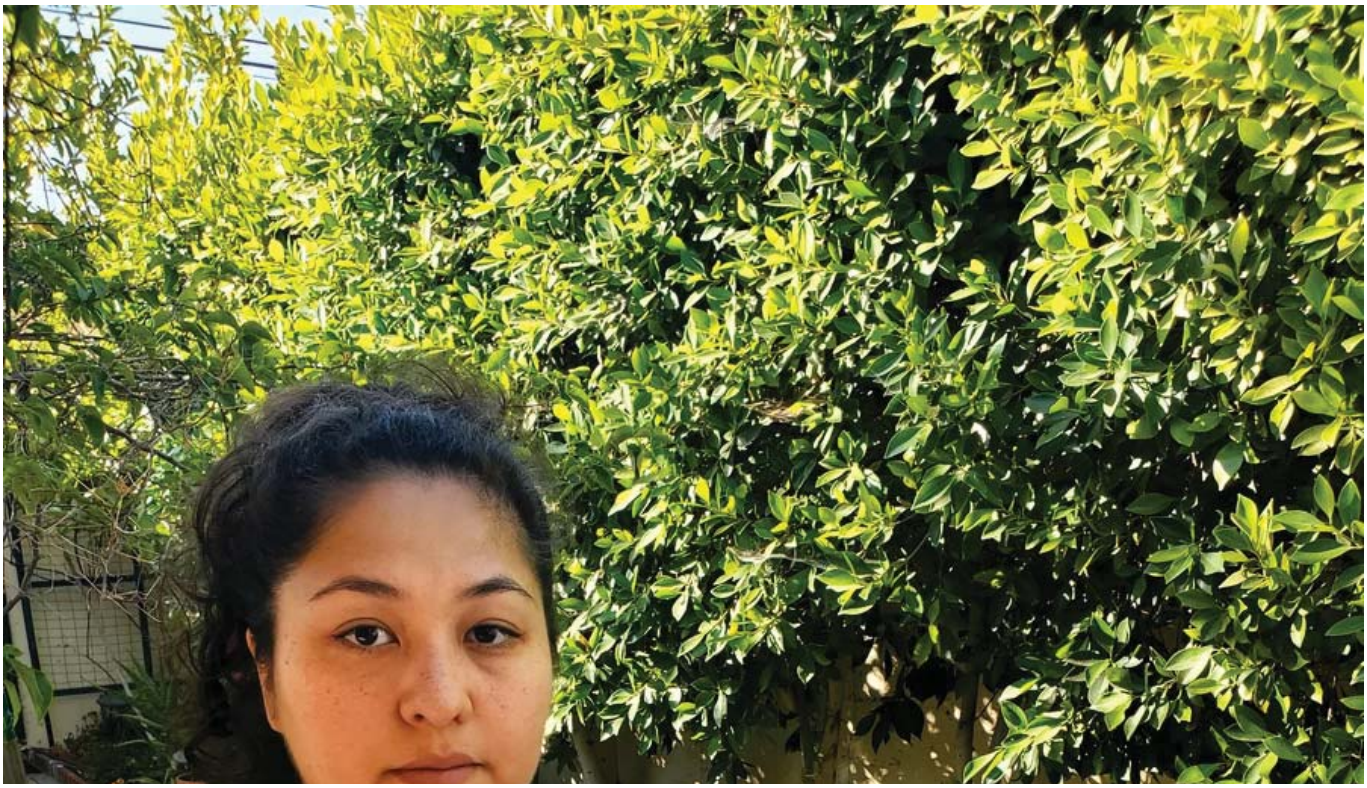

Exhibit A-7

Andrea Iaroc at the home she rents in Los Angeles. She says she may leave the U.S. and move to Colombia, where she has family, so she can afford to buy a house.

Andrea Iaroc

In 2019, she moved to Los Angeles: "I thought, 'OK, let me see what it looks like over here.'" But she still couldn't afford to buy a home. Iaroc has family in Colombia. So now she's seriously considering moving there and trying to work remotely, consulting for museums in the United States.

"I have some of my friends who are digital nomads, and they've done that," she says. "That used to be maybe Plan B. Now it's become Plan A."

Some cities and states are making changes

"I see firsthand the building political will mounting to take on and tackle this challenge," says Up for Growth's Kingsella. He points to California, Oregon and Maine,

Exhibit A-7

which all recently passed laws to end single family zoning by allowing for the construction of more than one home per parcel of land — for example, an in-law apartment over a garage or a backyard cottage. Kingsella expects more states to take similar actions in coming years as one way to help boost the supply of rental units.

Drive until you qualify

In other parts of the country, though, including Atlanta, such zoning reforms are still being voted down.

Danielle and Colin Lloyd did what many Americans have done over the years: look much farther away to find a place they can afford to buy. It's often called "drive until you qualify." And they just bought a house in Walnut Grove, Georgia.

"I told somebody at church, and she was like, 'Oh, my goodness, you all moved to Egypt — you're so far out!'" says Danielle.

The Lloyds finally found a home they could afford in Walnut Grove, Ga., for $409,000. They moved in two weeks ago.

Danielle and Colin Lloyd

It's about an hour from where they used to live and work in Atlanta. They can both mostly work remotely, so they're not too worried about the commute.

They just moved in a couple of weeks ago. And they are feeling a little apprehensive about being an African American family moving from the city into a tiny rural town that is nearly 90% white, according to census data. There's a bit of a culture clash too.

"Moving to country Georgia where there's an ammo shop down the street, it's like a constant in your face," Danielle says.

But the couple says the neighbors seem friendly. There are other families with kids. So they're feeling hopeful.

"I love the idea of like when the kids are a little older saying, 'Yeah, go play at your friend's house.'" Danielle imagines what it will be like watching them run over to the neighbor's place: "I can see them, like, at the corner, you know. 'I'll watch you ride over there,'" she says. "I love that."

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From: Marie Mosley
To: "Bob Garrison"; Evelyn Lusignan; Anthony Muai; Steve Donovan
Cc: Grant Young; Teri Hash; Ron Wu; Malcolm Sun; Tyler White; Nick Wright; Kelly Nguyen
Subject: RE: 8/10/22 - Meeting Minutes - 8248 & 8224 Bob Olson Pkwy - CPA"s 2022-0004 & 06
Date: Thursday, August 25, 2022 8:44:49 AM
Attachments: image001.png
image002.png
image008.png

Thank you Bob for asking to meet with City staff on August 10th. I wasn't aware that you were taking meeting minutes, but rather I had the impression that this was an informal meeting to discuss the City's Comprehensive Plan Amendment Annual Update process. I want to clarify that the meeting minutes you have provided are your meeting minutes, not our meeting minutes or the collective group meeting minutes. I appreciate your attempt to capture the essence of our meeting, however I do not believe these capture our entire discussion.

I agreed to meet with you to discuss the role of staff in the Comprehensive Plan decision making process that will ultimately result in a recommendation that Staff will make to the Planning Commission. It is important for the City to review the overall land use in a comprehensive manner, in an effort to provide the appropriate mix and location of land use at this time and into the future for our community. As we mentioned, staff will make a recommendation to the Planning Commission. The Planning Commission will then hold the required public hearing where you will have an opportunity to present your proposal and rationale to the Planning Commission. The Planning Commission will ultimately make a recommendation to the City Council. The City Council will review all the information and then make a decision regarding the Comprehensive Plan proposed amendments.

We have appreciated working closely with Teri, Grant and Nick for many years as they have been developing in the Southridge area. They, (along with several other developers) and the City worked together on an agreement that led to the design, funding and construction of Bob Olson Parkway. We have also coordinated with them on potential opportunities and discussed how we can help implement the vision for the Southridge area, which included a mix of Commercial and Residential development. In an effort, and in partnership with developers to implement the vision, the City has invested millions of taxpayer dollars in some of our main arterials (Clearwater/Bob Olson Parkway) and it is important that we take the time to do the due diligence our community and Council would expect. One of the reasons staff is recommending that your CPA (along with a few others) be postponed is to conclude the third party study relating to Commercial Land Use in our City. Until we review the results of the study, we cannot make an informed recommendation on the CPA's that propose moving Commercial to Residential land use adjacent to these major arterials. I appreciate your understanding of City staff's role and responsibility in the Comprehensive Plan Annual Amendment update process.

Marie Mosley
City of Kennewick
City Manager
O: 509.585.4238 | C: 509.440.3994
marie.mosley@ci.kennewick.wa.us

From: Bob Garrison <bgarrison@murowdc.com>
Sent: Friday, August 19, 2022 4:38 PM
To: Marie Mosley <Marie.Mosley@ci.kennewick.wa.us>; Evelyn Lusignan <Evelyn.Lusignan@ci.kennewick.wa.us>; Anthony Muai <anthony.muai@ci.kennewick.wa.us>; Steve Donovan <Steve.Donovan@ci.kennewick.wa.us>
Cc: Grant Young <granteyoung@gmail.com>; Teri Hash <yourkeytohomes@gmail.com>; Ron Wu <Rwu@rtacq.com>; Malcolm Sun <Msun@rtacq.com>; Tyler White <twhite@rtacq.com>; Nick Wright <nwright@younginv.com>; Kelly Nguyen <knguyen@murowdc.com>
Subject: 8/10/22 - Meeting Minutes - 8248 & 8224 Bob Olson Pkwy - CPA's 2022-0004 & 06

Marie - As a follow up to our meeting with you, Evelyn, Anthony, and Steve on August 10th in which we discussed the City's decision to postpone our CPA's 2022-04 & 06 from the August 15th Planning Commission hearing to October 17th, we are submitting to you and your team our Meeting Minutes that recap the discussions of that meeting. We have also attached articles from the Tri-Cities Business News and NPR that identify the housing shortage in the Tri-Cities area and specifically Kennewick.

We would appreciate it if you would provide these attachments including the Meeting Minutes to the Council Members for their review.

Please let me know if you have any questions or concerns.

Thank you and we look forward to catching up with you in the coming weeks to further discuss.

Bob

Bob Garrison
Director of Consulting Services

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Leading the Way

MEMORANDUM

DATE: October 10, 2022

TO: Kennewick Planning Commission

FROM: Emily Estes-Cross, Economic Development Director

SUBJECT: CPA-2022-0001, CPA-2022-0004, and CPA-2022-0006

This evaluation of Comprehensive Plan Amendments CPA-2022-0001, CPA-2022-0004, and CPA-2022-0006 is comprised of economic implications and a commercial land constraint analysis generalizable to all three proposed amendments, and concludes with comments specific to each site.

Should commercial growth occur as projected through 2040, a meager surplus of 62 acres of commercially zoned and 33 acres of industrially zoned land demonstrates a land constraint vulnerability for City of Kennewick economic development objectives. Redesignation of current employment lands, parcels used for commercial industries that contribute to our economy and accommodate jobs, will limit development opportunities in the City of Kennewick.

An Employment Lands Inventory (ELI) (attached) used to inform future infrastructure investment and make data-driven decisions on zoning and land use, shows Kennewick will need 552 acres of commercial land and 426 acres of industrially zoned land to accommodate commercial growth through 2040. Demand projections are based on historical trends in the Tri-Cities Metropolitan Statistical Area (MSA), indicating Kennewick's employment will increase by 14,000 jobs between now and 2040. Facility square footage and land acreage to accommodate growth is unique to each industry (healthcare, retail, professional services, manufacturing, etc.)

According to the developable lands analysis contained in the ELI, as of September 2022, Kennewick has a commercial land supply of 614 acres and an industrial land supply of 459 acres. Commercial land supply is calculated by adding 667 acres vacant and 72 acres underutilized commercially zoned land, reduced by a market factor rate of 15% for vacant and 35% for underutilized land (land remains undeveloped due to market factors outside of the city's control). Industrial land supply is based on 492 vacant and 63 acres underutilized industrial zoned land, reduced by the same market factor rates. Reducing the projected surplus

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Leading the Way

of 62 acres commercially zoned and 33 acres of industrially zoned land prematurely restricts target industry recruitment possibilities through 2040.

Several factors drive recruitment of target industries. First, we seek out the services our citizens and existing business want or need, which have also been identified as gaps in neighborhood or marketplace services. For instance, citywide needs include daycare centers for current residents and the 3,380 units approved through the pre-plat process. As residential units develop to the west and commercial follows, gaps in grocery stores and neighborhood amenities are evident. Facilitated by West Clearwater Avenue and Bob Olson Parkway, neighbors in west Kennewick have easy access to Richland for the purchase of needed services, resulting in economic leakage. A second factor of marketability is the number of completed and occupied residential units and the mix of complimentary industry that motivate a business to locate. Grocery stores, for example, will not break ground on speculation of development.

A third and significant commercial recruitment consideration is availability of properly zoned property and access to infrastructure. To locate or expand, prospective businesses seek commercially-designated land with existing access and visibility from primary arterials, in proximity to utility connections, and accessible by multimodal transportation. While the City of Kennewick invests in such infrastructure to plan for and accommodate commercial growth, it's under the premise the ongoing maintenance costs of roads, utilities, and greenways will be offset by retail sales tax generated.

While housing is also undoubtedly recognized as supportive to economic development, redesignating commercial zoning to residential is potentially trading one problem for another. A rental housing market study conducted in March 2022 showed the Tri-Cities regional vacancy rate has remained below 5% since 2017, and was 3.6% as of first quarter 2022. The market vacancy is forecast to increase to 4.0% in 2023 considering the moderate number of new multifamily projects in the development pipeline (317 traditional units and 700 micro units), and does not consider construction of single family homes. Rezoning the commercial land intended to support jobs and services for residential development reduces the opportunities and access to quality of life amenities for the workforce we're recruiting and endeavoring to retain in Kennewick. Comprehensive housing solutions that don't involve creating a shortage of commercial employment lands to the long-term detriment of the economy should be sought. Furthermore, the City's threshold for eliminating employable lands as a precedent for future Comprehensive Plan Amendments should be considered.

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Leading the Way

CPA-2022-0001

The proposed amendment to change the land use designation of 25.41 acres from Commercial to High Density Residential at 11358 W. Clearwater Avenue would hamper economic development efforts to attract a grocery store and neighborhood services to support existing households and 1,961 residential units in the pipeline west of Highway 395 and north of 10th Avenue, in the proximity of West Clearwater. Aside from Costco, which requires a membership, the closest grocery store is in Richland. Retail sales tax generated in Richland does not support City of Kennewick infrastructure. Furthermore, if the amendment is approved, the less than 10 contiguous acres of commercially zoned land remaining in the vicinity would limit development opportunities.

CPA-2022-0004 and CPA-2022-0006

Combined, the proposed amendments at 8428 Bob Olson Parkway (11.29 acres of Commercial) and 8224 Bob Olson Parkway (13.76 acres of Commercial) to High Density Residential is problematic for two reasons. First, rezoning 25 acres of 30 undeveloped acres fronting a major arterial significantly eliminates the likelihood of attracting a lifestyle development (grocery, restaurant, and daily services) for nearby residential neighborhoods, a consideration in the original commercial zoning designation of the 30-acre swath. Approval of the amendments would prematurely reduce the citywide inventory of large contiguous parcels with existing access for sizeable commercial development opportunities through 2040.

Second, the City expanded its original conception of Bob Olson Parkway from a 2-lane to 4-lane road, and invested in 9 linear miles of greenway to attract frontage commercial development, under the premise retail sales tax generated would help offset ongoing maintenance costs. With existing homes and an additional 1,028 residential units in the pipeline west of Highway 395 and south of 10th Avenue, neighbors are being pushed to Richland to purchase services. The result is economic leakage with no cost recovery for the ongoing irrigation, vegetation management, and care of more than 600 trees along Bob Olson Parkway.

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Exhibit A-9

City of Kennewick Employment Lands Inventory

Economic Development Strategic Plan

October 11, 2022

Prepared by:

CAI
COMMUNITY ATTRIBUTES INC

Prepared for:

KENNEWICK WASHINGTON

FINDINGS & IMPLICATIONS

This Employment Lands Inventory (ELI) analyzes key conditions for development opportunities in the City of Kennewick. Findings from the ELI will complement the Existing Conditions and Landscape Assessment to support the framework for a future Economic Development Strategic Plan. Findings from the ELI are described below.

General Findings

- A significant portion of employment lands in Kennewick have some level of development capacity (from 37-42%). However, nearly two-thirds of this developable land is located in peripheral areas outside of downtown and does not fall in Kennewick's two federally-designated opportunity zones. (**Exhibits 8 & 9**)
- Kennewick's developable land is comprised of a mixture of large, vacant parcels or large aggregations of vacant parcels near the eastern, southern, and western City limits, while there are smaller vacant, partially vacant, or underutilized sites around Vista Field, the West Highlands, Downtown, and along SR-395. (**Exhibit 7**)
- An assessment of employment land demand based on an increased capture of regional growth in certain target industries found that there is a 95 acre surplus of developable employment land supply that is sufficient to meet the estimated demand for the period 2020-2040 for both commercial and industrial use (**Exhibit 15**).

Business Development

- The distribution of developable land across different zoning categories has implications for the ability to attract certain target industries. For instance, the majority of employment land development capacity is commercial- or mixed-use-zoned (57%) (**Exhibit 10**). This may limit the extent to which certain industrial and production uses could be attracted to the area. The draft landscape assessment indicates that the city and its regional partners primarily target production industries that rely on industrial sites: energy, food processing, logistics/warehousing, distribution, and construction. Higher income jobs are in wholesale trade, public administration, and professional services and much of the existing and forecast employment is connected to institutional uses (health, education, government, and professional services). The final landscape assessment will point to target industries and how the land use categories are aligned or incongruent with city targets for industry and occupation growth.
- Over a third of the City's employment lands current use is retail (33%) - an industry that continues to experience significant transformation related to the worldwide COVID-19 pandemic impacts. (**Exhibit 4**)

Infrastructure

- The decentralized location of much of the City's developable employment lands and redevelopment locations has implications for transportation and other infrastructure service provision, alignment will be needed between the programming of transportation resources and the developable lands.
- In addition, a number of the vacant and underutilized sites are located further away from major transportation corridors and envisioning development on these sites may require significant transportation and utility investment prior to realizing marketability among prospective developers.

Specific Locations of Interest

- **Bob Olson Parkway Site:** 73 acres of vacant land, zoned Community Commercial. The site is currently surrounded by vacant land and is somewhat constrained by steep slopes and erosion hazard areas.
- **Industrially-Zoned UGA Additions:** A large, vacant 223-acre site is located south of I-82, and a smaller site located east of the sewer treatment facility. The timeline and locations for utility service are being explored.
- **Portion of Rivershore Redevelopment Zone:** 35 acres adjacent to Pioneer Memorial Bridge (Blue Bridge). The vacant portion of this site is 32.3 acres.
- **Port of Kennewick Columbia Gardens and Clover Island Properties:** Contains some existing redevelopment activity for a winery and other uses. Much of this area is owned by the Port of Kennewick.
- **Port of Kennewick Vista Field Redevelopment:** 102 acres of land zoned urban mixed use. A portion or the redevelopment already underway is dedicated to single family residential development.

INTRODUCTION

Background and Purpose

The City of Kennewick has undertaken significant efforts to date to develop a coherent roadmap for economic development, including a 2012 economic development strategic plan, a 2016 industrial land assessment, a 2019 economic development marketing plan, the City's 2021 Comprehensive Plan, as well as a 2014 study on recruitment and workforce development for target industries. The City now desires to consolidate these plans into a holistic economic development framework, building upon previous strategies, the City's capabilities, and current economic considerations. Completion of the economic development strategy is organized into two phases. The first phase encompasses a detailed employment lands inventory and the second phase

provides an analysis of existing conditions and landscape assessment. This report presents analysis and findings for the employment lands inventory.

Methods and Data

Employment land sites were identified through parcel-level Geographic Information Systems (GIS) analysis. Benton County Assessor data forms the basis of the employment land study, providing parcel-based data including zoning, ownership, land use, and improvements within the City of Kennewick and within the Urban Growth Area (UGA). Development readiness or developable lands assessments include a detailed analysis of existing uses and ratios of improvement value to parcel area, confirmed in some cases using ortho-imagery or additional data sources.

Organization of this Report

The remainder of this report is organized as follows:

- **Employment Lands Methodology.** A detailed description of employment land analysis methodology.
- **Zoning and Land Use.** A summary of all City of Kennewick and unincorporated UGA parcels by zone and current use.
- **Developable Land Supply.** A detailed summary of developable employment lands within the City of Kennewick and the unincorporated UGA.
- **Employment Land Demand.** A detailed overview of employment forecast, assumptions, land demand estimates, and a reconciliation of demand with supply.

Employment Lands Methodology

The Employment Lands Inventory (ELI) is an analysis and characterization of the supply - or inventory - of employment lands in the City of Kennewick and its unincorporated UGA, including number of parcels, parcel acreage, parcel sizes, vacancy, underutilization, development status, and any environmental or other constraints.

The ELI covers all commercial, industrial, and mixed use zoned parcels in the City of Kennewick and the incorporated UGA. It also covers unincorporated UGA Benton County parcels zoned light industrial and general commercial.

Categories of Developable Land

To better assess the City of Kennewick's developable lands, available parcels are organized into the following categories.

- **Developed:** An employment land parcel that has built, permanent structures and existing economic activities.
- **Physically Vacant:** An employment land parcel that is either unbuilt (no permanent structures), or whose structures are valued at less than $.01 per square foot of parcel area.
- **Partially Vacant:** An employment land parcel acres that, while developed, retains a contiguous, undeveloped, and buildable portion greater than 0.5 acre in size. Remaining buildable area on these parcels is estimated.
- **Potentially Underutilized:** An employment land parcel whose physical improvements are valued at or less than $3 per square foot of parcel area.

In addition, developable properties that are in current use as surface parking lots have been flagged in the data.

Zoning and Land Use

Overall, across both the incorporated and unincorporated Kennewick UGA, there are a total of 3,052 parcel acres of employment lands on 2,042 parcels. The greatest concentration of employment acreage is located within Kennewick's Commercial, Community zone (34%). Large concentrations are also located within the Industrial, Light (22%), and Commercial, Regional (15%) zones.

Exhibit 1. Kennewick Employment Lands by Zone, Incorporated & Unincorporated UGA, 2022

Zoning Code	Zoning Description	Parcels	Acres	Share of Acres
CC	Commercial, Community	788	1,034.4	34%
CR	Commercial, Regional	154	459.1	15%
IL	Industrial, Light	238	666.6	22%
UMU	Urban Mixed-Use	270	242.5	8%
CG	Commercial, General	150	182.8	6%
IH	Industrial, Heavy	96	177.6	6%
CO	Commercial, Office	100	69.7	2%
BP	Business Park	36	40.8	1%
CAR	Commercial, Auto Row	75	32.8	1%
CN	Commercial, Neighborhood	33	23.5	1%
CC-L	Commercial, Community - Limited	10	22.9	1%
CR-L	Commercial, Regional - Limited	23	20.2	1%
CM	Commercial, Marina	39	15.8	1%
CG-L	Commercial, General - Limited	2	2.4	0%
CO-L	Commercial, Office - Limited	1	0.5	0%
GenCom	General Commercial (Benton)	2	16.6	1%
LtInd	Light Industrial (Benton)	25	43.6	1%
Total		**2,042**	**3,051.7**	**100%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.
Note: All zones except GenCom and LtInd are City of Kennewick zones, while GenCom and LtInd are Benton County UGA zones.

In aggregate, nearly two-thirds of Kennewick's employment lands parcel acreage is zoned some type of commercial (1,921 acres), 888 acres of land are in industrial zones, and 242 acres are in a mixed-use zone. (**Exhibit 2**)

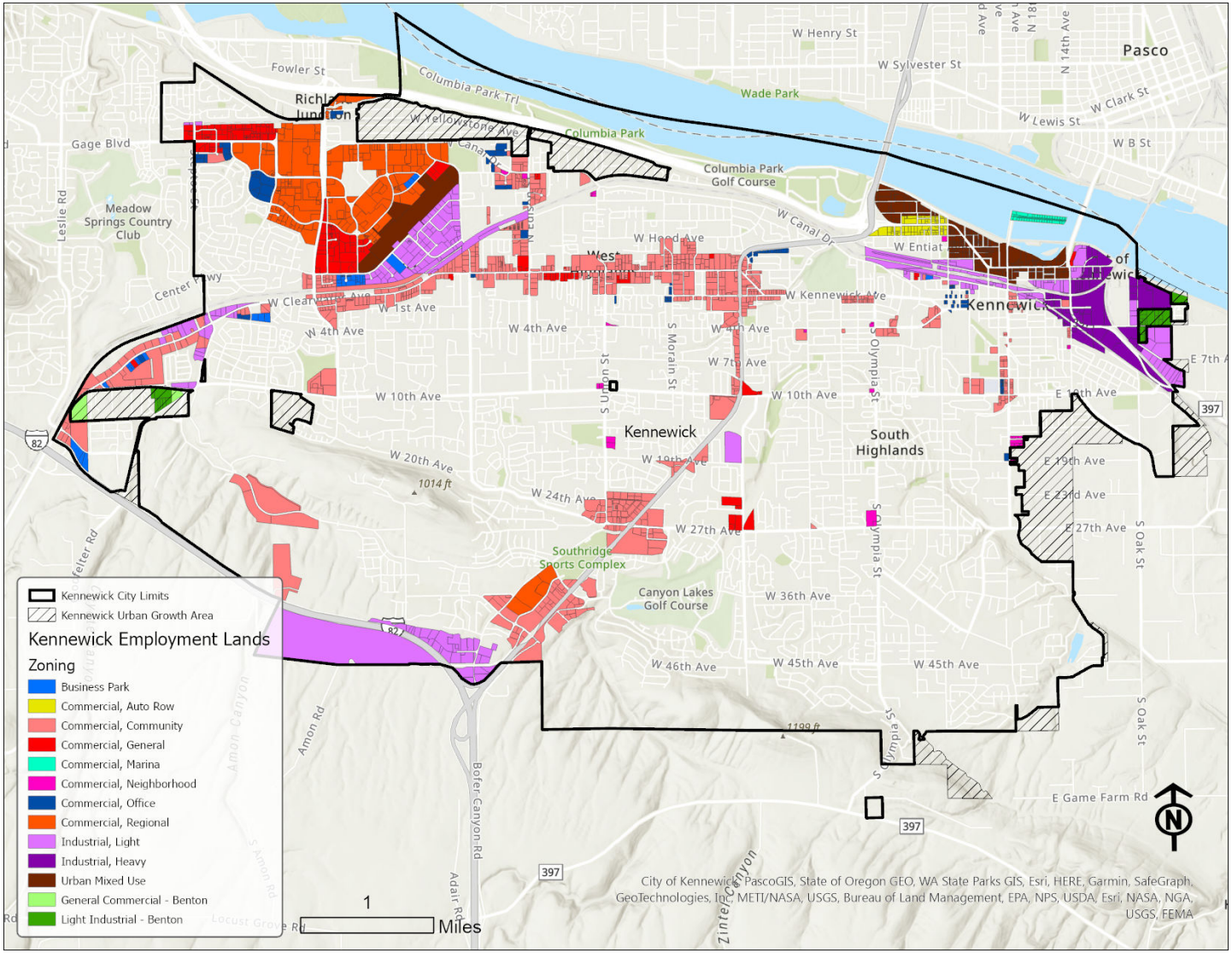
Exhibit 2. Kennewick Employment Lands Zones by Type, Incorporated & Unincorporated UGA, 2022

Zoning Code	Zoning Description	Parcels	Acres	Share of Acres
Commercial Zones		**1,413**	**1,921.4**	**63%**
CC	Commercial, Community	788	1,034.4	34%
CR	Commercial, Regional	154	459.1	15%
CG	Commercial, General	150	182.8	6%
CO	Commercial, Office	100	69.7	2%
BP	Business Park	36	40.8	1%
CAR	Commercial, Auto Row	75	32.8	1%
CN	Commercial, Neighborhood	33	23.5	1%
CC-L	Commercial, Community - Limited	10	22.9	1%
CR-L	Commercial, Regional - Limited	23	20.2	1%
GenCom (Benton)	UGA General Commercial	2	16.6	1%
CM	Commercial, Marina	39	15.8	1%
CG-L	Commercial, General - Limited	2	2.4	0%
CO-L	Commercial, Office - Limited	1	0.5	0%
Industrial Zones		**359**	**887.8**	**29%**
IL	Industrial, Light	238	666.6	22%
IH	Industrial, Heavy	96	177.6	6%
LtInd (Benton)	UGA Light Industrial	25	43.6	1%
Mixed-Use Zone				
UMU	Urban Mixed-Use	270	242.5	8%
Total		**2,042**	**3,051.7**	**100%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.

Most of the 178 acres of land zoned heavy industrial are located in the Downtown/Waterfront Opportunity Zone, while the 845 combined acres of light industrial zoning are located in the Downtown/Waterfont zone, southeast of Vista Field, and at the intersection of I-82 and SR-395 at the southern border of the City. The sizable commercial zones follow major transportation corridors with a concentration of zoned land in the Vista Field Opportunity Zone. (**Exhibit 3**)

Exhibit 3. Kennewick Employment Lands by Zone, Incorporated and Unincorporated UGA, 2022



Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.

Existing land uses are the activities that are currently located on each parcel according to use codes assigned by the Benton County Assessor's office. The largest share of existing active land uses is all retail uses combined with over 33% of the total (by area). This is followed by all services combined (20%) and manufacturing (8%). The 370 acres of undeveloped land on 54 parcels represents around 12% of total employment lands – though it should be noted that the acreage of undeveloped land per the assessor's use codes differ substantially from land assessed as vacant in this analysis.

Exhibit 4. Existing Land Uses with More than 40 Acres on Kennewick Employment Lands, 2022

Land Use Description	Parcels	Acres	Share of Acres
Retail Other	408	626.2	20.5%
Retail General Merchandise	94	257.6	8.4%
Manufacturing Other	89	252.1	8.3%
Service Professional	177	173.5	5.7%
Service Miscellaneous	139	168.0	5.5%
Undeveloped*	54	369.7	12.1%
Service Business	118	148.1	4.9%
Transportation Aircraft**	3	80.8	2.6%
Retail Eating	91	72.2	2.4%
Service Contruction	45	66.3	2.2%
Service Repair	82	62.6	2.0%
Retail Auto	61	61.8	2.0%
Recreational	10	53.3	1.7%
Other Residential	25	52.4	1.7%
Transportation Parking	64	40.3	1.3%
All Other	*582*	*567.0*	18.6%
Total	**2,042**	**3,051.7**	**107.5%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.
*Notes: *Undeveloped land is defined differently in subsequent analysis of developable lands. Undeveloped land here is defined by the Benton County Assessor land uses. **Transportation Aircraft land use is an outdated code that refers to the former Vista Field parcels.*

Developable Land Supply

Unlocking economic development growth potential requires a detailed inventory of available land supply that may be available for development. As of September 2022, 1,009 acres of the 3,052 acres of employment land in the City of Kennewick, were physically vacant employment land (commercial or industrial), and another 374 acres comprised partially vacant or potentially underutilized parcels (Exhibit 5).

Exhibit 5. Kennewick Developable Employment Lands by Status, Incorporated & Unincorporated UGA, 2022

Developability Status	Parcels	Acres	Share of Acres
Developed	1,450	1,668.3	55%
Physically Vacant	464	1,009.4	33%
Partially Vacant	23	239.5	8%
Potentially Underutilized	105	134.6	4%
Totals	**2,042**	**3,051.7**	**100%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.
Note: Partially Vacant includes 102 acres in the Vista Field redevelopment and refers to both developed and developable area of each parcel.

In total, there are an estimated 1,383 acres of developable employment lands as of this writing. There are 1,139 acres of developable employment lands within the Kennewick UGA when you exclude the approximately 102 acres of the Vista Field redevelopment, the developed portion of partially vacant parcels, and 54 acres of currently active surface parking lots. (**Exhibit 6**) This figure represents 37% of the total Kennewick employment lands base. Additional analysis is underway to understand how this aligns with existing and future land demand.

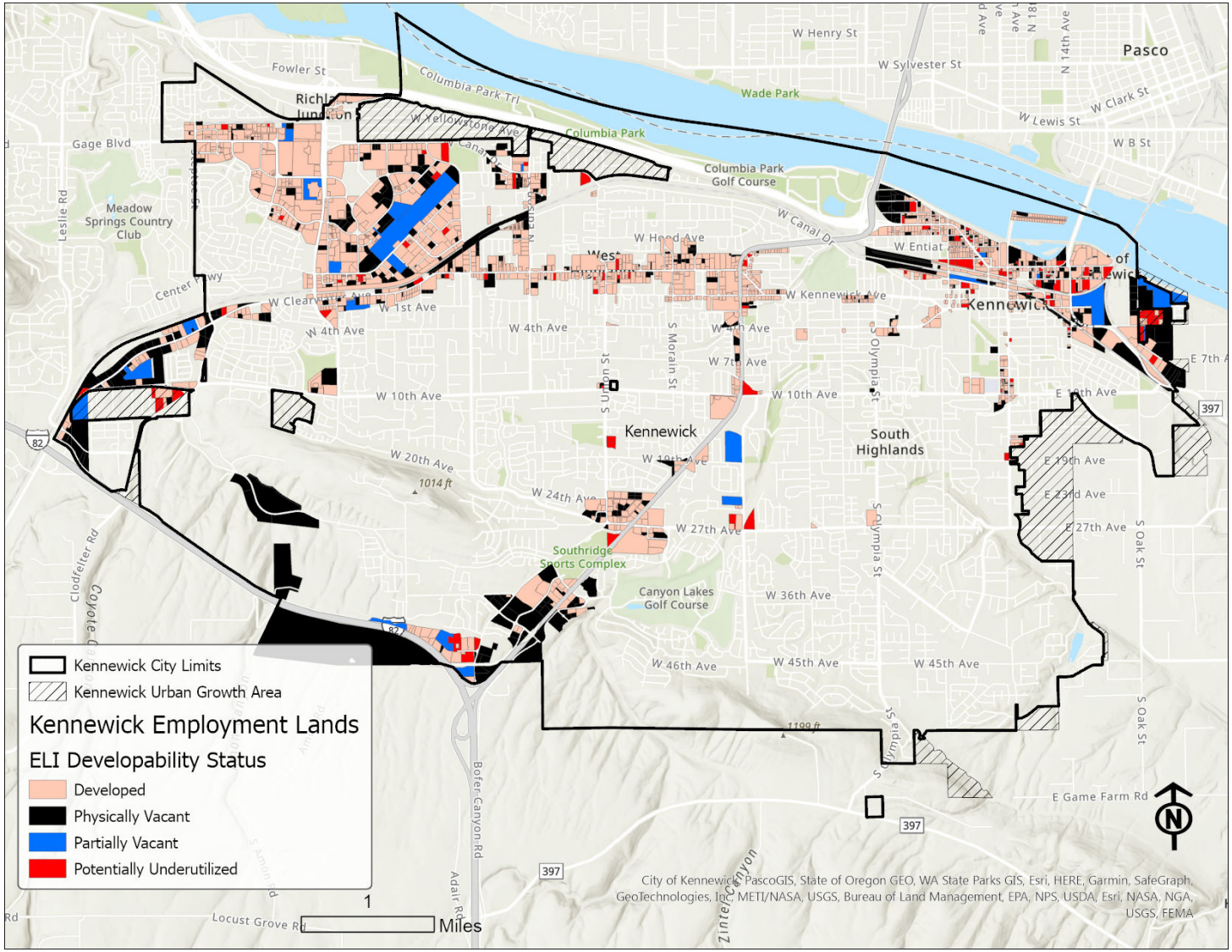
Exhibit 6. Kennewick Developable Employment Lands Detail by Status, Incorporated & Unincorporated UGA, 2022

Developability Status	Parcels	Acres	% of Developable Lands* (By Area)	% of All Employment Lands (By Area)
Physically Vacant	464	1,009.4	78%	33%
Partially Vacant	23	150.1	12%	5%
Potentially Underutilized	105	134.6	10%	4%
Subtotal	**592**	**1,294.2**	**100%**	**42%**
Less Planned Vista Field Development	(6)	(102.1)		
Less Portion in Active Surface Parking Lots	(54)	(53.5)		
Total	**532**	**1,138.5**	**88%**	**37%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022. Note: Partially Vacant acres are comprised of the developable portion of partially vacant parcels only.

The largest concentrations of developable employment land are located at the eastern, southern, and southwestern peripheries of the city (**Exhibit 7).**

Exhibit 7. Kennewick Employment Lands by Developability Status, Incorporated & Unincorporated UGA, 2022



Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.

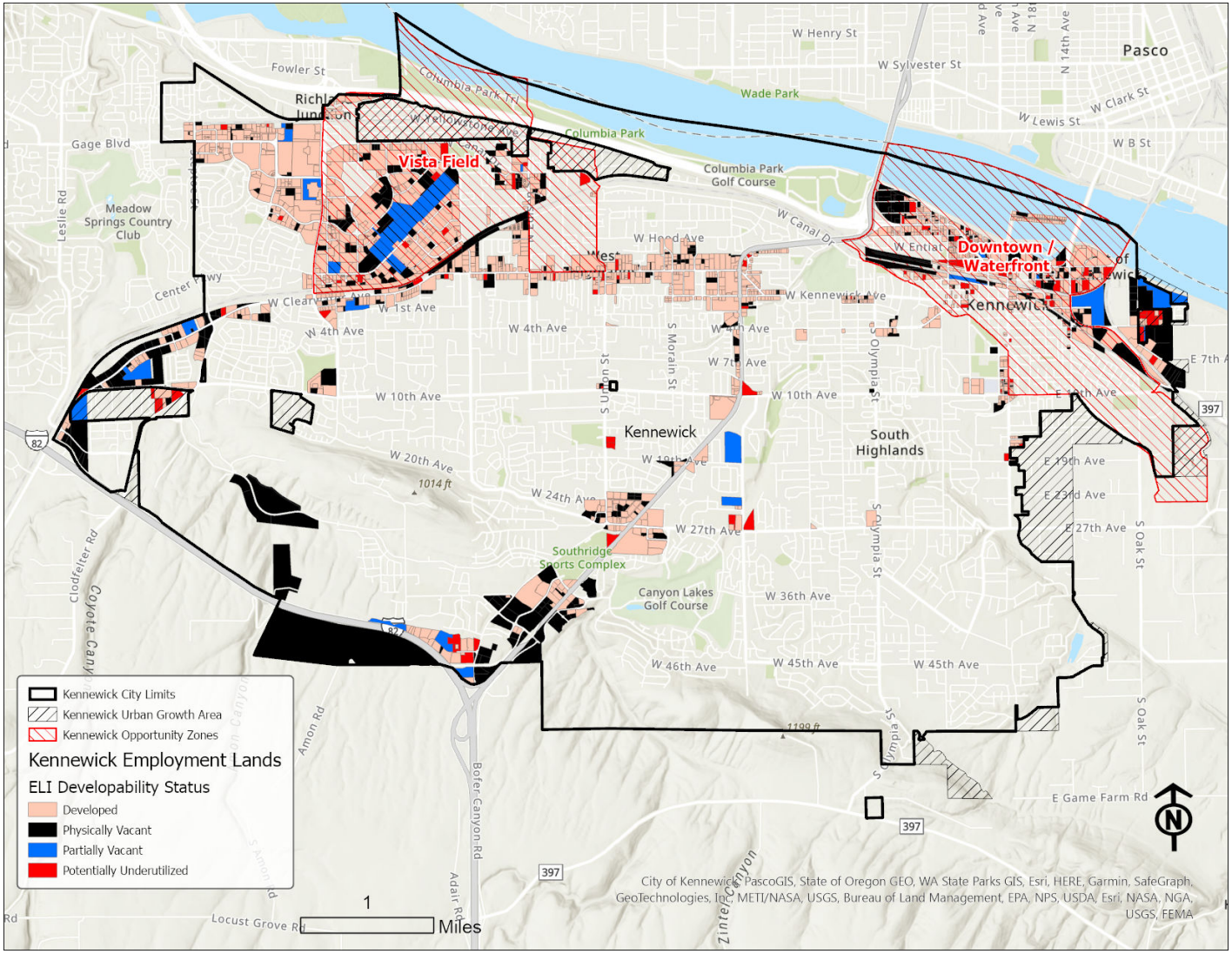
Less than one-third of this developable land is located in the central Vista Field and Downtown Opportunity Zone areas of the city (**Exhibits 8 & 9).**

Exhibit 8. Kennewick Developable Employment Lands by Opportunity Area, Incorporated & Unincorporated UGA, 2022

Opportunity Area	Parcels	Acres	% of Developable Lands* (By Area)	% of All Employment Lands (By Area)
Vista Field (Tract 109.01)**	93	206.5	16%	7%
Downtown / Waterfront (Tract 113)	198	175.8	14%	6%
Subtotal	**291**	**382.2**	**30%**	**13%**
Outside Opportunity Zones	301	911.9	70%	30%
Total	**592**	**1,294.2**	**100%**	**42%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022
*Notes: *"Developable Lands" includes physically vacant, potentially underutilized, and the developable portion of partially vacant employment lands parcels. **Almost half of the Vista Field Opportunity Zone developable acreage lies in the Vista Field redevelopment.*

Exhibit 9. Kennewick Employment Lands by Developability Status & Opportunity Zones, Incorporated & Unincorporated UGA, 2022



Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.

Of the 579 acres of developable commercial land on 319 parcels, the largest portion is zoned Community Commercial at 412 acres or 32% of the total developable area. Industrial zones contain 43% of the developable acreage with 555 acres on 166 parcels. Light industrial zoning represents the largest portion of industrial zones and contains 464 acres or 36% of the developable land. The remaining 91 acres of developable heavy industrial zoned land represents 7% of the total. Urban mixed-use zones contain 157 acres or 12% of the developable acreage.

Exhibit 10. Kennewick Developable Employment Lands by Zone, Incorporated & Unincorporated UGA, 2022

Zoning Code	Zoning Description	Parcels	Acres	% of Developable Lands* (By Area)	% of All Employment Lands (By Area)
Commercial Zones		**319**	**579.0**	**45%**	**19%**
CC	Commercial, Community	207	412.2	32%	14%
CR	Commercial, Regional	33	76.1	6%	2%
CG	Commercial, General	25	34.5	3%	1%
BP	Business Park	15	20.6	2%	1%
CO	Commercial, Office	16	12.5	1%	0%
GenCom (Benton)	UGA General Commercial	2	10.1	1%	0%
CN	Commercial, Neighborhood	8	6.6	1%	0%
CAR	Commercial, Auto Row	12	5.0	0%	0%
CM	Commercial, Marina	1	1.5	0%	0%
Industrial Zones	**All**	**166**	**554.8**	**43%**	**18%**
IL	Industrial, Light	103	435.0	34%	14%
IH	Industrial, Heavy	48	91.3	7%	3%
LtInd (Benton)	UGA Light Industrial	15	28.5	2%	1%
Mixed-Use Zone**					
UMU	Urban Mixed-Use	**102**	**157.1**	12%	5%
Total		**587**	**1,290.9**	**100%**	**42%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022
*Notes: *"Developable Lands" includes physically vacant, potentially underutilized, and the developable portion of partially vacant employment lands parcels. **Includes 102 acres in the Vista Field redevelopment.*

Employment Land Demand

It is necessary to attempt to quantify the market demand for employment lands into the future to understand whether Kennewick's land supply is sufficient to meet its needs for growth, as well as potential targeting of specific industries or informing other economic development strategies.

The first step in a demand assessment involves identifying a range of forecast employment by industry sector for a twenty-year time horizon (2020-2040) and adjusting the forecast to reflect Kennewick's anticipated growth trajectory. Next, occupancy and density assumptions must be made to translate forecast employment into built space and land consumption.

Finally, assessed land demand by category (commercial and industrial) is compared with land supply from the previous section to identify any potential surplus or shortage. The following sections detail this analysis.

Employment Forecasts

A range of employment forecasts by major sector were developed for the City of Kennewick based on both historical performance at the regional level, plus anticipated growth trends for individual industries using a combination of U.S. Census Local Employer Household Dynamics (LEHD) data, and Washington Employment Security Department (ESD) data. **Exhibit 11** illustrates a baseline forecast scenario that extrapolates regional sectoral performance to the Kennewick local area. **Exhibits 12 & 13** illustrate what the forecast might look like if increased rates of capture for certain target industries in Kennewick – namely Warehousing, Transportation and Utilities (WTU), and Manufacturing – were to be achieved via successful implementation of economic development policies and programs targeting growth in these specific sectors.

Exhibit 11. Estimated City of Kennewick Employment, Baseline, 2005 - 2040

Major Sector	2005	2010	2015	2020	2025	2030	2035	2040	2020-2040 Growth
Healthcare, Education & Government	6,400	8,200	9,300	9,600	10,700	11,600	12,500	13,500	3,900
Services	8,900	10,700	9,400	9,400	11,100	11,900	12,600	13,500	4,100
Retail	5,900	6,900	6,000	6,300	7,100	7,500	7,800	8,200	1,900
Construction & Resources	2,500	2,400	2,600	3,500	4,000	4,300	4,800	5,200	1,700
Finance, Insurance & Real Estate	1,700	1,900	1,800	2,100	2,200	2,200	2,300	2,300	200
Wholesale, Transportation & Utilities	1,000	1,200	1,300	1,400	1,600	1,700	1,700	1,800	400
Manufacturing	600	700	600	600	600	600	700	700	100
Total	**27,000**	**32,000**	**31,000**	**32,900**	**37,300**	**39,800**	**42,400**	**45,200**	**12,300**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Community Attributes Inc., 2022.

Exhibit 12 assumes a minor increase in the capture of regional employment within Wholesale, Transportation and Utilities and Manufacturing sectors. For example, Kennewick's share of regional WTU employment in 2021 was estimated at 24.6%, while the share of regional Manufacturing employment was estimated at 7.4%. This scenario envisions a modestly increased 30% share of regional WTU growth, and 10% share of Manufacturing growth, through 2040.

Exhibit 12. Estimated City of Kennewick Employment, Alternative Growth Scenario 1, 2005 - 2040

Major Sector	2020-2040 Growth
Services	4,100
Healthcare, Education & Government	3,900
Retail	1,900
Construction & Resources	1,700
Finance, Insurance & Real Estate	200
Wholesale, Transportation & Utilities	800
Manufacturing	300
Total	**12,900**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Community Attributes Inc., 2022. Notes: Assumes increases in capture of regional employment within Wholesale, Transportation and Utilities and Manufacturing. Assumes 30% capture of regional WTU employment by 2040. Assumes 10% capture of regional Manufacturing employment by 2040. Assumes no changes to regional capture of other sectors compared to baseline growth projections. For 2021, Kennewick share of regional WTU employment is estimated at 24.6%. For 2021, Kennewick share of regional Manufacturing employment is estimated at 7.4%.

Exhibit 13 – the preferred scenario for this analysis - assumes more significant increases in the capture of regional employment within Wholesale, Transportation and Utilities and Manufacturing sectors via successful implementation of economic development policies and programs. This scenario envisions an increased capture of 40% of regional WTU growth, and 15% of the region's manufacturing growth through 2040.

Exhibit 13. Estimated City of Kennewick Employment, Alternative Growth Scenario 2, 2005 - 2040

Major Sector	2020-2040 Growth
Services	4,100
Healthcare, Education & Government	3,900
Retail	1,900
Construction & Resources	1,700
Wholesale, Transportation & Utilities	1,500
Finance, Insurance & Real Estate	200
Manufacturing	800
Total	**14,100**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Community Attributes Inc., 2022. Notes: Assumes increases in capture of regional employment within Wholesale, Transportation and Utilities and Manufacturing. Assumes 40% capture of regional WTU employment by 2040. Assumes 15% capture of regional Manufacturing employment by 2040. Assumes no changes to regional capture of other sectors compared to

baseline growth projections. For 2021, Kennewick share of regional WTU employment is estimated at 24.6%. For 2021, Kennewick share of regional Manufacturing employment is estimated at 7.4%.

Occupancy & Density Assumptions

In order to translate forecast employment from Scenario 2 into land demand figures, certain assumptions must be identified around occupancy – such as the use of built space per employee – and density / intensity of land use – expressed as Floor-Area Ratio, or FAR, a measure of total built floor area to parcel land area on a site. For built square footage per employee, widely-used industry standard figures were utilized ranging from higher occupancy rates (e.g., 400 square feet per employee for Services; Finance, Insurance, and Real Estate; and Healthcare, Education, and Government sectors) to lower occupancy (e.g., 1,100 sf per employee for the Warehousing, Transportation, and Utilities sector) rates. See Appendix 1 for detailed assumptions.

In addition to occupancy and density, a range of commercial to industrial land utilization ratios, and market factors, were also identified. Market factor refers to a discount rate meant to approximate lands that may not transact even if redevelopable or vacant, due to unwillingness of an owner to transact for reasons such as speculative holding, land banking, and personal use, among others.

Demand Analysis

Using the assumptions outlined above, the preferred employment forecast from Alternative Scenario 2 by major sector was translated into an estimate of demand for built space and land by major sector (**Exhibit 14**). Using commercial versus industrial land utilization rates, this demand was further segmented by type.

Exhibit 14. Kennewick Employment Growth and Employment Lands Demand (Alternative Scenario 2)

Industry	Employment Growth (2020-2040)	Emp Density (sq ft/employee)	Emp Built Space	Emp Land Demand	Com Land Demand	Ind Land Demand
Healthcare, Education & Government	3,900	400	1,560,000	89.5	67.1	22.4
Services	4,100	400	1,640,000	125.5	94.1	31.4
Retail	1,900	550	1,045,000	80.0	80.0	0.0
Construction & Resources	1,700	1,000	1,700,000	260.2	156.1	104.1
Finance, Insurance & Real Estate	200	400	80,000	4.6	3.4	1.1
Wholesale, Transportation & Utilities	1,500	1,100	1,650,000	252.5	126.3	126.3
Manufacturing	800	900	720,000	165.3	24.8	140.5
Total	**14,100**		**8,395,000**	**977.6**	**551.8**	**425.7**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Benton County Assessor, 2022; Community Attributes Inc., 2022.

The resulting estimate of total employment land demand for the period 2020 – 2040 in the City of Kennewick totals approximately 978 acres. Thus, the

current land supply, including a market factor portion assumed not to transact, of 1,073 acres, appears to be sufficient to accommodate even this high-growth scenario of the forecast demand, with a surplus of around 95 acres (**Exhibit 15**).

Exhibit 15. Kennewick Employment Land Supply and Demand Summary

	Vacant	Underutilized	Total
Commercial Land	667.3	72.1	**739.4**
Industrial Land	492.3	62.5	**554.8**
Market Factor	15%	35%	
Commercial Land Supply	567.2	46.9	**614.1**
Industrial Land Supply	418.4	40.6	**459.1**
Commercial Land Demand			**551.8**
Industrial Land Demand			**425.7**
Commercial Land Gap (surplus)			**62.2**
Industrial Land Gap (surplus)			**33.3**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Benton County Assessor, 2022; Community Attributes Inc., 2022. Note: Vacant includes both Physically Vacant and Partially Vacant Developable Lands. Mixed Use lands are grouped with Commercial.

APPENDIX 1

This section outlines the detailed occupancy, density, commercial use ratio, and market factor assumptions underlying the Employment Land Demand analysis section of this report.

Exhibit A1. Occupancy: Employment Density Assumptions by Major Sector (Built SF/Employee)

Employment Density Assumptions by Major Sect	
Healthcare, Education & Government	400
Services	400
Retail	550
Construction & Resources	1,000
Finance, Insurance & Real Estate	400
Wholesale, Transportation & Utilities	1,100
Manufacturing	900

These occupancy assumptions were informed by a comparative survey of space utilization by sector and / or zone, throughout the region and country:

Kitsap County Buildable Lands Study
https://www.kitsapgov.com/dcd/Pages/Buildable_Lands_Report.aspx

Commercial/Non-Industrial	300-600	*square feet per employee*
Industrial	700-1200	*square feet per employee*

Thurston County Buildable Lands Study
https://www.trpc.org/DocumentCenter/View/8542/2021-Buildable-Lands-Repor

Industrial	1,470	*square feet per employee*
Commercial	430	*square feet per employee*

Pierce County Buildable Lands Study
https://www.piercecountywa.gov/923/Buildable-Lands

Commercial	500	*square feet per employee*
Industrial/Warehouse	900	*square feet per employee*

Orlando Florisa Fiscal Impact Analysis Model (FIAM)
http://www.sfrpc.com/fiam.htm

Office - 1-Story	300	*square feet per employee*
Office - Class A	350	*square feet per employee*
Office - Med	250	*square feet per employee*
Retail - Community	600	*square feet per employee*
Restaurant - Sit Down	450	*square feet per employee*
Restaurant - Fast Food	100	*square feet per employee*
Industrial	2,500	*square feet per employee*
Warehouse	5,000	*square feet per employee*

Portland Gresham Vista Examples (Actual Developments):
https://www.portofportland.com/greshamvista

Industrial

E6 Adv. Manu	1,000	*square feet per employee*
ON Semiconductors	2,000	*square feet per employee*
Subaru Dist. Fac.	20,000	*square feet per employee*

Large Commercial

Kohls	874	*square feet per employee*
Lowes	773	*square feet per employee*
Fred Meyer	630	*square feet per employee*

Snohomish County Buildable Lands Study
https://snohomishcountywa.gov/1352/Buildable-Lands

Industry

Food Service	200	*square feet per employee*
Other Services	400	*square feet per employee*
FIRE (mini-storage)	20,000	*square feet per employee*
FIRE (other)	350	*square feet per employee*
Retail	700	*square feet per employee*
Manufacturing	500	*square feet per employee*
Wholesale, Transportation and Utilities	1,000	*square feet per employee*
Government/Education	300	*square feet per employee*

Exhibit A2. Density: Land Intensity Assumptions as Floor-Area Ratios (FAR) by Major Sector

Variable	Rate
Assumed Density (FAR)	
Healthcare, Education & Government	0.40
Services	0.30
Retail	0.30
Construction & Resources	0.15
Finance, Insurance & Real Estate	0.40
Wholesale, Transportation & Utilities	0.15
Manufacturing	0.10

Source: Assumptions based on parcel-level surveys in other Washington cities and Benton County development intensity by land use / building typology data from CoStar. Note: The only permitted maximum commercial FAR in Kennewick is .5 for the Business Park Zone. FARs for industrially-zoned land in City of Kennewick Industrial Zoned Land Assessment, 2016, by EcoNorthwest average .07 for the 20 years previous to the study.

Exhibit A3. Commercial to Industrial Land Utilization Ratio by Major Sector

Share Commercial Land Use by Major Sector	
Healthcare, Education & Government	0.75
Services	0.75
Retail	1.00
Construction & Resources	0.60
Finance, Insurance & Real Estate	0.75
Wholesale, Transportation & Utilities	0.50
Manufacturing	0.15

Source: Assumptions based on Benton County Assessor data, 2022.

Exhibit A4. Market Factor, City of Kennewick Employment Lands, 2022

Vacant	0.15
Underutilized	0.35

These market factor rates were informed by a comparative survey of other commercial and industrial market factors utilized in buildable lands studies in GMA counties in the state of Washington:

Kitsap County Buildable Lands Study

Market Factor	
Low	5%-20%
Medium	20%-35%
High	35%-50%

Thurston County Buildable Lands Study

Market Factor	
Partially Developed	10%-40%
Vacant	10%-20%

Pierce County Buildable Lands Study

Market Factor	
Vacant	15% *Bonney Lake*
Underutilized	35% *Bonney Lake*
Vacant	50% *Buckley*
Underutilized	50% *Buckley*
	30% *Fife*

Snohomish County Buildable Lands Study

Market Factor	
Vacant	15%
Underutilized	30%

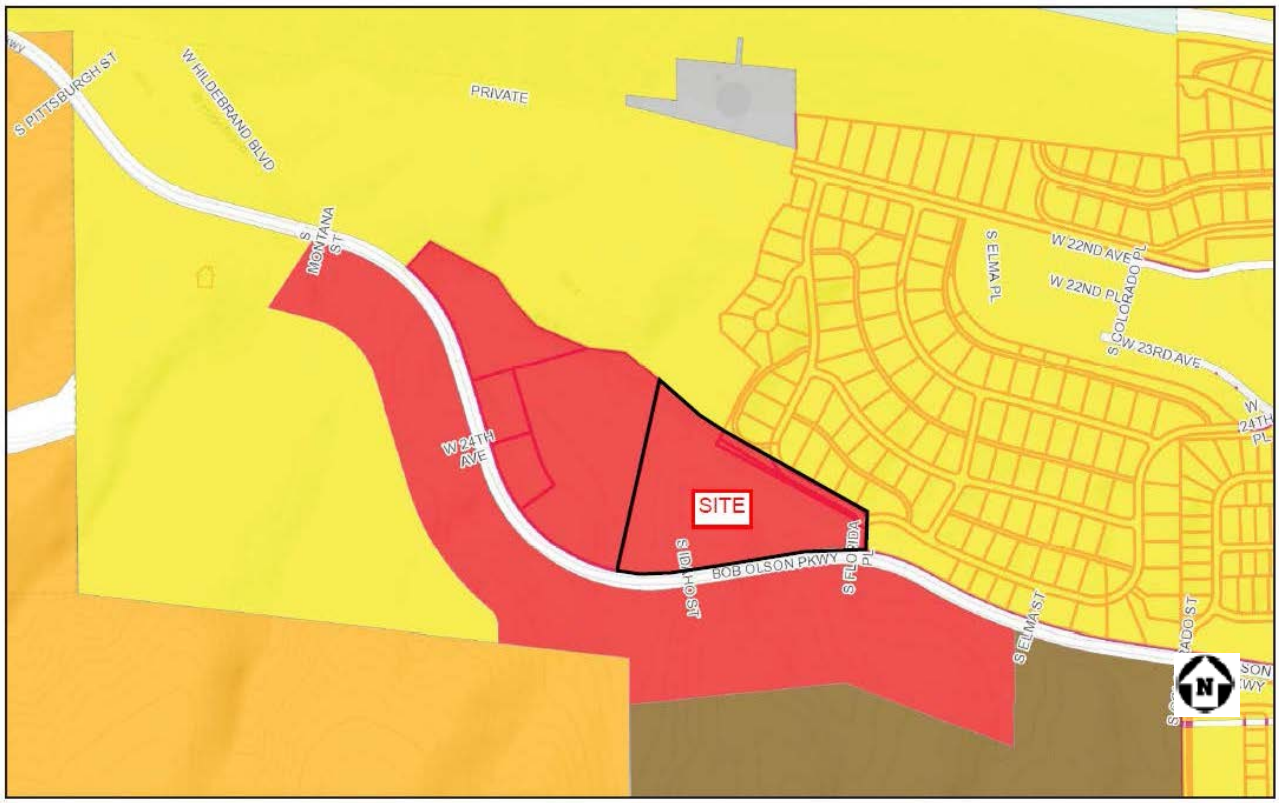
Community Planning Department
210 W 6th Avenue
Kennewick, WA 99336
Phone: (509) 585-4561

Comprehensive Plan Amendment CPA-2022-0006

REQUEST: Change 13.76 acres from Commercial to High Density Residential.

APPLICANT: Red Tail Multifamily Land Development, LLC, represented by Bob Garrison

OWNER: Bauder Young Properties, LLC



Not to scale

Site Information

- ***Size:*** 13.76 acres
- ***Location:*** 8428 Bob Olson Parkway
- ***Topography:*** Flat with steep slopes on the north side.
- ***Existing Comprehensive Plan Designation:*** Commercial
- ***Existing Zoning:*** Commercial, Community (CC)
- ***Existing Land Use:*** Vacant Land

EXHIBITS

- **Exhibit A-1:** Aerial Map
- **Exhibit A-2:** Land Use Map
- **Exhibit A-3:** Application
- **Exhibit A-4:** Environmental Determination
- **Exhibit A-**5: SEPA Checklist
- **Exhibit A-**6: Traffic Impact Analysis
- **Exhibit A-**7: Critical Areas Report
- **Exhibit A-**8: Geo-Tech Site Investigation
- **Exhibit A-**9: Cultural Resource Survey
- **Exhibit A-**10: Environmental Assessment
- **Exhibit A-**11: Bonneville Power Administration
- **Exhibit A-**12: Kennewick Irrigation District
- **Exhibit A-**13: Applicant Comments and Supporting Information
- **Exhibit A-**14: Nick Wright Comments
- **Exhibit A-**15: Memorandum from Emily Estes-Cross, Economic Development Director
- **Exhibit A-**16: City of Kennewick Employment Lands Inventory

APPLICATION PROCESS

- Application Submitted April 22, 2022
- Application routed for comments June 8, 2022
- Determination of Non-Significance was issued on July 18, 2022
- Appeal Period for the DNS ended August 1, 2022
- Notice of Public Hearing was posted at the site on July 29, 2022
- Notice of Public Hearing published July 31, 2022
- Notice of Notice Hearing mailed July 29, 2022
- August 15, 2022 Hearing was continued to October 17, 2022

SURROUNDING COMPREHENSIVE PLAN, ZONING AND LAND USES

North	Comprehensive Plan – Low Density Residential Zoning – Residential, Low Density (RL) Existing Land Uses – Vacant
South	Comprehensive Plan – Commercial Zoning – Commercial, Community (CC) Existing Land Uses – Vacant
East	Comprehensive Plan – Low Density Residential Zoning – Residential, Low Density (RL) Existing Land Uses – Vacant
West	Comprehensive Plan – Commercial Zoning – Commercial, Community (CC) Existing Land Uses – Vacant

REGULATORY CONTROLS

- City of Kennewick Comprehensive Plan
- Kennewick Municipal Code Title 4
- Kennewick Municipal Code Title 18

DESCRIPTION OF REQUEST

The applicant has requested to change the land us designation of 13.76 acres from Commercial to High Density Residential.

COMPLIANCE WITH TITLE 4 (ADMINISTRATIVE PROCEDURES)

KMC 4.12.110(7): Approval Criteria. The City may approve Comprehensive Plan Amendments and area-wide zone map amendments if it finds that the request meets one or more of the following:

1. The proposed amendment bears a substantial relationship to the public health, safety, welfare, and protection of the environment;
   The proposed amendment will not allow the property to be rezoned to a zoning district that will permit uses that may have the potential to negatively affect the public health, safety, welfare and protection of the environment.

2. The proposed amendment is consistent with the requirements of Chapter 36.70A RCW and with the portion of the City's adopted comprehensive plan not affected by the amendment;
   This amendment is consistent with the requirements of Chapter 36.70A RCW and with the portion of the City's adopted comprehensive plan not affected by the amendment.

3. The proposed amendment corrects an obvious mapping error; or
   This request does not correct a mapping error.

4. The proposed amendment addresses an identified deficiency in the Comprehensive Plan.
   The City of Kennewick's 2017-2037 Comprehensive Plan Table 2 shows that the City has a surplus of 91.5 acres for Commercial lands and deficit 159.2 acres for High Density Residential lands. The surplus of Commercial and deficit High Density Residential have been reduced by amendments made to the plan since it was completed in 2017.

   Although the City has a surplus of land designated Commercial, 10+ acre parcels with direct access onto an arterial are not common in the City. Due to the size and location of parcel, it has the potential to provide for a large-scale commercial development that can provide the services needed to support residential development in the Southridge Area, see Exhibits A-15 and A-16.

KMC 4.12.110(8): Additional Factors. The City must also consider the following factors prior to approving Comprehensive Plan Amendments:

1. The effect upon the physical environment;
   The majority of the site's needed grading and clearing of vegetation has been completed.

2. The effect on open space and natural features including, but not limited to topography, streams, rivers, and lakes;
   The site does not contain any designated open space, but slopes greater than 15% and erosion hazard soils exist on the northern portion of the site. No negative impacts are anticipated from the proposed amendment or future development. Adequate measures within the Kennewick Municipal Code exist to mitigate any possible negative impacts to the natural environment.

   The applicant's Critical Areas Report – Biological Resources, states that no impacts to sensitive species or habitats is anticipated.

3. The compatibility with and impact on adjacent land uses and surrounding neighborhoods;
   Approval will provide a buffer between Commercial and Low Density Residential lands to the north. At this time, no direct traffic access is proposed between the High Density Residential and Low Density Residential properties. Future multi-family development will most likely increase traffic on Bob Olson Parkway, but should have little impact on the adjacent residential streets.

Staff is concerned that once the larger commercial tract of land changes its land use designation, it will be difficult to replace it with a like property. Future residents of the adjacent area will need commercial and retail services that can provide for the various needs. The site's access, size and location make it unique compared to other commercial lands in the City.

4. The adequacy of, and impact on community facilities, including utilities, roads, public transportation, parks, recreation, and schools;
   The future development of the site is required to provide infrastructure improvements to ensure adequacy of community facilities. Public transportation facilities and parks, needed for High Density Residential, are not currently in the adjacent area of the site.

5. The quantity and location of land planned for the proposed land use type and density and the demand for such land;
   There is a demand for more multi-family residences in Kennewick. It is unknown if approval of the proposed amendment will most likely result in a higher density than what would occur under the current land use designation. Commercial Lands may have multi-family mixed-use developments on them with no maximum density.

   Due the size and location of the site, it has the potential to accommodate future commercial/retail services needed by surrounding residents. Based on the City of Kennewick Employment Lands Inventory, it will be difficult to the replace the loss of commercial land with something that has similar size, location and access.

6. The current and projected project density in the area; and
   No maximum density exists for the current land use designation and the proposed land use designation has a maximum density of 27 units/acre.

7. The effect, if any upon other aspects of the Comprehensive Plan.
   The proposed change will not affect any other aspects of the Comprehensive Plan.

PUBLIC COMMENT

Staff has received no public comment concerning the proposal to date.

AGENCY COMMENTS

Staff has received comments from the Kennewick Irrigation District (KID) and the Bonneville Power Administration (BPA). KID states that irrigation water is available to the site. The BPA requires that the applicant submit a land use application in order to acquire a Land Use Agreement for future development within its access road right-of-way.

ANALYSIS OF REQUEST

This request is to amend the land use designation for a 13.76-acre parcel from Commercial to High Density Residential. High Density Residential will allow a maximum density of 372 units for the site. The applicant intends to develop a 300 unit, 14 building multi-family residential complex. At this time, it is anticipated to complete the development by 2025.

Reports and analysis submitted by the applicant, anticipate no significant or adverse impacts as a results of the proposed development.

Staff has reviewed the comprehensive plan and City of Kennewick Employment Lands Inventory and determined that it would not be in the interest of the public to change the land use designation of such large parcels from Commercial to High Density Residential. Approval of the amendment would limit the ability to provide commercial and retail services that need larger parcels in order to operate.

Staff's review to the comprehensive plan has determined that the following goals and polices provides a basis to deny the request:

GOAL 2: Sustain and enhance viable commercial areas.

POLICY

1. Encourage a mixture of commercial, office and residential uses within commercial centers to support day and evening activities for all ages.

GOAL 3: Create a balanced system of commercial facilities reflecting neighborhood, community, and regional needs.

POLICY

1. Provide commercial areas sized and scaled appropriately for the neighborhood and community.

In addition to the comprehensive plan review, the City of Kennewick Employment Lands Inventory has determined that it will be difficult to replace commercial lands that are 10-acres and greater with good access onto arterial roads.

FINDINGS

1. The applicant is Red Tail Multifamily land Development, LLC, c/o Murrow Development, Bob Garrison 1151 Duryea Avenue, Irvine, CA 92614.
2. The owner is Bauder Young Properties, LLC, 1955 Jadwin Avenue, Richland, WA 99352.
3. The request is to change the site's land use designation from Commercial to High Density Residential.
4. The application was received on April 22, 2022 and was routed for review to various City Departments and other local, state and federal agencies for comment on June 8, 2022.
5. The site is served by City water and sewer utilities in Bob Olson Parkway.
6. Access to the site is from Bob Olson Parkway.
7. The proposed amendment is adjacent to Commercial and Low Density Residential designated lands.
8. A Determination of Non-Significance was issued for this application on July 18, 2022. The appeal period for the determination ended on August 1, 2022.
9. A public hearing notification sign was posted on site July 29, 2022.
10. Notice of the public hearing for this application was published in the Tri-City Herald on July 31, 2022. Notices were mailed to property owners within 300 feet of the site on July 29, 2022.
11. At the August 15, 2022 Planning Commission Hearing, staff requested that the hearing be continued to October 17, 2022, to allow for the completion of a Commercial Lands and Market Analysis.
12. The proposed amendment will not allow the property to be rezoned to a zoning district that will permit uses that may have the potential to negatively influence the public health, safety, welfare and protection of the environment.
13. This amendment is consistent with the requirements of Chapter 36.70A RCW and with the portion of the City's adopted comprehensive plan not affected by the amendment.
14. The proposed amendment does not correct an obvious mapping error.
15. This request has a minimal impact on addressing the identified deficiency in the Comprehensive Plan.

CONCLUSIONS

1. Pursuant to Chapter 4.08 of the Kennewick Municipal Code, the lead agency has determined that the proposed amendment does not have a probable significant adverse impact on the environment.
2. The proposed amendment will change the land use designation for a 13.76-acre subject parcel from Commercial to High Density Residential.
3. The proposed amendment is not consistent with the City of Kennewick Comprehensive Plan Commercial Goals 2 and 3.
4. The proposed amendment will increase population densities in the area.
5. Future development will be required to meet applicable concurrency of the traffic and park systems.

Recommendation

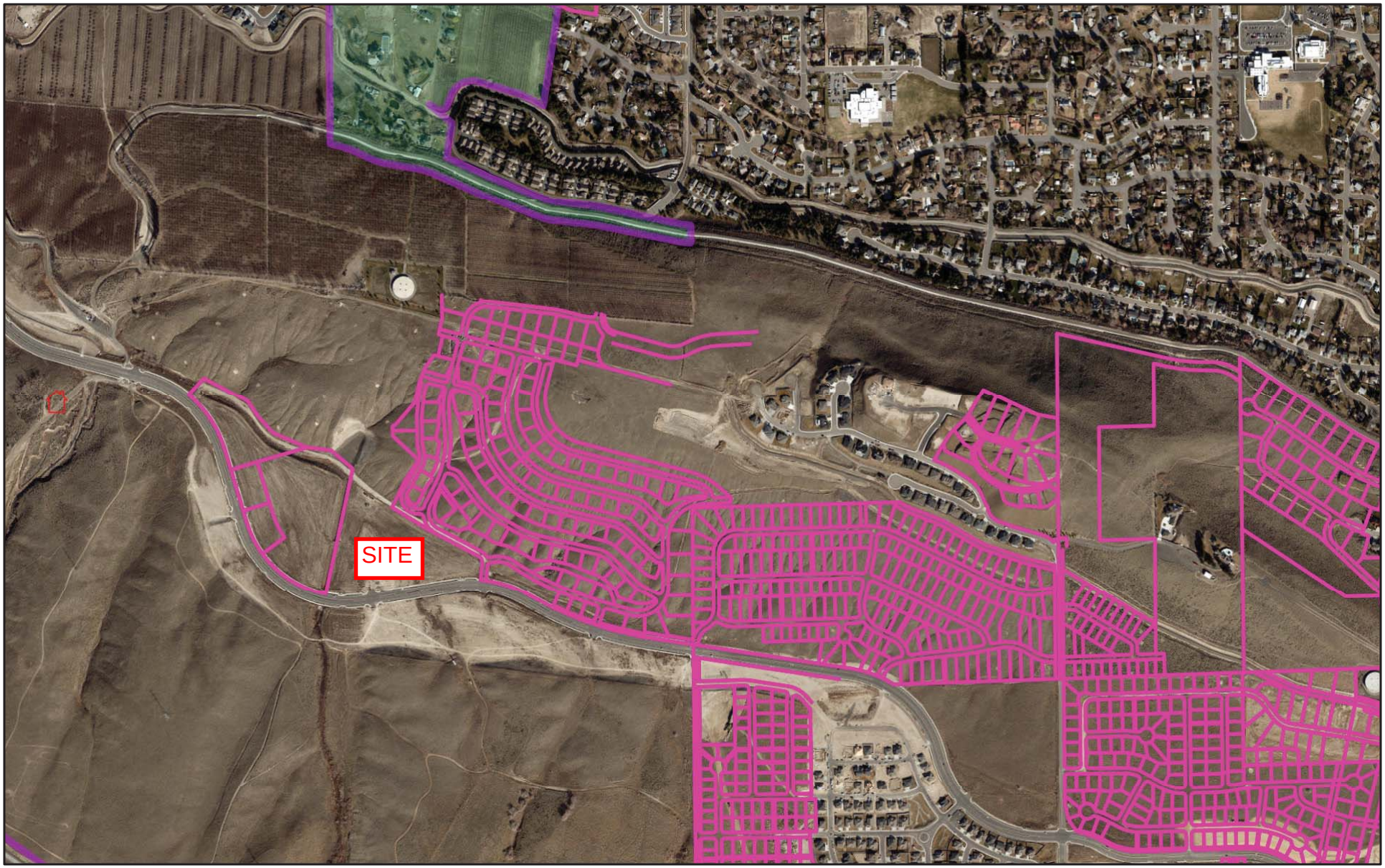
Staff recommends that the Planning Commission concur with the findings and conclusions of CPA-2022-006 contained in the staff report and recommend denial to City Council.

Motion

I move that the Planning Commission concur with the findings and conclusions of CPA-2022-0006 contained in the staff report and recommend to City Council denial of the request.

Aerial Map

Exhibit A-1



August 5, 2022

This plan is suitable for informational use only. City of Kennewick accepts no liability for any error whatsoever.

StreetName

SurveyCityLimits

SV_CI_KENNEWICK_10

SV_CI_RICHLAND_10

SV_CI_COUNTY_10

SurveyUrbanGrowthBoundary

Preliminary Parcel

Historic Bldg on Registry

1 inch = 1,000 feet

1:12,000

0 0.075 0.15 0.3 mi

0 0.125 0.25 0.5 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp.,

ArcGIS WebApp Builder
City of Kennewick

Land Use Map

Exhibit A-2

August 5, 2022

This plan is suitable for informational use only. City of Kennewick accepts no liability for any error whatsoever.

1 inch = 1,000 feet

1:12,000

0 0.075 0.15 0.3 mi

0 0.125 0.25 0.5 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp.,

StreetName

SurveyCityLimits

SV_CI_KENNEWICK_10

SV_CI_RICHLAND_10

SV_CI_COUNTY_10

SurveyUrbanGrowthBoundary

ArcGIS WebApp Builder
City of Kennewick

Exhibit A-3

CITY OF KENNEWICK
COMMUNITY PLANNING & DEVELOPMENT SERVICES
APPLICATION (general form)

PROJECT # 2022 - 0025 **PLN-**_____-_____ **FEE $** 1,423

Please completely fill out this form and return it to Community Planning & Development Services, PO Box 6108, Kennewick, WA 99336, along with the application fee (see fee schedule). Attach a copy of the checklist for the land use application you are submitting. The application submittal must contain all of the information requested on the checklist in order to be processed. ***Incomplete applications will not be accepted.***

Check one of the following for the type of application you are submitting:

Site Plan Tier 1 ☐ Tier 2 ☐ Tier 3 ☑ Binding Site Plan ☐

Short Plat ☐ Conditional Use ☐ Other_____

Environmental Determination PLN- _____ - _____ Pre Application Meeting PLN-_____-_____

Applicant: Red Tail Multifamily Land Development LLC, represented by Bob Garrison

Address: 1151 Duryea Avenue, Irvine, California 92614

Telephone: 949-398-8349 Cell Phone: 949-648-1525 Fax:_____ E-mail bgarrison@murowdc.com

Property Owner (if other than applicant): Bauder Young Properties, LLC

Address: 859 Meadow Hills, Richland, Washington 99352

Telephone: 509-845-9411 Cell Phone: _____ E-mail nwright@younginv.com

SITE INFORMATION

Parcel No. 1-0789-400-0001-003 Acres 13.76 Zoning: CC

Address of property: 8224 Bob Olson Parkway, Kennewick, WA

Number of Existing Parking Spaces 0 Number of Proposed (New) Parking Spaces 524

Present use of property Vacant

Size of existing structure: N/A sq. ft. Size of Proposed addition/New structure: 342,133 sq. ft.

Height of building: 42'-6" Cubic feet of excavation: 216,000 Cost of new construction 51,415,422

Benton County Assessor Market Improvement Value: $19,780

Description of Project: Kennewick Multi-Family will be developed as a community of market rate apartment homes in the City of Kennewick. The community of fourteen (14) buildings will be centered around a pool and spa, leasing, club, and fitness area. The community amenities are connected via a series of sidewalks and pathways. There will be three hundred (300) dwellings in a variety of sizes from one to three bedrooms. The square footage of the apartments ranges from 724 SF to 1311 SF. Parking is provided in carports.

I, the undersigned, do hereby certify that, to the best of my knowledge, the information provided above is true and correct.

Applicant's Signature

Signature of owner or owner's authorized representative

Date: 4/4/2022

Comprehensive Plan Amendment Supplemental Information

The following questions will be reviewed by both the Planning Commission and City Council as a means of assisting in their consideration of the Comprehensive Plan Amendment request. Use additional pages if necessary.

1. State the requested amendment:

   The amendment proposes changing the land use designation of parcel 107894000001003, a 13.76-acre property, from Commercial to High Density Residential.

2. What are the reasons for the requested amendment:

   We are proposing 300 multi-family apartment units over the 13.76 acre parcel. The density on gross area is 21.8 du/ac, it would be considered high density residential which allows 27 units per acre max. The owner intends to construct a multi-family apartment complex on the property, which requires the amendment to enable a zone change to High Density Residential (RH) so the project will comply with City of Kennewick zoning & development standards.

3. Which elements of the Comprehensive Plan will be affected and how. Include detailed information on the provision of utilities such as water, sewer, power, etc., and how such utilities correspond with the City's various utility plans. Detailed information must also be submitted regarding what effect the proposed change will have on such services as fire, police, parks, schools, etc:

   Typically residential uses have lower utility demands than commercial uses. The potential change in flows and usage would not be significant enough to require changes to the City's existing utility mains. Because the change enables the creation of additional housing opportunities in the area, the demand for schools and parks would increase. The need for police and fire protection services will not change.

4. Indicate how the requested amendment will implement the Comprehensive Plan and be in the best interest of the Kennewick area, reference specific Comprehensive Plan policies that will be implemented:

   The amendment will transfer 13.7-acres from Commercial use to High Density Residential use. Per Table 2: Land Use Inventory, there is a 159.2-acre deficit of High Density Residential land and an excess of 91.5-acre Commercial land in the City of Kennewick. The proposed amendment would encourage growth in a manner that is consistent with the capital facilities plan and the capital improvements plan. Specifically, public water and sewer service is currently available at the property and capable of handling high density residential usage.

5. Include any other substantiated information in support of the requested amendment:

   Attached are our Technical Studies including: archaeological, biological, geotechnical, Phase I ESA, and traffic.

   The amendment proposes designating the land as Residential High Density. The property can be accessed directly off Bob Olson Parkway, which is a principal arterial street, complying with the City's policy for multi family structure locations. (Residential Goal 1. Policy 3). The property is bordered by Low Density Residential and Commercial, making it an opportune location for multi-family structures. Future commercial development would be within walking distance for apartment residents & the high density residential will serve as a buffer between the low density residential and the commercial properties, reducing the difference in zoning intensities.

CITY OF KENNEWICK
DETERMINATION OF NON-SIGNIFICANCE

FILE/PROJECT NUMBER: ED-2022-0016

DESCRIPTION OF PROPOSAL: To change the land use designation of 13.76 acres from Commercial to High Density Residential and to rezone the property from Commercial, Community to Residential, High Density. Additionally, a 300-unit multi-family apartment complex is proposed to be constructed at the site.

PROPONENT: Red Tail Multifamily Land Development, LLC, 2082 Michelson, 4th Floor, Irvine, CA 92612

LOCATION OF PROPOSAL, INCLUDING STREET ADDRESS, IF ANY: 8224 Bob Olson Parkway

LEAD AGENCY: City of Kennewick

DETERMINATION: The City of Kennewick has determined that this proposal does not have a probable significant adverse impact on the environment. An Environmental Impact Statement (EIS) will not be required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the City. This information is available to the public on request. Application for other required permits may require further review under SEPA procedures.

_X_ There is no comment period for this DNS.

___ This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

___ This DNS is issued under 197-11-340(2); the City will not act on this proposal for fifteen days from the date below. Comments must be submitted by _____. After the review period has elapsed, all comments received will be evaluated and the DNS will be retained, modified, or withdrawn as required by SEPA regulations.

RESPONSIBLE OFFICIAL: Anthony Muai, AICP
POSITION/TITLE: Planning Director
ADDRESS: 210 W 6th Ave., P.O. Box 6108, Kennewick, WA 99336
PHONE: (509) 585-4386

___ Changes, modifications and/or additions to the checklist have been made on the attached Environmental Checklist Review.

This DNS is subject to the attached conditions:
_X_ No conditions.
___ See attached condition(s).

Date: July 18, 2022 Signature: _____

****

Appeal: An appeal of this determination must be submitted to the Community Planning Department within fourteen (14) calendar days after the date issued and no later than 5 p.m. This appeal must be written and make specific factual objections to the City's threshold determination. Appeals shall be conducted in conformance with Section 4.12.090(9) of the Kennewick Municipal Code and the required fees pursuant to the City's adopted Fee Schedule shall be paid at time of appeal submittal.

Copies of this DNS were mailed to:

Dept. of Ecology
WA Dept. of Fish & Wildlife
WSDOT
Yakama Nation
CTUIR
ED-2022-0016 File

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background [HELP]

1. Name of proposed project, if applicable: "Arrive Kennewick"

2. Name of applicant:
Red Tail Multifamily Land Development, LLC, represented by Murow Development Consultants

3. Address and phone number of applicant and contact person:

Ron Wu
Red Tail Multifamily Land Development, LLC
2082 Michelson, 4th Floor
Irvine, California 92612
(415) 249-6194

Represented by
Bob Garrison
Murow Development Consultants
1151 Duryea Avenue
Irvine, California 92614
(949) 398-8349

4. Date checklist prepared:
April 18, 2022

5. Agency requesting checklist:
City of Kennewick, Planning Division

6. Proposed timing or schedule (including phasing, if applicable):
April 2022 - Comprehensive Plan Amendment Submittal
October 2022 – Comprehensive Plan Amendment Approval
December 2022 – Zone Change Application Approval, Pre-Application Meeting, SEPA Process
January 2023 – Site Plan Building, Civil Permit Review
April 2023 – Pre-Construction Meeting
April 2023 to April 2025 – Anticipated Construction Dates

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.
No

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.
A Biological Report dated March 31, 2022, Phase I Environmental Site Assessment dated March 14, 2022, an Archaeology report dated March 31, 2022, a Geotechnical Report dated March 29, 2022 and a Traffic Impact Analysis dated April 18, 2022.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.
No

10. List any government approvals or permits that will be needed for your proposal, if known.
Comprehensive Plan Amendment, Zone Change, Site Plan Review, SEPA determination, Civil Engineering Permits, Building Permits

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

Proposed High Density Residential Zoning for the 13.76 acre parcel to build 300 multi-family apartment units in 14 Residential Buildings and a Clubhouse/Pool

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

8224 Bob Olson Parkway, Kennewick, WA 99338
Site plan, vicinity map, and ALTA map attached.

B. Environmental Elements [HELP]

1. *Earth* [help]

a. General description of the site:

(circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)?

The steepest slope on-site is approximately 50% at the north, however this affects less than 2% of the property, the majority of the site is below 4% slopes.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

Silt and silt with sand - See completed Geotechnical Report - Attached

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

There are no surface indications or history of unstable soils, and the site has been historically cut-graded to a relatively flat and level surface condition. See completed Geotechnical Report - Attached

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

There will be approximately 8,000 CY of grading/excavation to provide for level building pads and to convey stormwater that is generated on-site. Approximately 12.1 acres will be affected by the proposed grading.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion could occur on-site but will be minimized through implementation of BMPs during construction, including silt fencing, construction entrances, ground cover, wattles, site watering for dust control, catch basin inserts and protection. All storm water run-off will be contained and managed on-site.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Site Area = 13.76 AC = 599,386 sqft.

Asphalt = 194,750 sqft. = 32%

Building Footprints = 119,468 sqft. = 20%

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Standard erosion control methods will be used, such as catch basin protection (witches hats), silt fencing, and stabilized construction entrances. Dust during construction will be controlled by the use of a water truck as necessary.

2. Air [help]

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

During construction emissions will result from typical diesel fuel operated equipment, quantities unknown at this time. Exhaust from construction equipment will occur in the short term during construction. Long term emissions from passenger vehicles will result in the completed project.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Construction equipment will have the appropriate filters per agency regulations. We will follow all City, County, State, and Federal guidelines, regulations, and requirements.

3. Water [help]

a. Surface Water: [help]

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

There is a AP Lateral Drain deep drainage ditch that is located outside of the property on the Westerly side. On this off property ditch no evidence of flow was observed and seasonal flow may occur under heavy precipitation. The City of Kennewick does not regulate this as a critical area and it does not require a regulatory setback.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

No

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No, all runoff will be retained on-site and stormwater facilities will be chosen to ensure predicted pollutants will be properly filtered.

b. Ground Water: [help]

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

The project will not require the withdrawal of groundwater, and there will not be a well.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

There are no septic tanks on this property, and none will be installed.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The new impervious area on-site will generate additional stormwater runoff. The stormwater system will consist of surface/subsurface infiltration facilities, designed and sized by a licensed engineer in the State of Washington. All stormwater generated on-site will be retained and infiltrated on-site.

2) Could waste materials enter ground or surface waters? If so, generally describe.

No, waste materials will not enter groundwaters. Well logs in the immediate vicinity of the site suggest groundwater is located approximately 20 feet below ground surface. All infiltration facilities will be designed per the Stormwater Management Manual of Eastern Washington with the proper Vadose Zone treatment capacity and thickness.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

No, all runoff will be retained and infiltrated on-site.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

All runoff will be retained on-site and stormwater facilities will be chosen to ensure predicted pollutants will be properly filtered.

4. Plants [help]

a. Check the types of vegetation found on the site:

____deciduous tree: alder, maple, aspen, other
____evergreen tree: fir, cedar, pine, other
__X__shrubs (trace rabbitbrush recolonizing disturbed soils)
____grass
____pasture
____crop or grain
____ Orchards, vineyards or other permanent crops.
____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
____water plants: water lily, eelgrass, milfoil, other
__X__other types of vegetation (mostly non-native species adapted to disturbance, including noxious weeds)

b. What kind and amount of vegetation will be removed or altered?

Non-native species adapted to disturbance, including noxious weeds (13.76 ac).

c. List threatened and endangered species known to be on or near the site.

None

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

None. Site is entirely disturbed by 2016 grading and leveling. Vegetation is dominated by non-native species, including noxious weeds. The site does not fall within a critical areas buffer. The site will be planted with lawn, trees, and shrubs to meet the City's landscape requirements.

e. List all noxious weeds and invasive species known to be on or near the site.

Benton County Class B noxius weeds: Bassia scoparia, Centaurea solstitialis, Phalaris arundinaceae
State Class C noxious weed: elaeagnus angustifolia
See attached Bio Report

5. Animals [help]

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site.

Examples include:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other _____

Mammals onsite: coyote.
Mammals offsite (hillside), small rodents (voles, gophers).
Birds: none.
Fish: none.
See attached Bio Report

b. List any threatened and endangered species known to be on or near the site.

None

c. Is the site part of a migration route? If so, explain.

No

d. Proposed measures to preserve or enhance wildlife, if any:

None. No suitable wildlife habitat will be impacted onsite. The adjacent hillside will not be disturbed.

e. List any invasive animal species known to be on or near the site.

None.

6. Energy and Natural Resources [help]

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

It will be natural gas and electricity.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

We will follow all City, County,and Federal guidelines, regulations, and requirements.

7. Environmental Health [help]

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

No

1) Describe any known or possible contamination at the site from present or past uses.

None – See attached Environmental Site Assessmwnt – Phase 1

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

None

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

None

4) Describe special emergency services that might be required.

None

5) Proposed measures to reduce or control environmental health hazards, if any:

We will follow all City, County,and Federal guidelines, regulations, and requirements.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Traffic on Bob Olson Parkway.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

There will be short-term noise from the project site due to construction. Construction will follow all noise ordinances in place by the City of Kennewick.

There will be the standard noise generators from residents & guests coming and going from the future apartments.

3) Proposed measures to reduce or control noise impacts, if any:
Construction equipment will have the appropriate noise mitigation equipment per agency regulations. We will follow all City, County, State, and Federal guidelines, regulations, and requirements

We will follow all noise ordinances established by the City of Kennewick, pursuant to Ordinance No. 5894 which restricts noise between the hours of 8:00pm and 6:00am.

8. Land and Shoreline Use [help]

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.
The Site and surrounding properties are vacant land. The proposed development will not affect adjacent properties land uses

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?
No

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:
No

c. Describe any structures on the site.
None, it is vacant land.

d. Will any structures be demolished? If so, what?
None

e. What is the current zoning classification of the site?
Community, Commercial

f. What is the current comprehensive plan designation of the site?
Commercial

g. If applicable, what is the current shoreline master program designation of the site?
Not applicable, the site is not along the shoreline of the Columbia River, the site is ~3.5 miles from the Columbia River.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.
No, see attached Biological and Geotechnical reports

i. Approximately how many people would reside or work in the completed project?
There will be 114 1-bedrooms, 150 2-bedrooms, and 36 3-bedroom units for a total of 300 multi-family units. Per the State of Washington's Department of Ecology, an estimate 1.9 persons per unit in multi-unit housing which would yield an estimated 570 people residing in the completed project.

j. Approximately how many people would the completed project displace?
0

k. Proposed measures to avoid or reduce displacement impacts, if any:
N/A

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:
A comprehensive plan amendment, a Zone Change application, a Site Plan Review application, and a SEPA document will be submitted to the City of Kennwick to ensure that the application complies with all regulations, etc to ensure compatibility.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:
N/A

9. Housing [help]

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.
300 units, all at market rate

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.
0

c. Proposed measures to reduce or control housing impacts, if any:
Mitigation measures will be part of the entitlement approval process as Conditions of Approval and as Mitigations required associated with any impacts noted through the SEPA process.

10. Aesthetics [help]

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?
42'-6" is the tallest height
The building materials are Hardie Plank Siding or equal for exterior walls and Gaf Timberline or equal for roof.

b. What views in the immediate vicinity would be altered or obstructed?
None

b. Proposed measures to reduce or control aesthetic impacts, if any:
We will follow all City guidelines, regulations, and requirements.

11. Light and Glare [help]

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?
There will be site lighting associated with the buildings and parking areas and all of the light fixtures will be hooded and aimed downward to contain the lighting emission within the property.

b. Could light or glare from the finished project be a safety hazard or interfere with views?
As noted, all of the light fixtures will be hooded and aimed downward to contain the lighting emission within the property.

c. What existing off-site sources of light or glare may affect your proposal?
Street lighting exists along Bob Olson Parkway on the Southerly border of the property, however the impact is considered to be minimal.

d. Proposed measures to reduce or control light and glare impacts, if any:
The lighting standards will meet the City of Kennewick requirements. The City promotes the reduction of night sky pollution and off-site lighting. Technologies to reduce light pollution will be used and could include low reflectance, directional lighting and cut off shielding. Additionally, perimeter landscaping will be proposed to aid in further mitigating light pollution from the property.

12. Recreation [help]

a. What designated and informal recreational opportunities are in the immediate vicinity?
There will be pool and spa area, and a recreation building in the middle of this proposed project for the use of the residents. Desert Hills Middle School which has a running track, football field, baseball diamond and is about 1.5 miles west of the property, Canyon Lakes Golf Course is about 3.5 miles east of the property, and Hansen Park is 2.5 miles north of the property.

b. Would the proposed project displace any existing recreational uses? If so, describe.
No

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:
There will be a pool and spa and recreation building in the middle of the community which will be private. The project will connect to the existing public sidewalks along Bob Olson Parkway.

13. Historic and cultural preservation [help]

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers ? If so, specifically describe.

No

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

No, see attached Cultural Report from Plateau Archaeological Investigations

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

There will be a consultation with the tribes during the application process as mentioned by the Kennewick City Planner and submittal of an Unintentional Discovery Plan to the State of Washington Department of Archaeology and Histroic Prevention.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

We are submitting an Unintentional Discovery Plan to the State of Washington Department of Archaeology and Histroic Prevention which states a professional archaeologist will be contacted if ground disturbing activities reveal potential disturbance to resources. The construction within 200ft of the discovery will stop and area will be secured to protect the findings from additional damage.

14. Transportation [help]

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

All trips enter and exit from Bob Olson Parkway

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

There is no existing public transit that serves the site. The nearest transit stop is approximately 2.5 miles east of the site (at Southridge Boulevard at Trios Southridge Hospital North). Transit services are provided by Ben Franklin Transit (BFT).

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

There will be 524 new parking spaces provided, the project will be eliminating 0.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

No – See attached Traffic Impact Analysis

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

Based on 300 dwelling units of 3-story Multifamily Housing (Low-Rise, land-use code 220) from Institute of Transportation Engineers' (ITE) Trip Generation Manual, 11th Edition (2021).

Daily Trips - 1998 (Total), 999 (Entry), 999 (Exit)
AM Peak Hour (7-9am) - 116 (Total), 28 (Entry), 88 (Exit)
PM Peak Hour (4-6pm) - 150 (Total), 94 (Entry), 56 (Exit)

No data on trucks (such as commercial and nonpassenger vehicles), assumed to be less than 2% to account for garbage trucks and school buses. We recommend using 1%.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No

h. Proposed measures to reduce or control transportation impacts, if any:

No

15. Public Services [help]

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

Yes, the project will impact fire, police, schools, and health care.

b. Proposed measures to reduce or control direct impacts on public services, if any.

The project will be paying Development Impact Fees to all affected agencies and the City to offset the impacts. .

16. Utilities [help]

a. Circle utilities currently available at the site:
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Electricity – Benton PUD
Natural Gas – Cascade Natural Gas
Water – City of Kennewick
Refuse Service – Waste Management
Sanitary Sewer – City of Kennewick
Cable TV/Internet – Charter Spectrum
Internet – Ziply Fiber

C. Signature [HELP]

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee Ron W

Position and Agency/Organization VP, Red Tail Multifamily Land Development

Date Submitted: 4/19/22

D. Supplemental sheet for nonproject actions [HELP]

(**IT IS NOT NECESSARY** to use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Storm Water - All runoff will be retained on-site and stormwater facilities will be chosen to ensure predicted pollutants will be properly filtered.

Air Emissions – Construction equipment will have the appropriate filters per agency regulations. We will follow all City, County, State, and Federal guidelines, regulations, and requirements.

Toxic or Hazardous Substances - We will follow all City, County,and Federal guidelines, regulations, and requirements.

Noise - The project will follow all noise ordinances as put forth by the City of Kennewick.

Proposed measures to avoid or reduce such increases are:

We will follow all City guidelines, regulations, and requirements.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?
None. No suitable wildlife habitat will be impacted onsite. The adjacent hillside will not be disturbed.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:
None. No suitable wildlife habitat will be impacted onsite. The adjacent hillside will not be disturbed.

3. How would the proposal be likely to deplete energy or natural resources?
The development will be constructed to the new energy code standards and State and City codes to conserve energy.

Proposed measures to protect or conserve energy and natural resources are:
The development will be constructed to the new energy code standards and State and City codes to conserve energy.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?
None. There are no environmentally sensitive areas as stated on the Biological report (Attached) and no historic sites affects as stated on the Cultural report (Attached).

Proposed measures to protect such resources or to avoid or reduce impacts are:
None. There are no environmentally sensitive areas as stated on the biological report and no historic sites affects as stated on the cultural report.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?
Will not affect shoreline use as the property is not adjacent to any shoreline.

Proposed measures to avoid or reduce shoreline and land use impacts are:
None

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Although this development is proposed to be high density residential, the demands on transportation or public services and utilities will be similar demand as the existing commercial zoning.

Proposed measures to reduce or respond to such demand(s) are:
These measures will be more fully detailed as a part of the SEPA process, and the other noted entitlement actions which will generated Conditions of Approval and Mitigations required to offset any environmental impacts as noted in the SEPA document.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

There will be no conflict, we will follow all local, state, and federal laws or requirements for the protection of the environment.

ESA LISTED SALMONIDS CHECKLIST

The Listed Salmonids Checklist is provided in order that the City can identify a project's potential impacts (if any) on salmonids that have been listed as "threatened" or "endangered" under the Federal Endangered Species Act (ESA). A salmonid is any fish species that spends part of its life cycle in the ocean and returns to fresh water. Potential project impacts that may result in a "taking" of listed salmonids must be avoided, or mitigated to insignificant levels. Generally, under ESA, a "taking" is broadly defined as any action that causes the death of, or harm to, the listed species. Such actions include those that affect the environmental in ways that interfere with or reduce the level of reproduction of the species.

If ESA listed species are present or ever were present in the watershed where your project will be located, your project has the potential for affecting them, and you need to comply with the ESA. The questions in this section will help determine if the ESA listing will impact your project. The Fish Program Manager at the appropriate Department of Fish and Wildlife (DFW) regional office can provide additional information. Please contact the Dept. of Fish and Wildlife at 1701 S. 24th, Yakima WA 98902-5720, Phone No. 509-575-2740.

1. Are ESA listed salmonids currently present in the watershed in which your project will be?
   Yes **_X_** No___

Please Describe. "Arrive Kennewick", 8224 Bob Olson Parkway is located in the upper Mid-Columbia watershed, however it is noted that the Subject Property is 4 miles from the Columbia River and has no tributaries to the Columbia River coming from the property. Additionally, between the Subject Property and the Columbia River there are numerous roadways and other impediments to any water course that could potentially be utilized by a salomonid to traverse the 4 mile distance.

2. Has there ever been an ESA listed salmonid stock present in this watershed?
   Yes **_X_** No___

Please Describe. Yes in the overall upper Mid-Columbia watershed, but not as connected to this property

NOTE: Kennewick is located in the upper Mid-Columbia watershed. Salmonids are present in the watershed - questions no. 1 and no. 2 already answered "yes". Questions A-1 and A-2 are also answered.

PROJECT SPECIFIC: The questions in this section are specific to the project and vicinity.

A1. Name of watershed: Upper Mid-Columbia

A2. Name of nearest waterbody: Columbia River

A3. What is the distance from this project to the nearest body of water?

About 4 miles

Often a buffer between the project and a stream can reduce the chance of a negative impact to fish. The Subject Property is 4 miles from the Columbia River and has no tributaries to the Columbia River coming from the property. Additionally, between the Subject Property and the Columbia River there are numerous roadways and other impediments to any water course that could potentially be utilized by a salomonid to traverse the 4 mile distance.

A4. What is the current land use between the project and the potentially affected water body (parking lots, farmland, etc.)

Vacant Land, roadways, retail strip centers, hospitals, schools, various developments

A5. What percentage of the project will be impervious surface (including pavement & roof area)?

Site Area = 13.76 AC = 599385 sqft.

Asphalt = 194,750 sqft. = 32%

Building Footprints = 119,468 sqft. = 20%

FISH MIGRATION: The following questions will help determine if this project could interfere with migration of adult and juvenile fish. Both increases and decreases in water flows can affect fish migration.

B1. Does the project require the withdrawal of

a. Surface water? Yes____ No__**X**____
Amount
Name of surface water body

b. Ground water? Yes____ No__**X**____
Amount
From Where
Depth of well

B2. Will any water be rerouted? Yes_____ No__**X**____
If yes, will this require a channel change?

B3. Will there be retention ponds? Yes_____ No__**X**____
If yes, will this be an infiltration pond or a surface discharge to either a municipal storm water system or a surface water body?

If to a surface water discharge, please give the name of the waterbody.

B4. Will this project require the building of new roads? (Increased road mileage may affect the timing of water reaching a stream and may, thus, impact fish habitat.)
No

B5. Are culverts proposed as part of this project? Yes ____ No _____**X**____

B6. Are stormwater drywells proposed as part of this project? Yes **X**___ No_____

B7. Will topography changes affect the duration/direction of runoff flows? Yes ____ No_**X**_

If yes describe the changes.

B8. Will the project involve any reduction of a floodway or floodplain by filling or other partial blockage of flows? Yes_____ No_____**X**____

If yes, how will the loss of flood storage be mitigated by your project?

WATER QUALITY: The following questions will help determine if this project could adversely impact water quality. Degraded water quality can affect listed species. Water quality can be made worse by runoff from impervious surfaces, altering water temperature, discharging contaminants, etc.

C1. Will your project either reduce or increase shade along or over a waterbody?
Yes ____ No__**X** (Removal of shading vegetation or the building of structures such as docks or floats often result in a change in shade.)

C2. Will the project increase nutrient loading or have the potential to increase nutrient loading or contaminants (fertilizers, other waste discharges, or runoff) to the waterbody?
Yes ____ No____**X**____

C3. Will turbidity (dissolved or partially dissolved sediment load) be increased because of construction of the project or during operation of the project? (In-water or near water work will often increase turbidity.)
Yes ____ No ____**X**____

C4. Will your project require long term maintenance, i.e., bridge cleaning, highway salting,

chemical sprays for vegetation management, clearing of parking lots?
Yes ____ No ___X___
Please Describe.

Vegetation: The following questions are designed to determine if the project will affect riparian vegetation, which can impact listed species.

D1. Will the project involve the removal of any vegetation from the stream banks?
YES ____ NO___X___

If yes, please describe the existing conditions and the amount and type of vegetation to be removed.

D2. If any vegetation is removed, do you plan to re-plant? YES ___ NO X

If yes, what types of plants will you use?

E. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand the City is relying on them to make its decision.

Signature_____ Date 4/20/22

Exhibit A-6

Kennewick Multi-Family Apartments Traffic Impact Analysis

8224 Bob Olson Parkway
Kennewick, Washington

Prepared for:
Ron Wu
Red Tail Development LLC
2082 Michelson Drive, 4th Floor
Irvine, California 92612

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Executive Summary

Purpose and Scope

The applicant proposes to develop the Kennewick Multi-Family Apartments project located at 8224 Bob Olson Parkway in Kennewick, Washington. The 13.76-acre lot contains 300 units of multi-family apartments in 13 three-story buildings. The estimated completion date of the project is 2025.

This report analyzes the traffic impacts generated by the completed project as required by the City of Kennewick (City).

The following intersections were identified for this TIA:

1. Southridge Boulevard/Hildebrand Boulevard
2. Sherman Street/Bob Olson Parkway/Hildebrand Boulevard
3. Bob Olson Parkway/Steptoe Street/10th Avenue
4. West Access/Bob Olson Parkway (Proposed Site Access)
5. East Access/Bob Olson Parkway (Proposed Site Access)

Findings

The findings of this traffic impact analysis are listed below.

Traffic count data was gathered at the existing studied intersections on March 15, 2022.

A linear background growth of 2% was applied to all movements out to the 2030 forecast year.

Eleven in-process projects trips are included in this TIA.

The project proposes two access intersections along Bob Olson Parkway.

The Kennewick Multi-Family Apartments is anticipated to generate 1,998 vehicle trips during a typical weekday, including 116 during the AM peak hour and 150 during the PM peak hour.

All study intersections operate within City level of service (LOS) standards in the PM peak hour in 2022.

Sherman Street/Bob Olson Parkway/Hildebrand Boulevard operates at LOS F in the PM peak hour in 2025 without the project. All other studied intersections operate within City LOS standards.

Sherman Street/Bob Olson Parkway/Hildebrand Boulevard operates at LOS F in the PM peak hour in 2025 with the project. All other studied intersections operate within City LOS standards.

Sherman Street/Bob Olson Parkway/Hildebrand Boulevard operates at LOS F in the PM peak hour in 2030 without the project. All other studied intersections operate within City LOS standards.

Sherman Street/Bob Olson Parkway/Hildebrand Boulevard operates at LOS F in the PM peak hour in 2030 with the project. All other studied intersections operate within City LOS standards.

The Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection does not meet peak hour warrants in 2025 or 2030 with project trips.

A signal at the Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection will bring the intersection to operate at an acceptable LOS.

The traffic signal will be funded in the future using transportation impact fees (TIF).

No right-turn lanes are necessary for the project driveways.

Existing left-turn lanes are provided for the project's driveways with sufficient length.

The 2016–2020 collision history at the study intersections was reviewed. All studied intersections have a collision rate below the critical rate.

One fatality was reported at the Bob Olson Parkway/Steptoe Street/10th Avenue intersection.

A pattern of rear-end collisions was found at one intersection, Southridge Boulevard/Hildebrand Boulevard.

Multimodal transportation options are available for future subdivision residents.

The proposed access intersections meet sight distance standards.

Recommendations
This traffic impact analysis supports the following recommendations.

The Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection should be checked to see if it meets *Manual for Uniform Traffic Control Devices* (MUCTD) Warrants 1 and 2 in the 2025 build-out year.

Assure all driveways, sidewalks, and curb ramps constructed with the subdivision project comply with the current Americans with Disabilities Act (ADA) guidelines.

Update signal timing to address safety concerns at the Southridge Boulevard/Hildebrand Boulevard intersection for the rear-end collisions.

Design the proposed internal roadway network, intersections, and site accesses in accordance with Kennewick Municipal Code 13.12.020 guidelines for intersection sight distance (ISD). Install no objects within the ISD triangles that would block drivers' views of approaching traffic.

1 INTRODUCTION

The purpose of this study is to determine the impacts of the traffic generated by the Kennewick Multi-Family Apartments project on the surrounding roadway infrastructure. The project site is shown on the vicinity map (Figure 1). This study will determine if mitigation is required to keep the roadways operating safely and at capacity levels acceptable under the current level of service standards. This report documents the findings and conclusions of a traffic impact analysis (TIA) conducted for the proposed site plan (Figure 2) application for property located in Kennewick, Washington.

1.1 Scope of Study

This study documents the existing and proposed conditions, traffic data, safety analysis, and intersection operations in accordance with the requirements of the City of Kennewick (City) TIA guidelines.

The following intersections were identified for analysis:

1. Southridge Boulevard/Hildebrand Boulevard
2. Sherman Street/Bob Olson Parkway/Hildebrand Boulevard
3. Bob Olson Parkway/Steptoe Street/10th Avenue
4. West Access/Bob Olson Parkway (Proposed Site Access)
5. East Access/Bob Olson Parkway (Proposed Site Access)

This TIA includes analysis of future background conditions growth based on an assumed 2% annual growth rate.

This TIA is prepared for submission to the City of Kennewick. The traffic-related issues addressed in this report include:

- Existing traffic conditions
- Proposed site-generated traffic volumes and their distribution
- Build-out year (2025) conditions without and with the project
- Build-out horizon year (2030) conditions without and with the project
- Capacity analysis of the existing and future conditions for weekday PM peak hours
- Safety analysis of the existing and future conditions
- Recommendations for mitigation of traffic impacts and conclusions

1.2 Existing Site Conditions

The existing site is north of Bob Olson Parkway located at 8224 Bob Olson Parkway and is currently undeveloped. The site is currently zoned community commercial (CC).

1.3 Existing Infrastructure

The existing infrastructure and operational traffic conditions in the study area were documented. Roadway conditions were studied to confirm that the roadway is currently operating in a safe and efficient manner.

1.3.1 Land Uses

The land uses surrounding the site are documented to help identify the site location and provide reference for any discussion of conditions that might impact the adjacent properties. The land uses surrounding the site are shown in Table 1.

Table 1. Land Uses Around the Site

North of Site	
Zoning	RL
Description	Residential Low Density
Existing Use	Undeveloped

West of Site	
Zoning	CC
Description	Community Commercial
Existing Use	Undeveloped

S I T E

East of Site	
Zoning	RL
Description	Residential Low Density
Existing Use	Undeveloped

South of Site	
Zoning	CC
Description	Community Commercial
Existing Use	Undeveloped

1.3.2 Existing Roadways

The existing collector/arterial roadways providing access to the site are Bob Olson Parkway and Sherman Street. Data was gathered on this and other roadways in the study area to inform operations analysis of the existing roadway system. The pertinent information regarding the study area roadways is tabulated in Table 2.

Table 2. Existing Roadway Information

Roadway Name	Classification	Speed Limit (mph)	Lane Configuration		
			Lanes	Sidewalks	Bike Lanes
Hildebrand Boulevard	Principal Arterial	45	5	Yes	Yes
Bob Olson Parkway	Principal Arterial	40	5	Yes	Yes
Sherman Street	Collector	Varies[b]	2	Partial	No
Southridge Boulevard	Minor Arterial north/Collector south[a]	40[c]	3	Yes[d]	Yes
Steptoe Street	Principal Arterial	40	5	Yes	Yes

[a] Based on Kennewick's Transportation System Plan Figure 4-2
[b] North of Hildebrand Boulevard/Bob Olson Parkway 30 miles per hour (mph), south of Ridgeline Drive 25 mph
[c] Except 20 mph in school zones
[d] Except no sidewalks between roundabout and W 36th Place

1.3.3 Major Intersections and Traffic Control

The information shown in Table 3 was gathered and is relevant to the intersection operations analysis noted above. Table 3 presents the existing geometrics and traffic control at the study intersections.

Table 3. Major Intersections: Existing Lanes and Traffic Controls

Intersection	Southridge Boulevard/Hildebrand Boulevard			
Leg	**NB**	**SB**	**WB**	**EB**
Control	Traffic Signal	Traffic Signal	Traffic Signal	Traffic Signal
Number of Lanes	3	3	3	3

Intersection	Sherman Street/Bob Olson Parkway/Hildebrand Boulevard			
Leg	**NB**	**SB**	**WB**	**EB**
Control	Stop	Stop	Unc.	Unc.
Number of Lanes	2	2	3	3

Intersection	Bob Olson Parkway/Steptoe Street/10th Avenue			
Leg	**NB**	**SB**	**WB**	**EB**
Control	Roundabout	Roundabout	Roundabout	NA
Number of Lanes	2	2	2	NA

Stop = Stop controlled leg of intersection
Unc. = Uncontrolled leg approaching intersection – does not stop or yield

The project area is defined as the vicinity of the site encompassed by the study intersections. The operation of the intersections can be controlled by signing, roundabouts, or signalization. Table 3 refers to the type of control and number of approach lanes for each leg of each intersection. The existing lane configurations and traffic controls for all intersections are shown in Figure 3.

1.4 Traffic Volumes

1.4.1 Baseline Traffic Volumes

Turning movement counts were gathered for the weekday PM (4:00–6:00 pm) peak hour by All Traffic Data (ATD) on March 15, 2022, at the following list of studied intersections:

1. Southridge Boulevard/Hildebrand Boulevard
2. Sherman Street/Bob Olson Parkway/Hildebrand Boulevard
3. Bob Olson Parkway/Steptoe Street/10th Avenue
4. West Access/Bob Olson Parkway (Proposed Site Access)

Turning movement counts (TMCs) at the West Access/Bob Olson Parkway intersection were used to estimate the TMCs at the nearby East Access/Bob Olson Parkway intersection.

Copies of the count data used are provided in Appendix A.

1.4.2 Background Growth

Background growth is a linear increase in traffic volumes that is not attributable to specific developments. A linear background growth of 2% was applied to all 2022 existing peak hour movement volumes between public roadways at the studied intersections.

Findings: A linear background growth of 2% was applied to all movements out to the 2030 forecast year.

1.4.3 In-Process Projects

Eleven in-process projects were identified for inclusion in this TIA. The in-process projects are understood to add trips to the study area intersections and are assumed to be complete by the 2025 build-out year. The in-process volumes for the studied intersections are summarized on Figure 5. Calculations of the in-process projects and email correspondence with the City for in-process project trip information are provided in Appendix B.

Findings: Eleven in-process projects trips are included in this TIA.

1.4.4 Future Volumes

The baseline volumes for 2025 and 2030 intersection operations analysis, termed the 2025 Without Project volumes and 2030 Without Project volumes, represent the sum of 2022 existing traffic, any in-process trips, and background growth. Figure 6 presents the 2025 Without Project volumes for the weekday PM peak hour. Figure 9 presents the 2030 Without Project volumes for the weekday PM peak hour. These volumes were input to the intersection operations analyses, addressed later in this TIA.

2 PROPOSED CONDITIONS

The proposed development will add traffic to the roadway system. Where the project is located, the size of the project, and when it will be completed are all important elements that need to be considered to determine the impacts of this development on safety and capacity. It is also important to examine how the project will operate with the existing transportation system, estimate how much new traffic it will generate, and predict where traffic generated by the site will be distributed. Furthermore, this section will address any funded infrastructure changes planned by other agencies or developers. All these elements are important in assessing the traffic impacts of this project.

2.1 Project Description

The applicant proposes to develop Kennewick Multi-Family Apartments project. The Kennewick Multi-Family Apartments project will have 300 dwelling units of multi-family residential housing that will be stacked flats (single-story units) within three-story buildings on the 13.76-acre property located at 8224 Bob Olson Parkway in Kennewick, Washington.

2.2 Access and Circulation

The proposed development will have two accesses on Bob Olson Parkway that will be available to use in the 2025 build-out year.

Findings: The project proposes two access intersections along Bob Olson Parkway.

2.3 Trip Generation and Distribution

The following sections rely on data provided in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual* (see References section). Detailed trip generation calculations are provided in Appendix C.

2.3.1 Proposed Trip Generation

The number of trips generated by the site is based on the ITE *Trip Generation Manual*, 11th Edition (2021). The lots will be treated as "Multifamily Housing (Low-Rise)," ITE land use code 220. The trip generation results are summarized in Table 4, and the calculation details can be found in Appendix C. The site trips are presented for the average weekday, including the AM peak hour between 7:00 am and 9:00 am, and the PM peak hour between 4:00 pm and 6:00 pm.

Table 4. ITE Trip Generation for Kennewick Multi-Family Apartments

Land Use	Multifamily Housing (Low-Rise)	
ITE Code	220	
Independent Variable	Dwelling Units	
Size	300	
Average Weekday Trips (ADT)	1,998	
Peak Hour Trips	**AM**	**PM**
In	28	94
Out	88	56
Total Trips	116	150

Findings: The Kennewick Multi-Family Apartments is anticipated to generate 1,998 vehicle trips during a typical weekday, including 116 during the AM peak hour and 150 during the PM peak hour.

2.3.2 Proposed Trip Distribution

The trip distribution is based on the Benton-Franklin Council of Governments (BFCG) select zone distribution model. A copy of the transportation model output is attached in Appendix C. Trip distribution and trip generation were used together to assign trips to access points and a few key intersections as shown on Figure 7. Site-generated trips were estimated to distribute as follows:

- 50% to or from the west on Bob Olson Parkway, west of the site
  - 20% to and from 15th Place, west of Bob Olson Parkway
  - 25% to and from Steptoe Street, north of 10th Avenue
  - 5% to and from 10th Avenue, east of Steptoe Street
- 40% to or from the east on Hildebrand Boulevard, east of the site
  - 20% to and from Hildebrand Boulevard, east of Southridge Boulevard
  - 20% to and from Southridge Boulevard, north of Hildebrand Boulevard
- 10% to and from the south of Sherman Street, east of the site

The site generated trips distributed to the studied intersections are assigned to specific turning movements both approaching and departing from the site. This is referred to as trip assignment.

Figure 7 provides a graphic representation of the proposed trip distribution and assignment.

2.3.3 Future Volumes with Project

Figure 8 presents the 2025 With Project volumes, or the sum of Without Project volumes and the site-generated trips, for the weekday PM peak hour.

Figure 10 presents the 2030 With Project volumes, or the sum of Without Project volumes and the site-generated trips, for the weekday PM peak hour.

3 INTERSECTION OPERATIONS AND ROADWAY CAPACITY ANALYSES

3.1 Operations Description

Traffic operations are assessed in terms of level of service (LOS), a concept developed by transportation engineers to qualify the level of operation of intersections and roadways (*Highway Capacity Manual*, see References). LOS measures are classified in grades "A" through "F," indicating a range of operation, with LOS "A" signifying the best level of operation and LOS "F" representing the worst level.

LOS at unsignalized intersections is quantified in terms of average delay per vehicle. LOS "A" reflects full freedom of operation for a driver, while LOS "F" represents operational failure.

The volume-to-capacity (v/c) ratio quantifies the portion of the theoretical capacity consumed by traffic demand volume. A v/c ratio of zero (0.00) reflects none of the capacity is consumed and all the capacity is fully available. A v/c ratio of one (1.00) reflects all the capacity is consumed and represents operational failure. The v/c ratio can be calculated for an intersection approach lane or for a signalized intersection as a whole, with the latter calculation aggregating the v/c ratios of the critical movements.

3.2 Operation Standards

Per Kennewick Transportation System Plan 4.5.2, at existing signalized or unsignalized intersections the analysis must demonstrate that the major intersection approaches can operate at LOS D or better. At the site access, the analysis must demonstrate that one intersection operates at a LOD F or better with the other intersection operating at LOS D or better (see References).

3.3 Analysis Methodology

The project's traffic impacts were estimated to determine the changes in traffic conditions. To make these determinations, the following were employed:

- The individual peak hour volumes were analyzed for 2022, 2025, and 2030.
- The peak hour factor (PHF) for the overall intersection, as calculated from the count data, was applied for the 2022 baseline analysis scenario and the future conditions (2022, 2025, and 2030).
- A minimum heavy vehicle percentage (HV%) of 2% was assumed for each movement for all analysis scenarios (2022, 2025, and 2030). The HV% calculated from the count data was applied if it was greater than 2%.
- Baseline traffic volumes on the surrounding street system were determined prior to adding the traffic impacts of the proposed project. This was done to establish a baseline for measuring the project impacts at the time of its development. Baseline traffic volume estimates were prepared for year of build out, 2025 Without Project, and for the planning horizon year, 2030 Without Project volumes.
- As noted previously, trip generation estimates for the project were prepared for the weekday PM peak hour on the surrounding street system.
- Cumulative traffic impacts of the proposed project were determined by adding the project-generated traffic to the background weekday PM peak traffic at all studied intersections. These are termed the 2025 With Project and 2030 With Project conditions.
- The LOS for all signalized and stop-controlled intersections was calculated with Trafficware's Synchro software, Version 11, based on *Highway Capacity Manual* (HCM) 6th Edition (see References) methodologies.

- The LOS for the roundabout intersection was calculated with Akcelik & Associates' SIDRA Intersection software, Version 9, based on Washington State Department of Transportation (WSDOT) recommended settings (see References).
- Intersection results are reported differently depending on the control type.
    - Two-way stop-controlled (TWSC) intersection results report the critical movement LOS, delay, and v/c ratio.
    - All-way stop-controlled, roundabout, and signalized intersection results report the overall intersection LOS and delay as well as the critical lane v/c ratio.

3.4 Level of Service Analyses

LOS calculation reports for the study area intersections are provided in Appendix D. The key analysis findings are listed in the following tables.

3.4.1 2022 Existing Conditions

Table 5 describes the LOS for each intersection within the study area for the 2022 baseline volumes during the PM peak hour.

Table 5. Estimated 2022 Level of Service for Existing Conditions for Study Area Intersections

INTERSECTION *(critical lane group)*	**PM Peak Hour**		
	LOS	***Delay (sec/veh)***	***v/c***
Southridge Boulevard/Hildebrand Boulevard *(NB-TH)*	B	16.8	0.62
Sherman Street/Bob Olson Parkway/Hildebrand Boulevard *(NB-LT)*	C	16.3	0.178
Bob Olson Parkway/Steptoe Street/10th Avenue *(SB)*	A	6.1	0.223
West Access/Bob Olson Parkway *(NB)*	B	12.1	0.004
East Access/Bob Olson Parkway	NA	NA	NA

As shown in Table 5, all studied intersections currently operate at an acceptable LOS during the weekday PM peak hour.

Findings: All study intersections operate within City LOS standard in the PM peak hour in 2022

3.4.2 2025 Future Conditions Without Project

Table 6 describes the LOS for each intersection within the study area for 2025 Without Project during the PM peak hour.

Table 6. Estimated 2022 Level of Service Without Project for Study Area Intersections

INTERSECTION *(critical lane group)*	PM Peak Hour		
	LOS	***Delay (sec/veh)***	***v/c***
Southridge Boulevard/Hildebrand Boulevard *(WB-RT)*	B	19.6	0.66
Sherman Street/Bob Olson Parkway/Hildebrand Boulevard *(NB-LT)*	**F**	**109.4**	**0.871**
Bob Olson Parkway/Steptoe Street/10th Avenue *(SB)*	A	6.4	0.336
West Access/Bob Olson Parkway *(NB)*	C	20.9	0.01
East Access/Bob Olson Parkway	NA	NA	*NA*

As shown in Table 6, all studied intersections except the Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection will operate at an acceptable LOS in the 2025 year of opening Without Project conditions during the weekday PM peak hour.

Findings: Sherman Street/Bob Olson Parkway/Hildebrand Boulevard operates at LOS F in the PM peak hour in 2025 without the project. All other studied intersections operate within City LOS standard.

3.4.3 2025 Future Conditions With Project

Table 7 describes the LOS for each intersection within the study area for 2025 With Project during the PM peak hour.

Table 7. Estimated 2022 Level of Service With Project for Study Area Intersections

INTERSECTION *(critical lane group)*	PM Peak Hour		
	LOS	***Delay (sec/veh)***	***v/c (critical lane)***
Southridge Boulevard/Hildebrand Boulevard *(EB-LT)*	C	20.3	0.71
Sherman Street/Bob Olson Parkway/Hildebrand Boulevard *(NB-LT)*	**F**	**167.5**	**1.056**
Bob Olson Parkway/Steptoe Street/10th Avenue *(SB)*	A	6.5	0.347
West Access/Bob Olson Parkway *(NB)*	C	24.6	0.012
East Access/Bob Olson Parkway *(SB)*	C	24.4	0.147

As shown in Table 7, all studied intersections except the Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection will operate at an acceptable LOS in the 2025 year of opening With Project conditions during the weekday PM peak hour.

Findings: Sherman Street/Bob Olson Parkway/Hildebrand Boulevard operates at LOS F in the PM peak hour in 2025 with the project. All other studied intersections operate within City LOS standard.

3.4.4 2030 Future Conditions Without Project

Table 8 describes the LOS for each intersection within the study area for 2030 Without Project during the PM peak hour.

Table 8. Estimated 2030 Level of Service Without Project for Study Area Intersections

INTERSECTION *(critical lane group)*	PM Peak Hour		
	LOS	***Delay (sec/veh)***	***v/c (critical lane)***
Southridge Boulevard/Hildebrand Boulevard *(EB-LT)*	C	20.7	0.73
Sherman Street/Bob Olson Parkway/Hildebrand Boulevard *(NB-LT)*	**F**	**162.5**	**1.036**
Bob Olson Parkway/Steptoe Street/10th Avenue *(SB)*	A	6.5	0.364
West Access/Bob Olson Parkway *(NB)*	C	22.5	0.011
East Access/Bob Olson Parkway	NA	NA	NA

As shown in Table 8, all studied intersections except the Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection will operate at an acceptable LOS in the 2030 horizon year Without Project conditions during the weekday PM peak hour.

Findings: Sherman Street/Bob Olson Parkway/Hildebrand Boulevard operates at LOS F in the PM peak hour in 2030 without the project. All other studied intersections operate within City LOS standard.

3.4.5 2030 Future Conditions With Project

Table 9 describes the LOS for each intersection within the study area for 2040 With Project during the PM peak hour

Table 9. Estimated 2030 Level of Service With Project for Study Area Intersections

INTERSECTION *(critical lane group)*	PM Peak Hour		
	LOS	***Delay (sec/veh)***	***v/c (critical lane)***
Southridge Boulevard/Hildebrand Boulevard *(EB-LT)*	C	21.6	0.78
Sherman Street/Bob Olson Parkway/Hildebrand Boulevard *(NB-LT)*	**F**	**242.1**	**1.246**
Bob Olson Parkway/Steptoe Street/10th Avenue *(SB)*	A	6.8	0.376
West Access/Bob Olson Parkway *(NB)*	D	26.7	0.014
West Access/Bob Olson Parkway *(NB)*	D	26.4	0.159

As shown in Table 9, all studied intersections except the Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection will operate at an acceptable LOS in the 2030 horizon year With Project conditions during the weekday PM peak hour.

Findings: Sherman Street/Bob Olson Parkway/Hildebrand Boulevard operates at LOS F in the PM peak hour in 2030 with the project. All other studied intersections operate within City LOS standard.

3.5 Sherman Street/Bob Olson Parkway/Hildebrand Boulevard Intersection Mitigation

The LOS analyses anticipate that the Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection will operate at LOS F in the future 2025 and 2030 Without and With Project PM peak hour scenarios.

A traffic signal was tested as an alternative traffic control for effectiveness at mitigating the LOS and v/c ratio deficiencies. Table 10 presents LOS results with the mitigation alternatives. The LOS calculations are provided in Appendix D.

Table 10. Estimated Level of Service for Sherman Street/Bob Olson Parkway/Hildebrand Boulevard Intersection

CONDITION *(Critical movement, AM/PM)*	PM Peak Hour		
	LOS*	***Delay (sec/veh)***	***v/c*****
2030 With Project Signal (*EB-RT*)	A	6.3	0.44

*For all-way stop-controlled, signalized, and roundabout intersections, LOS reported is for the overall intersection. For TWSC, LOS reported is for the critical movement.
**The v/c ratio reported is for the critical movement.

A traffic signal will mitigate the traffic impacts of in-process projects and the projects traffic impacts. The peak hour signal warrants from the *Manual for Uniform Traffic Control Devices* (MUCTD) were evaluated. The intersection does not meet the PM warrant in either 2025 or 2030 with the project volumes. See Appendix E for 2025 and 2030 peak hour volumes data plotted in the MUTCD peak hour warrant Figure 4C-3.

This intersection should be monitored and further evaluated for MUTCD signal warrants in 2025, Warrant 1 (eight-hour) and Warrant 2 (four-hour).

Per a teleconference with the City, transportation impact fees (TIF) will be used to construct the traffic signal in the future.

Findings: The Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection does not meet peak hour warrants in 2025 or 2030 with project trips.

A signal at the Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection will bring the intersection to operate at an acceptable LOS.

The traffic signal will be funded in the future using TIF.

Recommendations: The Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection should be checked to see if it meets MUTCD Warrants 1 and 2 in the 2025 build-out year.

3.6 Queuing Analysis

Queuing analysis was performed to evaluate queue storage adequacy at the studied intersections. The 95th percentile queues were estimated using simulation models in Trafficware's SimTraffic software (Version 11).

Queue demand was rounded to the nearest 25 feet, the average length of a queued vehicle. Available storage was measured from aerial photography and was rounded to the nearest 5 feet.

Table 11 summarizes queuing analysis results for each peak hour. Queues that exceed the available storage are shown in bold text. Data output sheets from all queuing calculations are included in Appendix F.

Table 11. PM Peak Hour Intersection Queueing Analysis

Intersection	Approach and Movement		*Available Storage (Feet)*	95th Percentile Queue (Feet)				
				2022 Existing	***2025 Without Project***	***2025 With Project***	***2030 Without Project***	***2030 With Project***
Southridge Boulevard/ Hildebrand Boulevard	EB	L	250	100	175	200	200	225
		T	600	75	100	100	125	125
	WB	L	250	25	25	25	25	25
		T	500	50	125	150	150	150
	NB	L	225	25	50	50	50	50
		T	500	150	175	175	200	200
		R	125	25	25	25	25	25
	SB	L	250	50	50	50	75	75
		T	500	75	75	75	100	100
		R	200	25	50	75	50	75
Sherman Street/Bob Olson Parkway/ Hildebrand Boulevard	NB	L	175	25	150	175	175	**225**
		T/R	500	<25	25	25	25	25
	EB	L	175	-	<25	<25	<25	<25
	WB	L	250	<25	<25	<25	<25	<25
	SB	L	175	<25	50	75	75	100
		T/R	500+	<25	25	25	25	25
Bob Olson Parkway/Steptoe Street/10th Avenue	WB	L	125	25	25	25	25	25
		R	500+	<25	25	25	25	25
	SB	L	500+	25	50	50	75	75
		R	500+	25	50	50	75	75
	NB	T/R	175	25	50	50	50	50
West Access/Bob Olson Parkway	EB	L	175	-	-	<25	-	<25
	SB	L/R	NA	-	-	<25	-	<25
East Access/Bob Olson Parkway	SB	L/R	NA	-	-	25	-	25

The Sherman Street/Bob Olson Parkway/ Hildebrand Boulevard intersection has one failing queue in the 2030 With Project PM peak hour. A signal, as outlined in the intersection mitigation improvements section, will bring the intersection down to manageable queuing sizes.

4 SAFETY ANALYSIS

4.1 Left and Right Turn Lane Warrants

The criteria for right- and left-turn lane warrants according to the City's TIA requirement are as follows:

Any development access with existing plus projected traffic volume of more than 1,000 vehicles per day, or if the existing plus projected entering turning movement(s) equal or exceed fifty (50) per hour during a typical peak traffic period; then the development shall normally be required to provide a separate right-turn and/or left-turn deceleration lane(s) to allow an entering passenger design vehicle turning speed of 15 mph (20 km/h) to help reduce interference with and improve safety for through street traffic. In the case of industrial development, it may be necessary to consider a larger design vehicle. Meeting the volume criteria does not require installation of a turn lane if engineering judgment determines it would be unsafe or impractical (e.g. geometric conditions, buildings), or if another mitigation measure would achieve the desired results.

Neither of the access driveways meet the volume criteria for a right-turn lane. No LOS improvements are needed at the site driveway.

The access intersections already have a left-turn lane developed for access onto Bob Olson Parkway with a serviceable length to manage queueing distances.

None of the development accesses meet the volume criteria for a left-turn lane.

Findings: No right-turn lanes are necessary for the project driveways.

Existing left-turn lanes are provided for the project's driveways with sufficient length.

4.2 Collision Analysis

Collision data from the study area was obtained from WSDOT for the five-year period spanning from January 2016 through December 2020. This analysis assumes that a collision rate less than the critical collision rate for the intersection is typically considered to be within acceptable parameters. A collision rate above the critical rate is worthy of further examination. The detailed collision data can be found in Appendix G. Table 12 presents the results of the collision analysis.

Table 12. Collision Analysis for Study Area Intersections (January 2016 through December 2020)

Intersection	Collision Type					Total Collisions	Critical Rate	Collison Rate
	Rear-end	Angle	Object	Left-turn	All Others			
1. Southridge Boulevard/Hildebrand Boulevard	6	1	1	3	1	12	0.84	0.49
2. Sherman Street/Bob Olson Parkway/Hildebrand Boulevard	-	-	-	-	-	0	0.91	0

Intersection	Collision Type					Total Collisions	Critical Rate	Collison Rate
	Rear-end	Angle	Object	Left-turn	All Others			
3. Bob Olson Parkway/Steptoe Street/10th Avenue	1	1	2	-	1	5	0.84	0.21
4. West Access/Bob Olson Parkway	-	-	-	-	-	0	0.92	0
5. East Access/Bob Olson Parkway	-	-	-	-	-	0	0.92	0

To calculate the collision rate, the PM peak hour total entering volumes from the existing TMCs were multiplied by 10 to provide an approximation of the average daily trips (ADT). Detailed calculations of critical rates and collision rates are provided in Appendix G.

As shown in table 12, the collision rate is below the critical rate at all studied intersections, with only one serious injury or fatality. This collision is not related to intersection performance.

The high number of rear-end collisions at Southridge Boulevard/Hildebrand Boulevard intersection is abnormal with the signal operating at LOS B. We suspect the rear-end collisions are related to random arrival on Southridge Boulevard due to the roundabouts bracketing Hildebrand Boulevard intersection. Upgraded advance detection or upgraded signal timing should be investigated by the City.

Findings: The 2016–2020 collision history at the study intersections was reviewed. All studied intersections have a collision rate below the critical rate.

One fatality was reported at the Bob Olson Parkway/Steptoe Street/10th Avenue intersection.

A pattern of rear-end collisions was found at one intersection, Southridge Boulevard/Hildebrand Boulevard.

Recommendations: Update signal timing to address safety concerns at the Southridge Boulevard/Hildebrand Boulevard intersection for the rear-end collisions.

4.3 Transit, Pedestrian, and Bicycle Facilities

The roadway providing access to and from the site, Bob Olson Parkway, includes sidewalks and bike lanes for pedestrian and bicycle travel. All sidewalks shall be compliant with the Americans with Disabilities Act (ADA). The developer will install sidewalks on all internal streets. All sidewalks shall be ADA compliant.

Transit service is provided by the Ben Franklin Transit Route 47 with a bus stop at about 3 miles east of the site located at Southridge High School. As the land along Bob Olson Parkway is built out, additional bus stops should be provided in the area.

Findings: Multimodal transportation options are available for future subdivision residents.

Recommendations: Assure all driveways, sidewalks, and curb ramps constructed with the subdivision project comply with the current ADA guidelines.

4.4 Intersection Sight Distance

Since the roadway providing access to the site already exist, they were checked graphically to verify they meet intersection sight distance (ISD) Install no objects within the ISD triangles that would block approaching drivers' views of approaching traffic.

Findings: The proposed access intersections meets sight distance standards.

Recommendations: Design the proposed internal roadway network, intersections, and site accesses in accordance with Kennewick Municipal Code (KMC) 13.12.020 guidelines for ISD. Install no objects within the ISD triangles that would block drivers' views of approaching traffic.

5 STUDY FINDINGS

The findings of this TIA are listed below.

5.1 Traffic Volumes

Traffic count data was gathered at the existing studied intersections on March 15, 2022.

A linear background growth of 2% was applied to all movements out to the 2030 forecast year.

5.2 In-Process Projects

Eleven in-process projects trips are included in this TIA.

5.3 Access and Circulation

The project proposes two access intersections along Bob Olson Parkway.

5.4 Trip Generation

The Kennewick Multi-Family Apartments is anticipated to generate 1,998 vehicle trips during a typical weekday, including 116 during the AM peak hour and 150 during the PM peak hour.

5.5 Level of Service

All study intersections operate within City LOS standards in the PM peak hour in 2022.

Sherman Street/Bob Olson Parkway/Hildebrand Boulevard operates at LOS F in the PM peak hour in 2025 without the project. All other studied intersections operate within City LOS standards.

Sherman Street/Bob Olson Parkway/Hildebrand Boulevard operates at LOS F in the PM peak hour in 2025 with the project. All other studied intersections operate within City LOS standards.

Sherman Street/Bob Olson Parkway/Hildebrand Boulevard operates at LOS F in the PM peak hour in 2030 without the project. All other studied intersections operate within City LOS standards.

Sherman Street/Bob Olson Parkway/Hildebrand Boulevard operates at LOS F in the PM peak hour in 2030 with the project. All other studied intersections operate within City LOS standards.

The Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection does not meet peak hour warrants in 2025 or 2030 with project trips.

A signal at the Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection will bring the intersection to operate at an acceptable LOS.

The traffic signal will be funded in the future using TIF.

5.6 Turn Lane Warrants

No right-turn lanes are necessary for the project driveways.

Existing left-turn lanes are provided for the project’s driveways with sufficient length.

5.7 Collision Analysis

The 2016–2020 collision history at the study intersections was reviewed. All studied intersections have a collision rate below the critical rate.

One fatality was reported at the Bob Olson Parkway/Steptoe Street/10th Avenue intersection.

A pattern of rear-end collisions was found at one intersection, Southridge Boulevard/Hildebrand Boulevard.

5.8 Transit, Pedestrian, and Bicycle Facilities

Multimodal transportation options are available for future subdivision residents.

5.9 Intersection Sight Distance

The proposed access intersections meet sight distance standards.

6 RECOMMENDATIONS

The traffic impact analysis supports the following recommendations.

6.1 Traffic Impact Mitigation

The Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection should be checked to see if it meets MUTCD Warrants 1 and 2 in the 2025 build-out year.

6.2 Collision Analysis

Update signal timing to address safety concerns at the Southridge Boulevard/Hildebrand Boulevard intersection for the rear-end collisions.

6.3 Accessibility

Assure all driveways, sidewalks, and curb ramps constructed with the subdivision project comply with the current ADA guidelines.

6.4 Intersection Sight Distance

Design the proposed internal roadway network, intersections, and site accesses in accordance with KMC 13.12.020 guidelines for ISD. Install no objects within the ISD triangles that would block approaching drivers' views of approaching traffic.

7 REFERENCES

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Figures

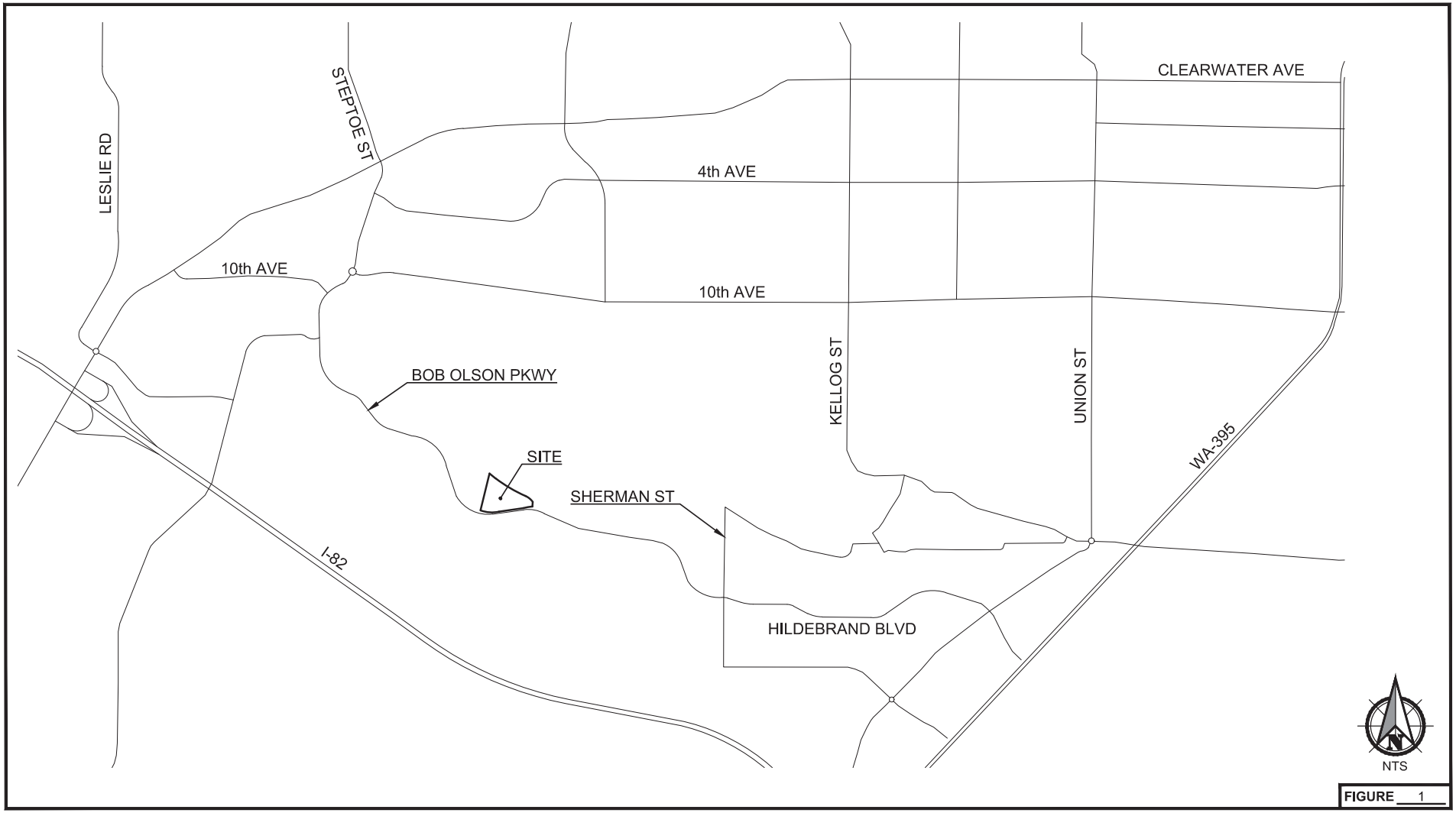


FIGURE 1

Vicinity Map

Kennewick Multi-Family Apartments

NTS

FIGURE 2

Site Plan

Kennewick Multi-Family Apartments

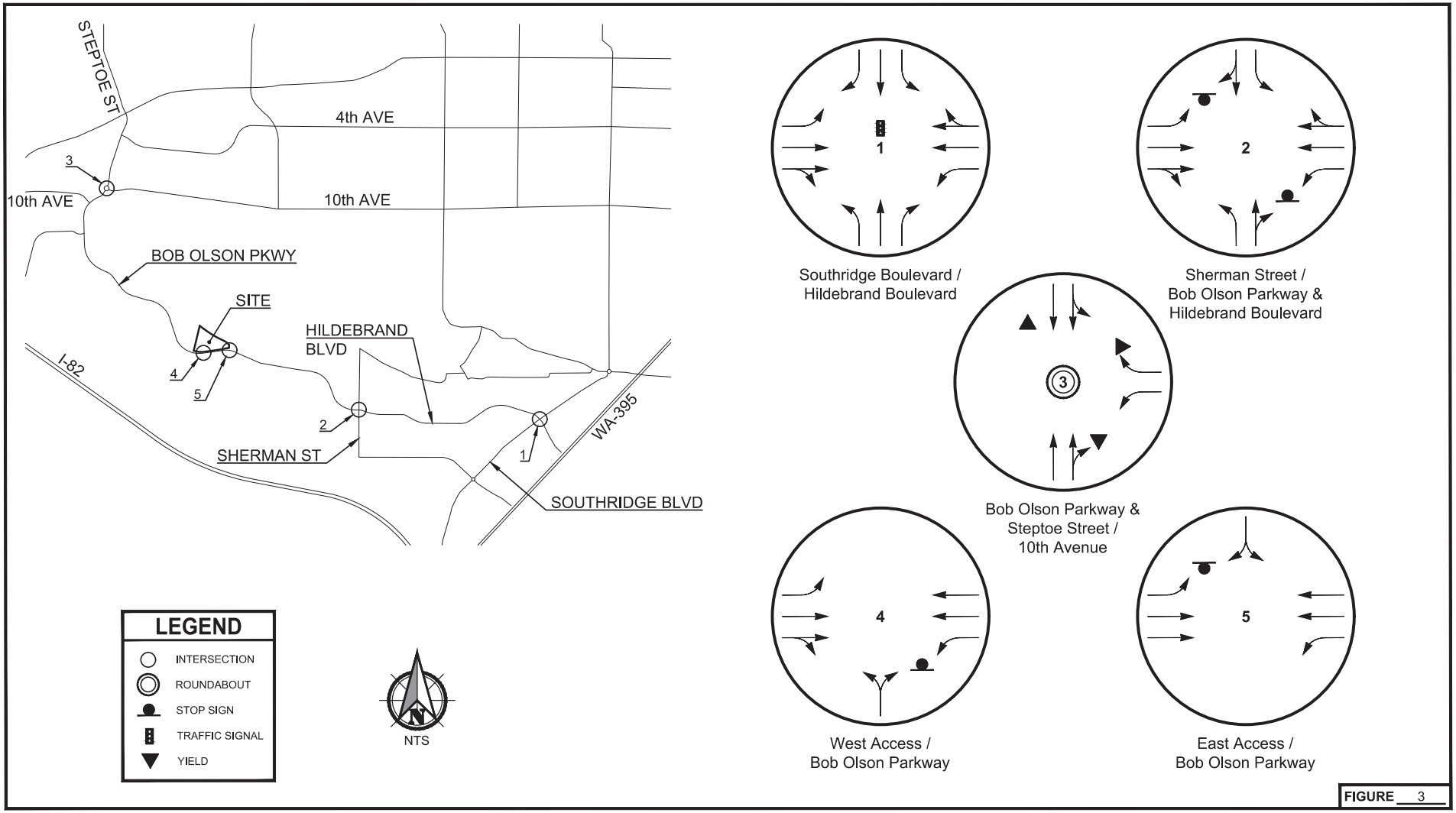


FIGURE 3

Existing Lane Configurations and Traffic Controls

Kennewick Multi-Family Apartments

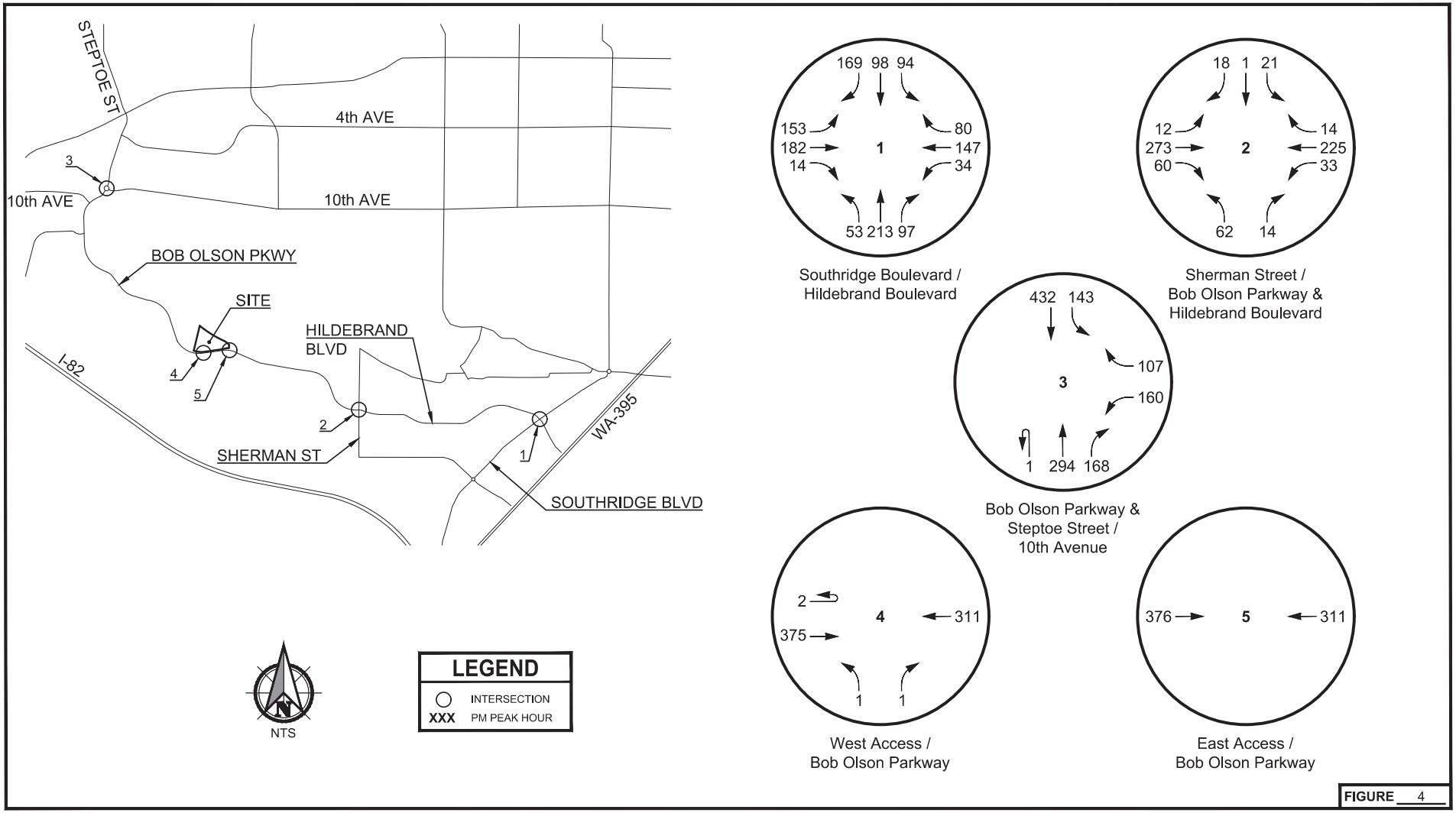


FIGURE 4

2022 Existing Volumes

Kennewick Multi-Family Apartments

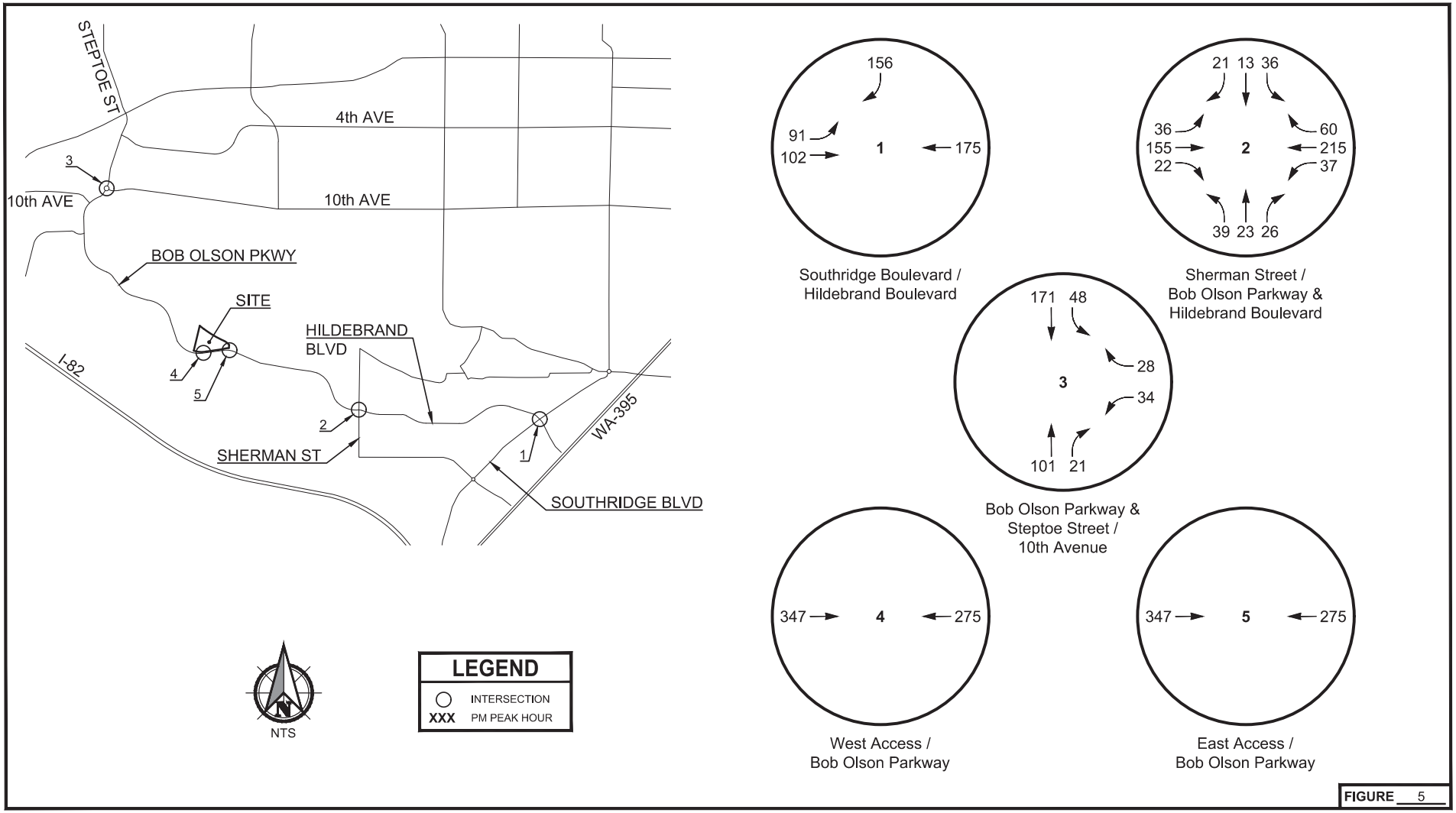


FIGURE 5

In-Process Project Trips

Kennewick Multi-Family Apartments

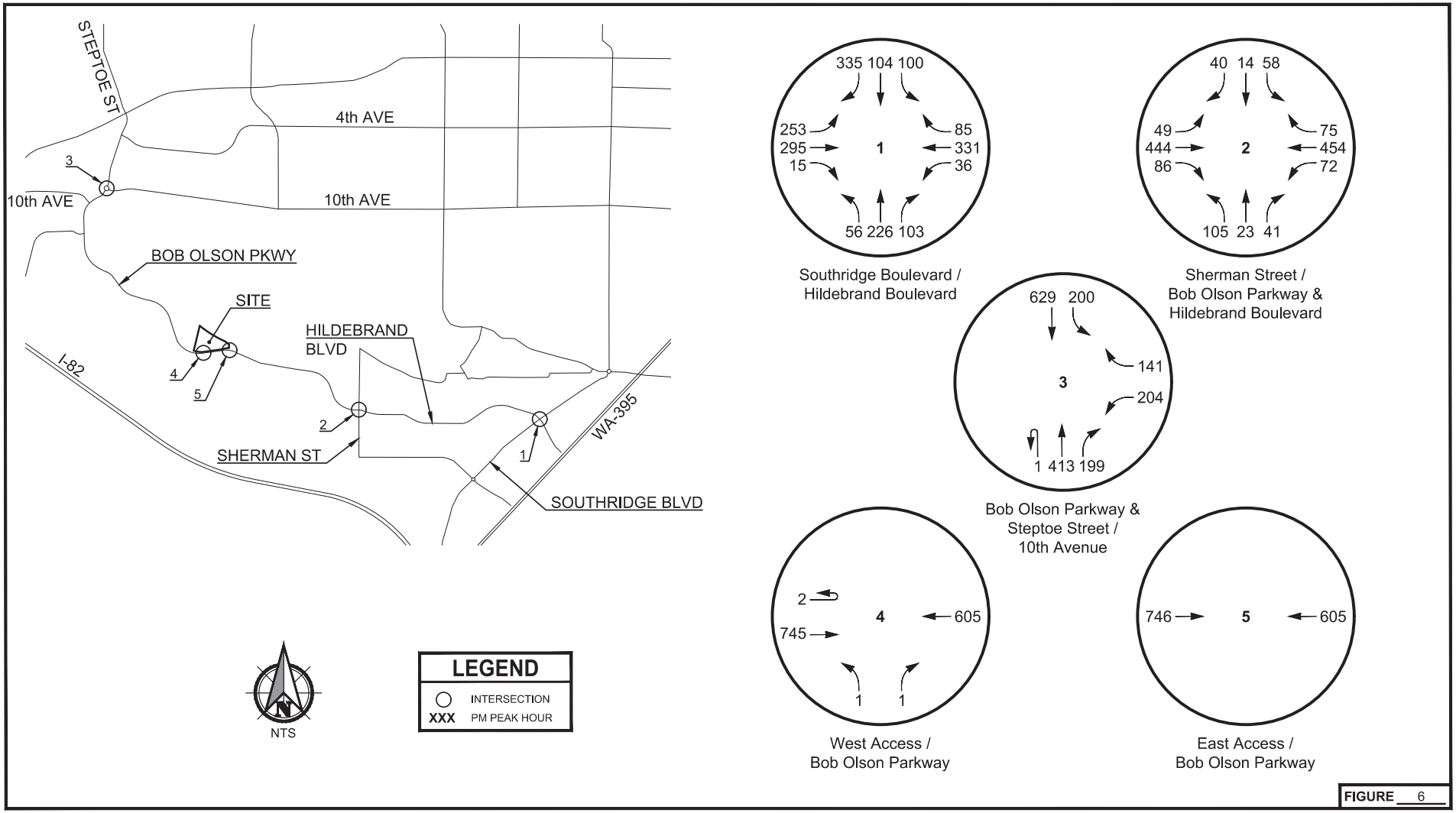


FIGURE 6

2025 Without Project Volumes

Kennewick Multi-Family Apartments

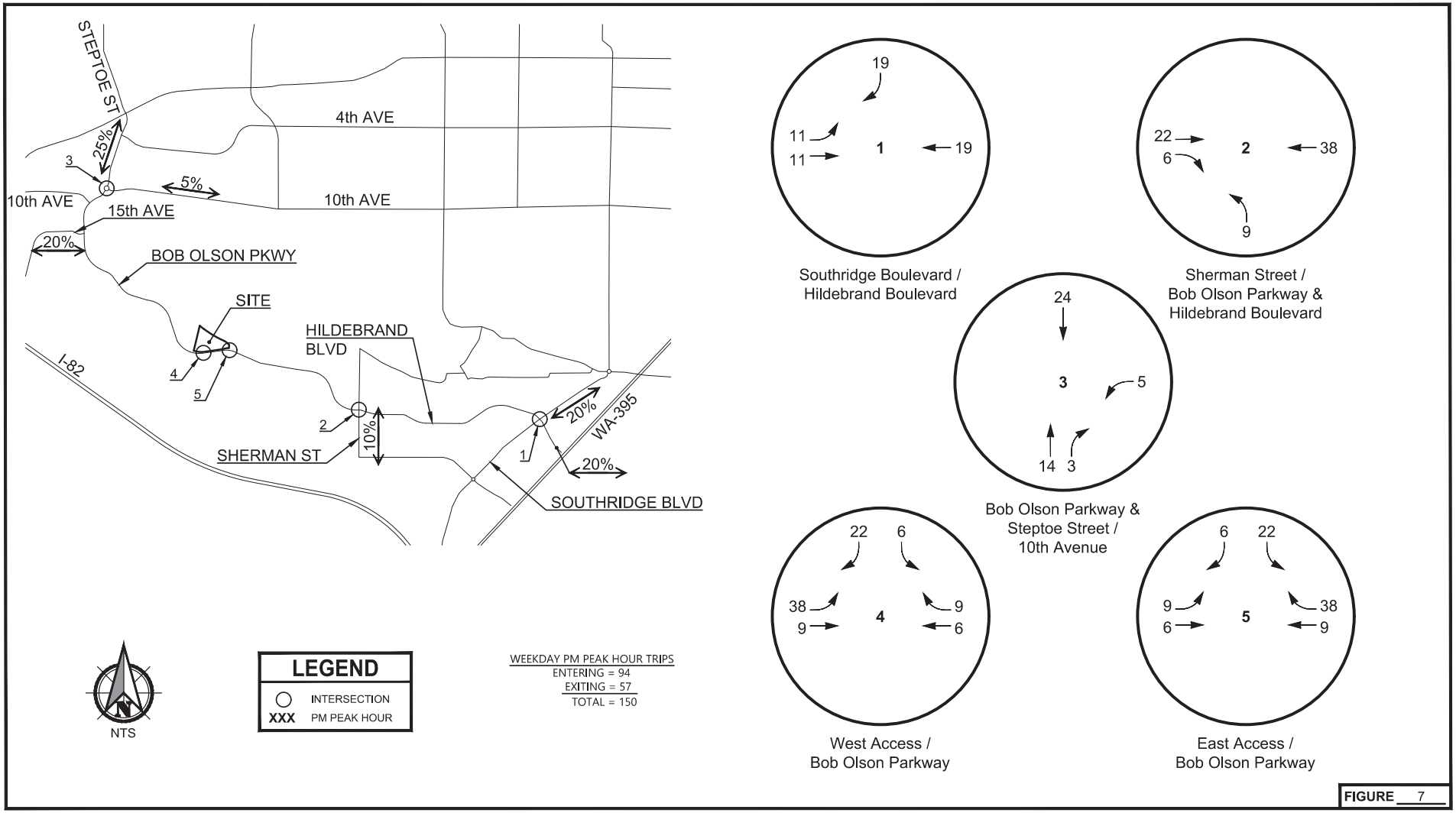


FIGURE 7

Trip Distribution and Assignment

Kennewick Multi-Family Apartments

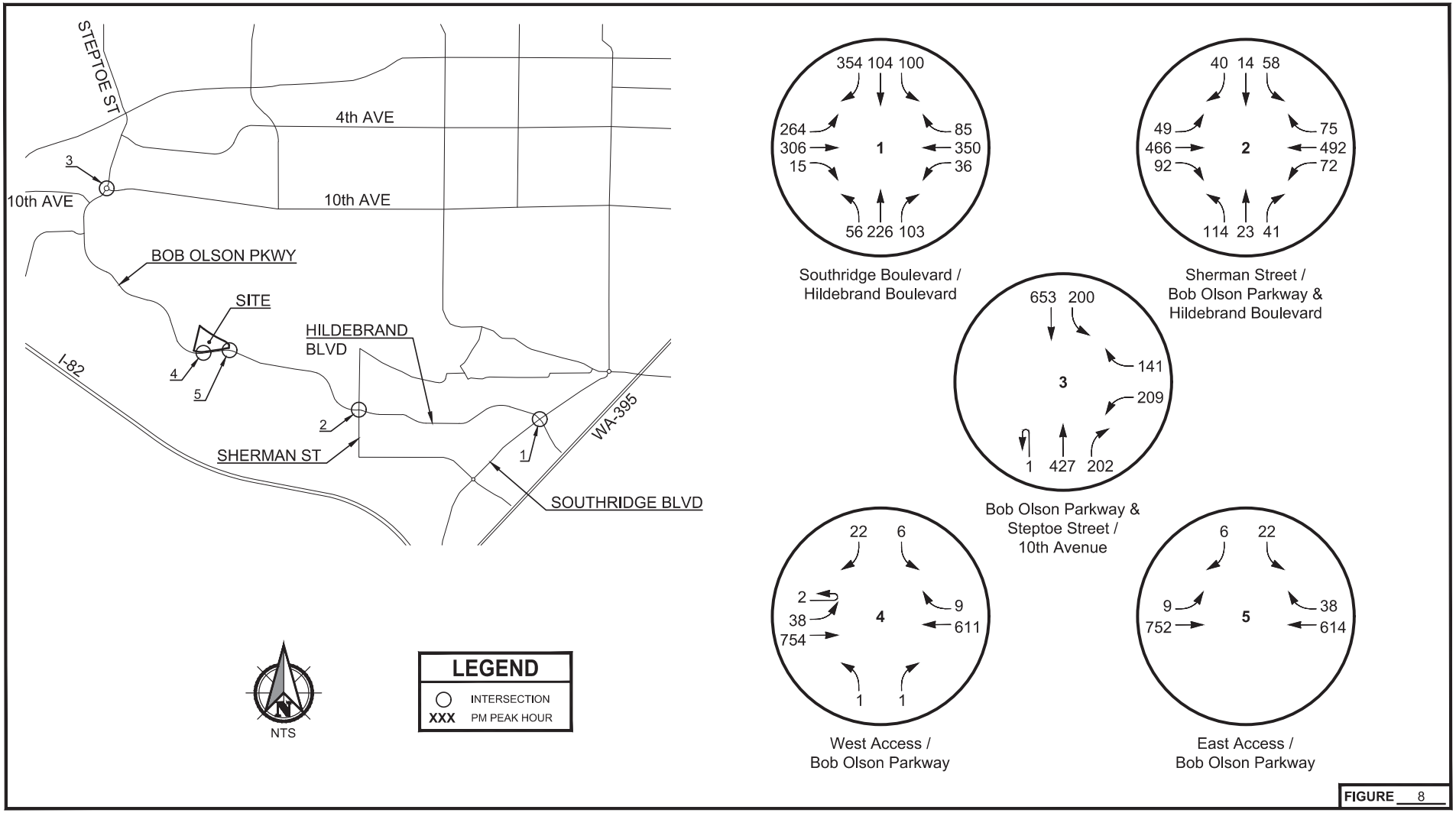


FIGURE 8

2025 With Project Volumes

Kennewick Multi-Family Apartments

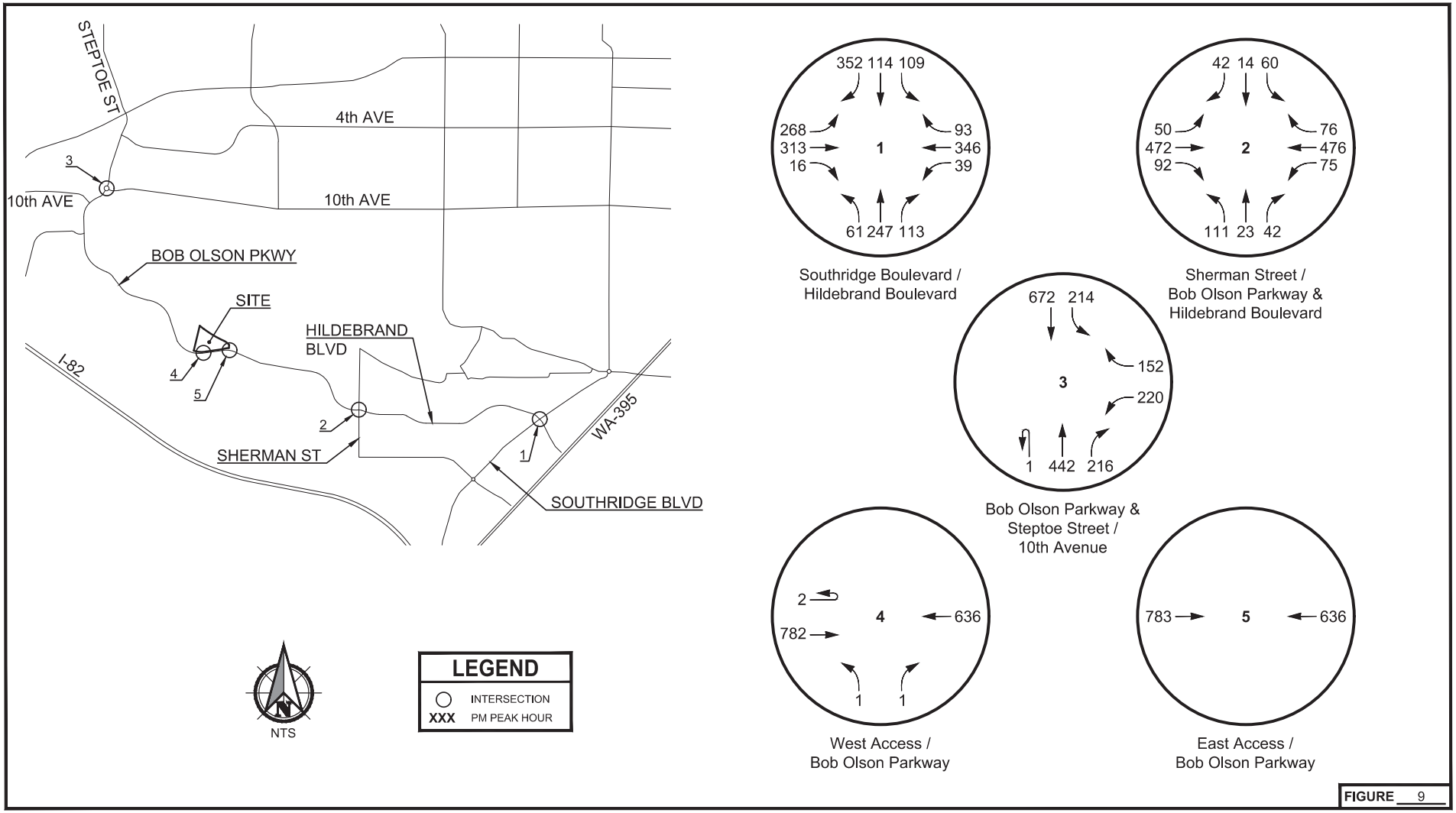


FIGURE 9

2030 Without Project Volumes

Kennewick Multi-Family Apartments

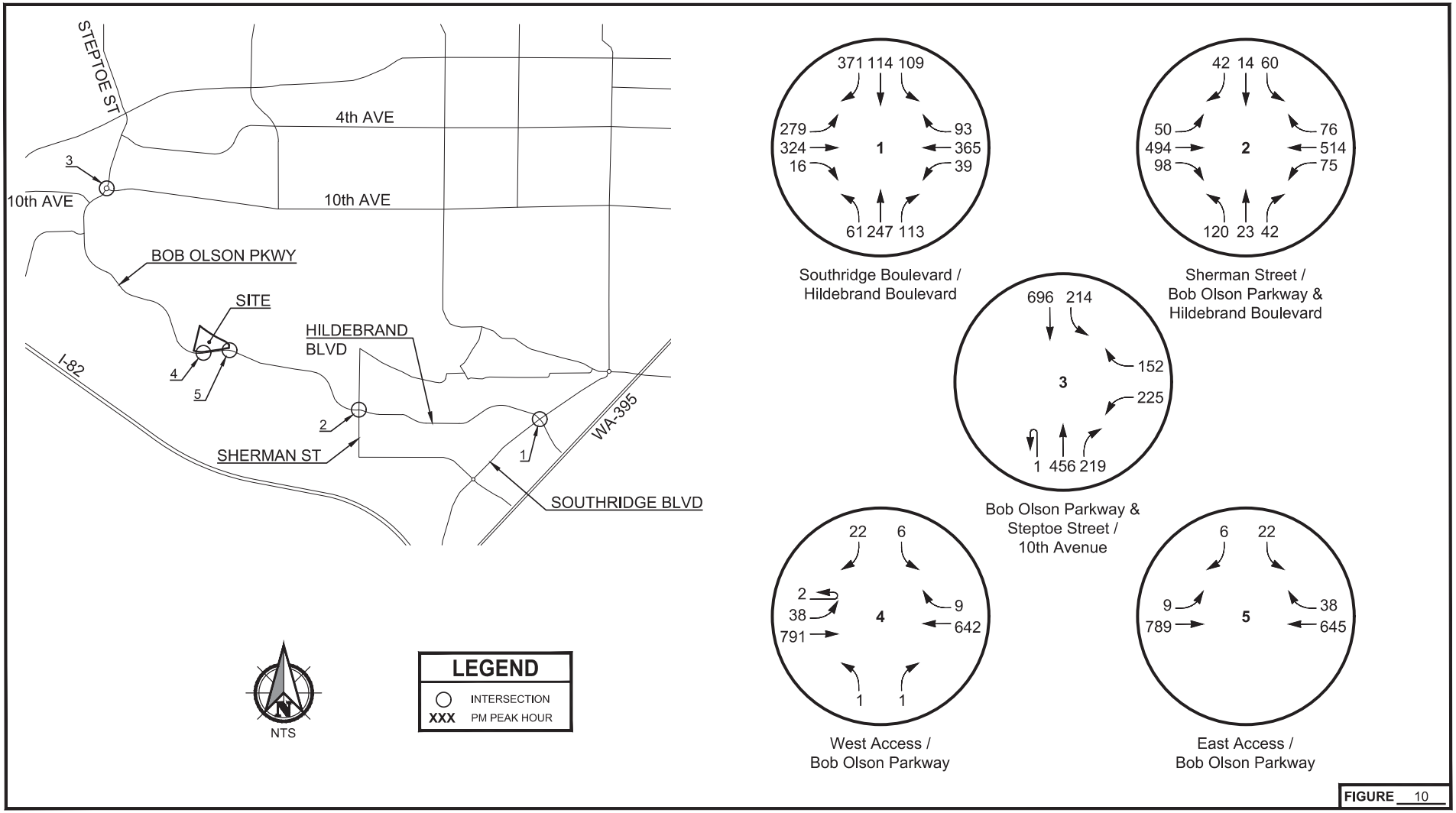


FIGURE 10

2030 With Project Volumes

Kennewick Multi-Family Apartments

Appendix A
Traffic Counts

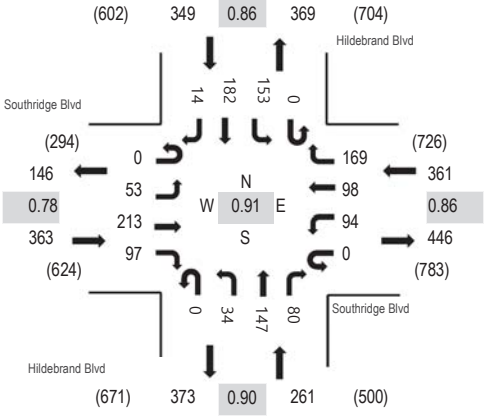
Exhibit A-6

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

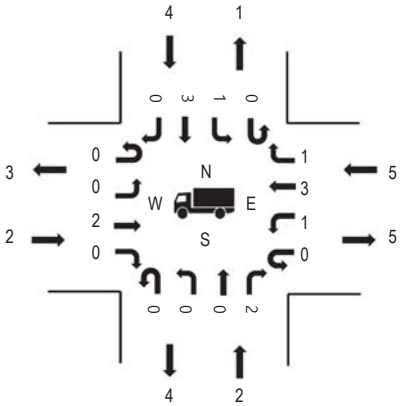
Location: 1 Hildebrand Blvd & Southridge Blvd PM
Date: Monday, March 15, 2021
Peak Hour: 04:35 PM - 05:35 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

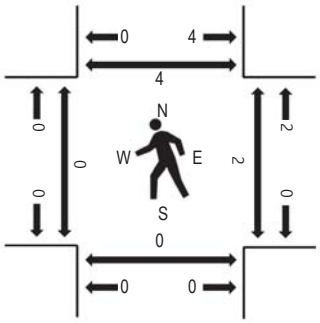
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.6%	0.78
WB	1.4%	0.86
NB	0.8%	0.90
SB	1.1%	0.86
All	1.0%	0.91

Traffic Counts - Motorized Vehicles

Interval Start Time	Southridge Blvd Eastbound				Southridge Blvd Westbound				Hildebrand Blvd Northbound				Hildebrand Blvd Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	4	12	5	0	13	12	15	0	4	6	6	0	9	12	0	98	1,234
4:05 PM	0	3	20	8	0	16	6	23	0	1	13	2	0	9	15	0	116	1,228
4:10 PM	0	5	17	10	0	7	8	13	0	4	7	5	0	5	10	1	92	1,233
4:15 PM	0	2	14	5	0	6	11	13	0	5	8	4	0	7	12	1	88	1,255
4:20 PM	0	5	15	10	0	5	10	8	0	4	13	10	0	13	10	2	105	1,292
4:25 PM	0	2	25	8	0	12	13	12	0	1	7	2	0	8	8	1	99	1,303
4:30 PM	0	1	12	6	0	8	8	19	0	2	18	9	0	7	12	1	103	1,328
4:35 PM	0	5	22	12	0	6	5	12	0	2	6	4	0	13	16	0	103	1,334
4:40 PM	0	2	14	7	0	5	6	13	0	0	16	8	0	20	20	2	113	1,325
4:45 PM	0	4	9	5	0	9	7	18	0	2	16	5	0	5	14	0	94	1,302
4:50 PM	0	3	16	6	0	10	11	14	0	2	9	9	0	13	15	0	108	1,287
4:55 PM	0	4	14	10	0	7	15	13	0	4	16	5	0	12	14	1	115	1,256
5:00 PM	0	5	18	4	0	5	6	12	0	3	11	11	0	7	10	0	92	1,218
5:05 PM	0	6	22	15	0	10	7	8	0	6	12	6	0	8	21	0	121	
5:10 PM	0	5	27	10	0	10	10	10	0	4	9	5	0	10	13	1	114	
5:15 PM	0	6	18	8	0	8	7	14	0	2	18	8	0	20	15	1	125	
5:20 PM	0	4	18	4	0	6	8	19	0	6	9	8	0	18	13	3	116	
5:25 PM	0	4	17	8	0	10	9	18	0	1	16	9	0	14	16	2	124	
5:30 PM	0	5	18	8	0	8	7	18	0	2	9	2	0	13	15	4	109	
5:35 PM	0	1	9	7	0	5	6	17	0	1	17	7	0	11	12	1	94	
5:40 PM	0	2	11	6	0	7	6	14	0	2	12	8	0	13	9	0	90	
5:45 PM	0	3	8	1	0	6	10	8	0	0	16	6	0	7	13	1	79	
5:50 PM	0	0	5	4	0	2	6	12	0	5	13	4	0	12	11	3	77	
5:55 PM	0	0	9	6	0	6	11	11	0	0	12	5	0	11	5	1	77	
Count Total	0	81	370	173	0	187	205	334	0	63	289	148	0	265	311	26	2,452	
Peak Hour	0	53	213	97	0	94	98	169	0	34	147	80	0	153	182	14	1,334	

Exhibit A-6

Location: 1 Hildebrand Blvd & Southridge Blvd PM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	1	0	1	3	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	1	1
4:10 PM	0	1	0	0	1	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	1	1
4:15 PM	1	1	2	0	4	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	1	0	1	0	2	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	1	0	1	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	0	1	1	2	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	1	0	0	1	4:35 PM	0	0	0	0	0	4:35 PM	0	0	2	0	2
4:40 PM	0	1	1	1	3	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	1	1	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	1	1
4:55 PM	1	0	0	1	2	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	1	1
5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	2	2
5:25 PM	1	0	2	1	4	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
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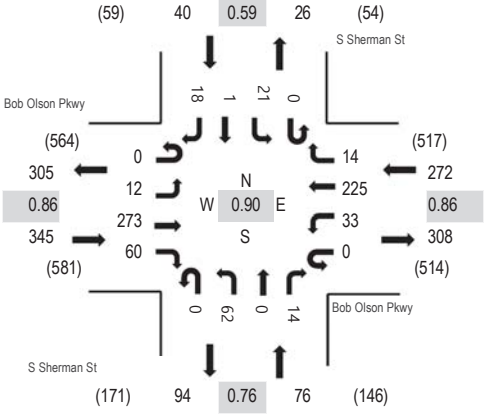
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	2	0	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	2	2
5:55 PM	1	0	0	0	1	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	6	5	12	6	29	Count Total	0	0	0	0	0	Count Total	0	0	2	8	10
Peak Hour	2	2	5	4	13	Peak Hour	0	0	0	0	0	Peak Hour	0	0	2	4	6

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

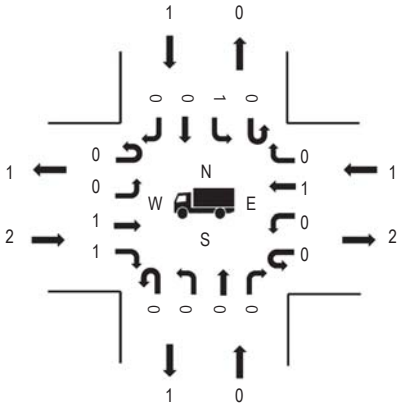
Location: 2 S Sherman St & Bob Olson Pkwy PM
Date: Monday, March 15, 2021
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour

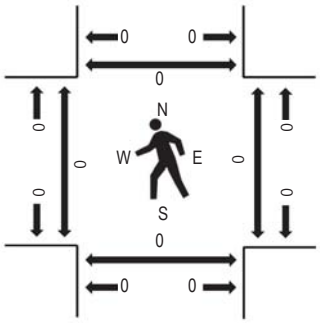
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.6%	0.86
WB	0.4%	0.86
NB	0.0%	0.76
SB	2.5%	0.59
All	0.5%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	Bob Olson Pkwy Eastbound				Bob Olson Pkwy Westbound				S Sherman St Northbound				S Sherman St Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	1	9	2	0	2	21	2	0	1	0	1	0	2	0	0	41	660
4:05 PM	0	3	13	3	0	4	18	4	0	2	1	3	0	0	0	0	51	666
4:10 PM	0	0	10	3	0	2	22	0	0	4	0	2	0	1	0	5	49	669
4:15 PM	0	1	21	5	0	4	17	0	0	11	0	2	0	3	0	0	64	680
4:20 PM	0	1	18	7	0	3	16	0	0	6	0	0	0	0	0	0	51	693
4:25 PM	0	2	7	2	0	1	17	0	0	5	0	1	0	1	0	0	36	703
4:30 PM	0	2	16	2	0	3	20	3	0	8	0	1	0	1	0	3	59	733
4:35 PM	0	1	26	2	0	1	16	1	0	10	0	4	0	5	0	5	71	725
4:40 PM	0	0	20	9	0	5	18	0	0	4	0	0	0	2	1	0	59	697
4:45 PM	0	1	21	4	0	5	20	3	0	5	0	0	0	2	0	0	61	688
4:50 PM	0	1	22	2	0	1	27	0	0	2	0	1	0	4	0	0	60	676
4:55 PM	0	2	23	7	0	2	15	0	0	7	0	1	0	0	0	1	58	659
5:00 PM	0	1	14	7	0	2	14	1	0	8	0	0	0	0	0	0	47	643
5:05 PM	0	1	21	7	0	3	17	0	0	3	0	0	0	1	0	1	54	
5:10 PM	0	1	24	7	0	2	14	0	0	5	0	0	0	2	0	5	60	
5:15 PM	0	0	31	4	0	3	28	0	0	3	0	2	0	3	0	3	77	
5:20 PM	0	2	23	5	0	2	21	3	0	2	0	3	0	0	0	0	61	
5:25 PM	0	0	32	4	0	4	15	3	0	5	0	2	0	1	0	0	66	
5:30 PM	0	1	16	4	0	1	22	0	0	5	0	0	0	1	0	1	51	
5:35 PM	0	0	14	3	0	3	16	1	0	4	0	1	0	1	0	0	43	
5:40 PM	0	0	19	6	0	3	13	2	0	5	0	2	0	0	0	0	50	
5:45 PM	0	2	18	2	0	2	18	0	0	4	0	3	0	0	0	0	49	
5:50 PM	0	2	15	5	0	1	12	2	0	2	0	3	0	1	0	0	43	
5:55 PM	0	1	16	4	0	4	11	1	0	1	1	0	0	2	1	0	42	
Count Total	0	26	449	106	0	63	428	26	0	112	2	32	0	33	2	24	1,303	
Peak Hour	0	12	273	60	0	33	225	14	0	62	0	14	0	21	1	18	733	

Location: 2 S Sherman St & Bob Olson Pkwy PM

Exhibit A-6

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	0	2	0	3	4:00 PM	0	0	1	0	1	4:00 PM	0	0	0	0	0
4:05 PM	3	0	0	0	3	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	0	2	3	5	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	1	0	0	0	1	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	1	1	0	2	4:20 PM	1	0	0	0	1	4:20 PM	0	0	0	1	1
4:25 PM	0	0	0	1	1	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	0	0	0	1	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	1	0	0	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	1	1	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	1	0	1	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM	1	0	0	0	1	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	7	1	6	5	19	Count Total	2	0	1	0	3	Count Total	0	0	0	1	1
Peak Hour	2	0	1	1	4	Peak Hour	1	0	0	0	1	Peak Hour	0	0	0	0	0

Location: 3 S Steptoe St & W 10th Ave PM

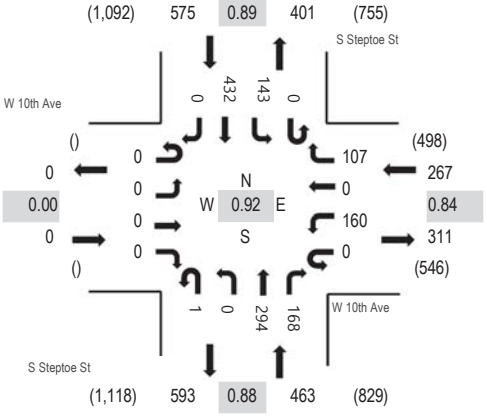
Exhibit A-6

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

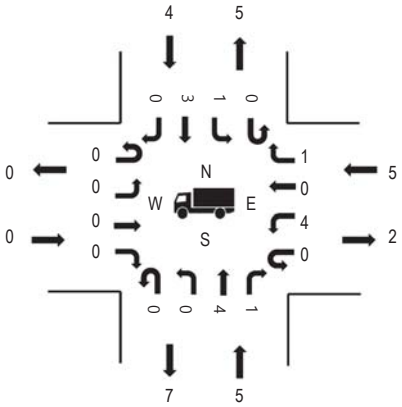
Location: 3 S Steptoe St & W 10th Ave PM
Date: Monday, March 15, 2021
Peak Hour: 04:25 PM - 05:25 PM
Peak 15-Minutes: 05:10 PM - 05:25 PM

Peak Hour

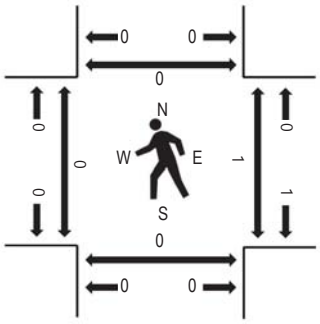
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	1.9%	0.84
NB	1.1%	0.88
SB	0.7%	0.89
All	1.1%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	W 10th Ave Eastbound				W 10th Ave Westbound				S Steptoe St Northbound				S Steptoe St Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	15	0	11	0	0	17	9	0	9	21	0	82	1,262
4:05 PM	0	0	0	0	0	13	0	7	0	0	20	8	0	15	43	0	106	1,288
4:10 PM	0	0	0	0	1	9	0	9	0	0	25	14	0	7	44	0	109	1,279
4:15 PM	0	0	0	0	0	14	0	6	0	0	31	12	0	14	39	0	116	1,290
4:20 PM	0	0	0	0	0	14	0	8	0	0	31	16	0	7	29	0	105	1,280
4:25 PM	0	0	0	0	0	20	0	13	0	0	34	11	0	8	41	0	127	1,305
4:30 PM	0	0	0	0	0	16	0	6	0	0	14	11	0	13	35	0	95	1,259
4:35 PM	0	0	0	0	0	10	0	9	0	0	31	24	0	11	31	0	116	1,250
4:40 PM	0	0	0	0	0	22	0	13	0	0	20	23	0	7	30	0	115	1,214
4:45 PM	0	0	0	0	0	5	0	11	0	0	25	11	0	13	27	0	92	1,193
4:50 PM	0	0	0	0	0	8	0	6	0	0	24	12	0	14	39	0	103	1,196
4:55 PM	0	0	0	0	0	6	0	8	1	0	19	15	0	11	36	0	96	1,178
5:00 PM	0	0	0	0	0	12	0	4	0	0	27	14	0	14	37	0	108	1,157
5:05 PM	0	0	0	0	0	16	0	3	0	0	24	7	0	14	33	0	97	
5:10 PM	0	0	0	0	0	19	0	17	0	0	18	16	0	9	41	0	120	
5:15 PM	0	0	0	0	0	14	0	7	0	0	18	12	0	10	45	0	106	
5:20 PM	0	0	0	0	0	12	0	10	0	0	40	12	0	19	37	0	130	
5:25 PM	0	0	0	0	0	11	0	5	0	0	16	17	0	8	24	0	81	
5:30 PM	0	0	0	0	0	12	0	8	0	0	21	7	1	9	28	0	86	
5:35 PM	0	0	0	0	0	9	0	10	0	0	16	5	0	8	32	0	80	
5:40 PM	0	0	0	0	0	5	0	7	0	0	21	7	0	14	40	0	94	
5:45 PM	0	0	0	0	0	12	0	10	0	0	21	6	0	11	35	0	95	
5:50 PM	0	0	0	0	0	10	0	7	0	0	23	5	0	11	29	0	85	
5:55 PM	0	0	0	0	0	9	0	9	0	0	14	4	0	11	28	0	75	
Count Total	0	0	0	0	1	293	0	204	1	0	550	278	1	267	824	0	2,419	
Peak Hour	0	0	0	0	0	160	0	107	1	0	294	168	0	143	432	0	1,305	

Location: 3 S Steptoe St & W 10th Ave PM

Exhibit A-6

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	1	0	1	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	1	1	2	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	1	1	4:10 PM	0	0	1	0	1	4:10 PM	0	0	0	0	0
4:15 PM	0	4	1	1	6	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	1	0	0	1	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	3	3	1	7	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	1	1	0	2	4:30 PM	0	0	0	0	0	4:30 PM	0	0	1	0	1
4:35 PM	0	0	1	0	1	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	1	1	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	1	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	1	0	0	1	5:10 PM	0	1	0	0	1	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	1	0	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	1	0	1	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	0	11	8	8	27	Count Total	0	1	2	0	3	Count Total	0	0	1	0	1
Peak Hour	0	5	5	4	14	Peak Hour	0	1	0	0	1	Peak Hour	0	0	1	0	1

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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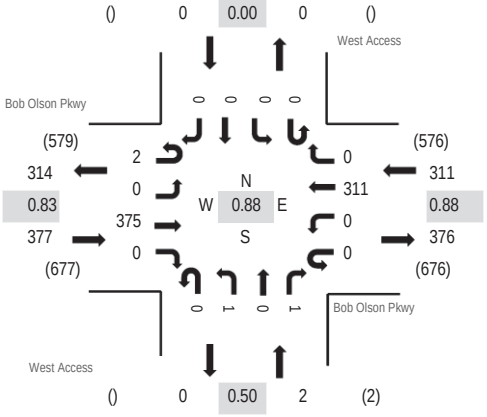
Location: 4 West Access & Bob Olson Pkwy PM
Date: Monday, March 15, 2021
Peak Hour: 04:20 PM - 05:20 PM
Peak 15-Minutes: 05:05 PM - 05:20 PM

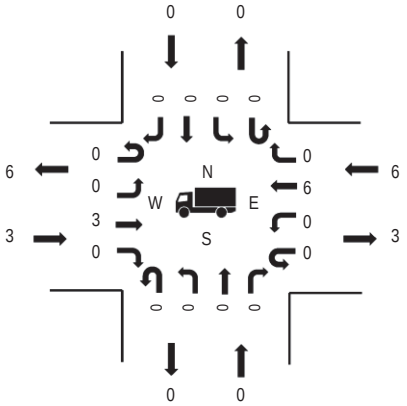
Exhibit A-6

Peak Hour

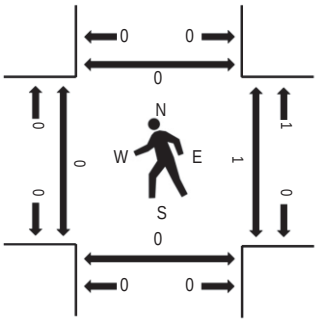
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.8%	0.83
WB	1.9%	0.88
NB	0.0%	0.50
SB	0.0%	0.00
All	1.3%	0.88

Traffic Counts - Motorized Vehicles

Interval Start Time	Bob Olson Pkwy Eastbound				Bob Olson Pkwy Westbound				West Access Northbound				West Access Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	17	0	0	0	26	0	0	0	0	0	0	0	0	0	43	633
4:05 PM	0	0	23	0	0	0	27	0	0	0	0	0	0	0	0	0	50	644
4:10 PM	0	0	30	0	0	0	21	0	0	0	0	0	0	0	0	0	51	655
4:15 PM	0	0	26	0	0	0	24	0	0	0	0	0	0	0	0	0	50	679
4:20 PM	0	0	31	0	0	0	25	0	0	0	0	0	0	0	0	0	56	690
4:25 PM	0	0	26	0	0	0	22	0	0	1	0	0	0	0	0	0	49	689
4:30 PM	2	0	28	0	0	0	26	0	0	0	0	0	0	0	0	0	56	686
4:35 PM	0	0	22	0	0	0	35	0	0	0	0	0	0	0	0	0	57	683
4:40 PM	0	0	36	0	0	0	23	0	0	0	0	0	0	0	0	0	59	673
4:45 PM	0	0	32	0	0	0	27	0	0	0	0	0	0	0	0	0	59	671
4:50 PM	0	0	32	0	0	0	23	0	0	0	0	0	0	0	0	0	55	658
4:55 PM	0	0	28	0	0	0	20	0	0	0	0	0	0	0	0	0	48	638
5:00 PM	0	0	25	0	0	0	29	0	0	0	0	0	0	0	0	0	54	622
5:05 PM	0	0	32	0	0	0	28	0	0	0	0	1	0	0	0	0	61	
5:10 PM	0	0	43	0	0	0	32	0	0	0	0	0	0	0	0	0	75	
5:15 PM	0	0	40	0	0	0	21	0	0	0	0	0	0	0	0	0	61	
5:20 PM	0	0	33	0	0	0	22	0	0	0	0	0	0	0	0	0	55	
5:25 PM	0	0	29	0	0	0	17	0	0	0	0	0	0	0	0	0	46	
5:30 PM	0	0	31	0	0	0	22	0	0	0	0	0	0	0	0	0	53	
5:35 PM	0	0	18	0	0	0	29	0	0	0	0	0	0	0	0	0	47	
5:40 PM	0	0	27	0	0	0	30	0	0	0	0	0	0	0	0	0	57	
5:45 PM	0	0	25	0	0	0	21	0	0	0	0	0	0	0	0	0	46	
5:50 PM	0	0	22	0	0	0	13	0	0	0	0	0	0	0	0	0	35	
5:55 PM	0	0	19	0	0	0	13	0	0	0	0	0	0	0	0	0	32	
Count Total	2	0	675	0	0	0	576	0	0	1	0	1	0	0	0	0	1,255	
Peak Hour	2	0	375	0	0	0	311	0	0	1	0	1	0	0	0	0	690	

Location: 4 West Access & Bob Olson Pkwy PM

Exhibit A-6

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	1	0	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	3	0	3	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	1	0	0	0	1	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	2	0	2	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	1	0	1	0	2	4:20 PM	0	0	1	0	1	4:20 PM	0	0	0	0	0
4:25 PM	0	0	1	0	1	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0	4:35 PM	0	0	1	0	1
4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	1	0	1	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	1	0	0	0	1	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	1	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM	1	0	0	0	1	5:10 PM	0	0	0	0	0
5:15 PM	1	0	1	0	2	5:15 PM	0	0	1	0	1	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	0	0	1	0	1	5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM	2	0	0	0	2	5:25 PM	0	0	0	0	0
5:30 PM	1	0	1	0	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	2	0	2	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	2	0	0	0	2	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	3	0	0	0	3	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	10	0	15	0	25	Count Total	3	0	3	0	6	Count Total	0	0	1	0	1
Peak Hour	3	0	6	0	9	Peak Hour	1	0	2	0	3	Peak Hour	0	0	1	0	1

Appendix B

In-Process Projects

Exhibit A-6

Bhauvesh Jaya

From: Sorin Juster <Sorin.Juster@ci.kennewick.wa.us>
Sent: Tuesday, March 22, 2022 10:31 AM
To: John A. Manix
Cc: Kelly Nguyen; Bhauvesh Jaya; Joe Seet; Joshua Hazlett; Chad Pietrok; David Holt; Alex Warschauer
Subject: RE: Request for In-Process Projects - Kennewick Multi-Family Apartments

Hi John, I agree with the approach of counting lots, since we don't have the TIA's for all these developments.

Thanks

Sorin Juster, P.E., PTOE
Transportation Manager
Public Works Department
P.O. Box 6108
Kennewick, WA 99336-0108
O: 509.585.4400 | C: 509.572.0907
sorin.juster@ci.kennewick.wa.us

This communication (and any reply) is subject to the Public Records Act, RCW 42.56. The City of Kennewick is committed to transparency in government and we will provide our customers the fullest assistance possible when they request access to public records. **Individuals wishing to obtain public records shall submit their requests in accordance with the City's Public Records Policy which is available by visiting this link.**

From: John A. Manix <John.Manix@pbsusa.com>
Sent: Tuesday, March 22, 2022 10:28 AM
To: Sorin Juster <Sorin.Juster@ci.kennewick.wa.us>
Cc: Kelly Nguyen <knguyen@murowdc.com>; Bhauvesh Jaya <Bhauvesh.Jaya@pbsusa.com>; Joe Seet <Joe.Seet@ci.kennewick.wa.us>; Chad Pietrok <Chad.Pietrok@pbsusa.com>; David Holt <David.Holt@pbsusa.com>; Alex Warschauer <Alex.Warschauer@pbsusa.com>
Subject: FW: Request for In-Process Projects - Kennewick Multi-Family Apartments

Sorin: Thanks for Joshua's help. Ideally, we would have the TIA for each project. I seriously doubt Joe will have time to look up each study when he gets back and respond quickly. Assuming you are OK with our approach you can cancel our request for the TIA for each project.

To keep the TIA moving, we proposed counting the lots of each subdivision and distributing and assign the trips based on our previous discussions and past project. To make this manageable, it will be simplified by only working with the trips destine for Bob Olsen Parkway and distributed and assign based on our judgement and previous studies. I believe this works within our discussion at the scoping meeting.

John Manix, PE | Senior Traffic Engineer | PBS Vancouver | 360.607.1854 (cell)

From: Joshua Hazlett <Joshua.Hazlett@ci.kennewick.wa.us>
Sent: Tuesday, March 22, 2022 9:05 AM
To: Sorin Juster <Sorin.Juster@ci.kennewick.wa.us>; Bhauvesh Jaya <Bhauvesh.Jaya@pbsusa.com>; Joe Seet

<Joe.Seet@ci.kennewick.wa.us>
Cc: Chad Pietrok <Chad.Pietrok@pbsusa.com>; John A. Manix <John.Manix@pbsusa.com>; David Holt <David.Holt@pbsusa.com>
Subject: RE: Request for In-Process Projects - Kennewick Multi-Family Apartments

In-process project along Bob Olson and Hildebrand Dr:

- Apple Valley
- Citadel Estates
- Hansen Park South
- Roth Property
- Sherman Heights
- Southcliffe
- Southridge Estates
- Swanson Property
- Symphony Ridge
- Valley View Homes

Please See Attachments for the map locations of each development.

Thank You,

Joshua Hazlett
City of Kennewick
Traffic Technician II
509.585.4342

From: Sorin Juster <Sorin.Juster@ci.kennewick.wa.us>
Sent: Tuesday, March 22, 2022 8:34 AM
To: 'Bhauvesh Jaya' <Bhauvesh.Jaya@pbsusa.com>; Joe Seet <Joe.Seet@ci.kennewick.wa.us>; Joshua Hazlett <Joshua.Hazlett@ci.kennewick.wa.us>
Cc: Chad Pietrok <Chad.Pietrok@pbsusa.com>; John A. Manix <John.Manix@pbsusa.com>; David Holt <David.Holt@pbsusa.com>
Subject: RE: Request for In-Process Projects - Kennewick Multi-Family Apartments

Hi Bhauvesh, Joe is on vacation, you will receive an e-mail shortly from Josh Hazlett from my team summarizing all the in-progress developments you need to include.

Thanks

Sorin Juster, P.E., PTOE
Transportation Manager
Public Works Department
P.O. Box 6108
Kennewick, WA 99336-0108
O: 509.585.4400 | C: 509.572.0907
sorin.juster@ci.kennewick.wa.us

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records shall submit their requests in accordance with the City's Public Records Policy which is available by visiting this link.

From: Bhauvesh Jaya <Bhauvesh.Jaya@pbsusa.com>
Sent: Tuesday, March 22, 2022 8:29 AM
To: Joe Seet <Joe.Seet@ci.kennewick.wa.us>
Cc: Chad Pietrok <Chad.Pietrok@pbsusa.com>; John A. Manix <John.Manix@pbsusa.com>; David Holt <David.Holt@pbsusa.com>; Sorin Juster <Sorin.Juster@ci.kennewick.wa.us>
Subject: RE: Request for In-Process Projects - Kennewick Multi-Family Apartments

Hi Joe,

Thanks for taking my call while on vacation. Per our conversation, I am looking for in-process projects along Bob Olson Parkway that send trips to the following intersections or approximately a mile radius from the site location (8428 Bob Olson Parkway, Kennewick, Washington 99338):

1. Southridge Boulevard/Hildebrand Boulevard
2. Sherman Street/Bob Olson Parkway to Hildebrand Boulevard
3. Steptoe Street/10th Avenue (Roundabout)

FYI, here are a list of in-process projects that we plan on including.

- Apple Valley
- Roth Property
- Hansen Park
- Ridgeline Development

Thank you,

Bhauvesh Jaya
Civil Engineer Staff, EIT

PBS
415 W 6th St., Suite 601, Vancouver, WA 98660
office: 360.695.3488 | direct: 360.213.0229 | mobile: 541.745.8989
Bhauvesh.Jaya@pbsusa.com
pbsusa.com

From: Bhauvesh Jaya
Sent: Thursday, March 17, 2022 5:14 PM
To: Joe Seet <Joe.Seet@ci.kennewick.wa.us>
Cc: Chad Pietrok <Chad.Pietrok@pbsusa.com>; John A. Manix <John.Manix@pbsusa.com>; David Holt <David.Holt@pbsusa.com>; Sorin Juster <Sorin.Juster@ci.kennewick.wa.us>
Subject: RE: Request for In-Process Projects - Kennewick Multi-Family Apartments

Hi Joe,

Any update on this request? Our deadline is time sensitive.

Thank you,

Bhauvesh Jaya
Civil Engineer Staff, EIT

PBS
415 W 6th St., Suite 601, Vancouver, WA 98660
office: 360.695.3488 | direct: 360.213.0229 | mobile: 541.745.8989
Bhauvesh.Jaya@pbsusa.com
pbsusa.com

From: Bhauvesh Jaya
Sent: Friday, March 11, 2022 12:26 PM
To: Joe Seet <Joe.Seet@ci.kennewick.wa.us>
Cc: Chad Pietrok <Chad.Pietrok@pbsusa.com>; John A. Manix <John.Manix@pbsusa.com>; David Holt <David.Holt@pbsusa.com>; Sorin Juster <Sorin.Juster@ci.kennewick.wa.us>
Subject: Request for In-Process Projects - Kennewick Multi-Family Apartments

Sorin: Thanks again for providing us with feedback on the scope for the TIA.
Joe: Can you please provide me with a list of in-process projects to be included in the traffic impact analysis for the Kennewick Multi-Family Apartments. The site is located at 8428 Bob Olson Parkway, Kennewick, Washington 99338. More details of the proposed project is in the attached scope letter. Based on the TIAs in the area that PBS prepared, we plan on including the following list of in-process projects:

- Apple Valley
- Roth Property
- Hansen Park
- Ridgeline Development

Let me know if you have any questions.

Have a great weekend!

Thank you,

Bhauvesh Jaya
Civil Engineer Staff, EIT

PBS
415 W 6th St., Suite 601, Vancouver, WA 98660
office: 360.695.3488 | direct: 360.213.0229 | mobile: 541.745.8989
Bhauvesh.Jaya@pbsusa.com
pbsusa.com

From: Bhauvesh Jaya
Sent: Tuesday, March 1, 2022 12:06 PM
To: Sorin Juster <Sorin.Juster@ci.kennewick.wa.us>
Cc: John A. Manix <John.Manix@pbsusa.com>
Subject: TIA Scoping Meeting - Kennewick Multi-Family Apartments & Resident Inn

Hello Sorin,

We'd like to schedule a teleconference with you to confirm the TIA scope for the Kennewick Multi-Family Apartments project and the Resident Inn project. Please see the attached letter with the project details and preliminary scope items for the Kennewick Multi-Family Apartments and the attached email correspondence for the Resident Inn project.

Some available times for us include:

- Wednesday 3/2 – Before noon.

- Tuesday 3/8 – Anytime during working hours (8:00 am – 5:00 pm).
- Wednesday 3/9 – Anytime during working hours (8:00 am – 5:00 pm).
- Thursday 3/10 – Anytime during working hours (8:00 am – 5:00 pm).
- Friday 3/11 – Anytime between 10:30 am – 5:00 pm).
- …as well as more slots the week after.

Let us know what time will work for you, and I'll send out a Microsoft Teams meeting. Thank you!

Bhauvesh Jaya
Civil Engineer Staff, EIT

PBS
415 W 6th St., Suite 601, Vancouver, WA 98660
office: 360.695.3488 | direct: 360.213.0229 | mobile: 541.745.8989
Bhauvesh.Jaya@pbsusa.com
pbsusa.com

Exhibit A-6

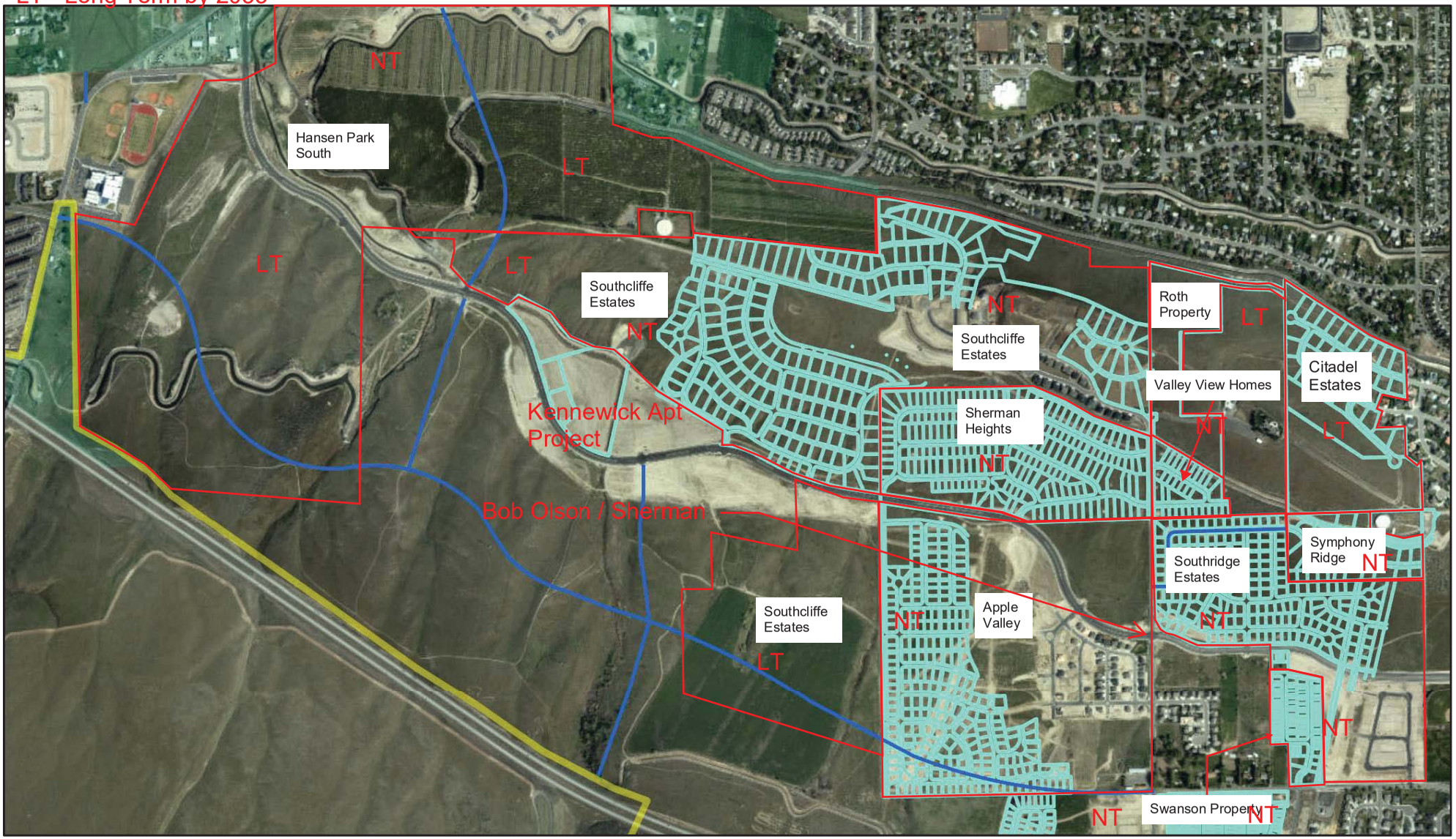
Kennewick Multi-Family Apartments In-Process Trips Calculations

Project Name	Hansen Park South			Southcliffe Estates	Sherman Heights	Apple Valley	Roth Property	Valley View Homes	Southridge Estates	Symphony Ridge	Citadel Estates	Swanson Property	Ridgeline
PBS Project Number	N/A			N/A	N/A	66090.005	66045	N/A	N/A	N/A	N/A	N/A	66292
Number of Dwellings	200 (South of Bob Olsen)	325 (North of Bob Olsen	525 (Total)	178	191	282		31	167	29	36	50	
PM Peak Hour Trips (Enter)	118	193	311	105	113	167		18	99	17	21	30	107
PM Peak Hour Trips (Exit)	70	113	183	62	67	98		11	58	10	13	17	110
PM Peak Hour Trips (Total)	188	306	494	167	180	265		29	157	27	34	47	217

Exhibit A-6

Bob Olson PKWY IN-Process Projects

NT - Near Term by 2025
LT - Long Term by 2035



March 22, 2022

This plan is suitable for informational use only. City of Kennewick accepts no liability for any error whatsoever.

StreetName
StreetCenterline
Other

ARTERIAL MAJOR
ARTERIAL
ARTERIAL MINOR
COLLECTOR
PRIVATE
FREEWAY

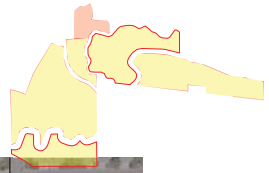
1 inch = 1,300 feet
1:15,600

0 0.125 0.25 0.5 mi
0 0.2 0.4 0.8 km

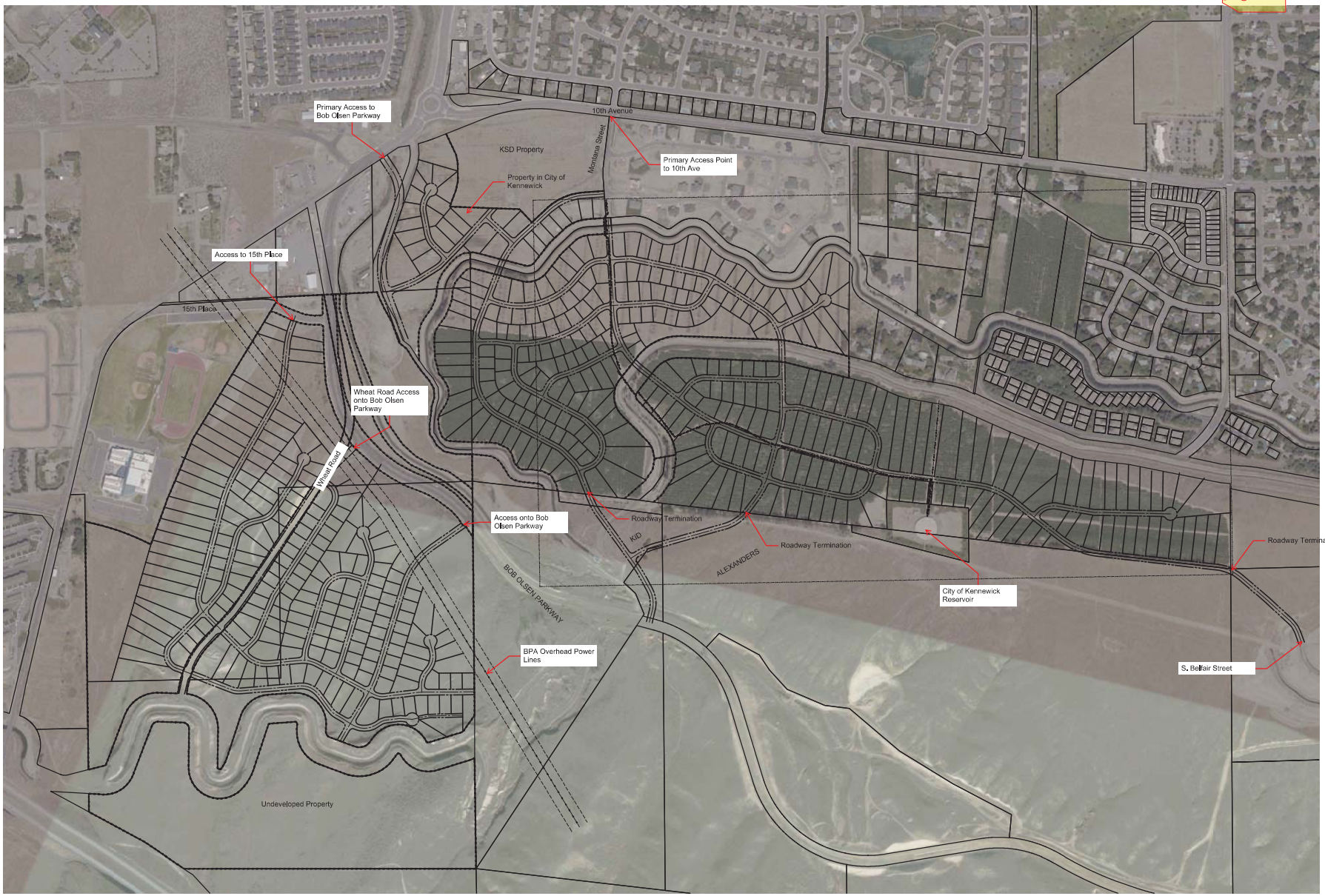
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

ArcGIS WebApp Builder
City of Kennewick

Exhibit A-6



Hansen Park - South
Conceptual Layout



Gross Development Area: 347 Acres
Net Development Area: 273 Acres
Single Family Residential Lots: 513

Scale 1"=300'

PBS

Hansen Park (North of Bob Olsen)

Exhibit A-6

ITETripGen Web-based App

Help | Bhauvesh Jaya | Sign out

Graph Look Up

ITETripGen Web-based App

- Graph Look Up
- How to Use *ITETripGen*
- TGM Desk Reference
- TGM Appendices
- Support Documents
- Add Users
- Comments

Query | Filter

ATA SOURCE: Trip Generation Manual, 11th Ed

SEARCH BY LAN USE CODE: 210

LAND USE GROUP: (200-299) Residential

LAND USE : 210 - Single-Family Detached Housing

LAND USE SUBCATEGORY: All Sites

SETTING/LOCATION: General Urban/Suburban

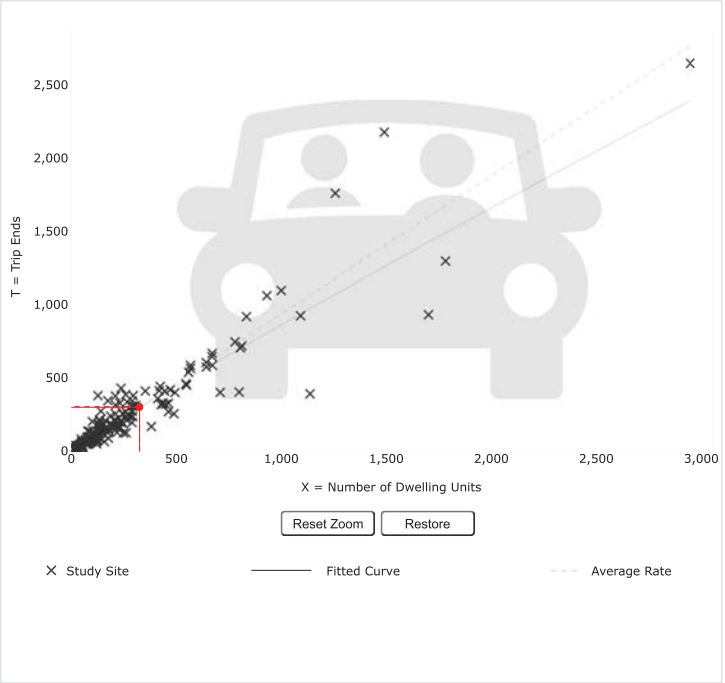
INDEPENDENT VARIABLE (IV): Dwelling Units

TIME PERIOD: Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE: Vehicle

ENTER IV VALUE TO CALCULATE TRIPS: 325 Calculate

ata Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

ATA STATISTICS

Land Use:
Single-Family Detached Housing (210) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
208

Avg. Num. of Dwelling Units:
248

Average Rate:
0.94

Range of Rates:
0.35 - 2.98

Standard eviation:
0.31

Fitted Curve Equation:
Ln(T) = 0.94 Ln(X) + 0.27

R^2:
0.92

Directional Distribution:
63% entering, 37% exiting

Calculated Trip Ends:
Average Rate: 306 (Total), 192 (Entry), 114 (Exit)
Fitted Curve: 301 (Total), 190 (Entry), 111 (Exit)

Add-ons to do more

OTISS Pro

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Hansen Park (South of Bob Olsen)

Exhibit A-6

Graph Look Up

Query Filter

ATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAN USE CODE:
210

LAND USE GROUP:
(200-299) Residential

LAND USE :
210 - Single-Family Detached Housing

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

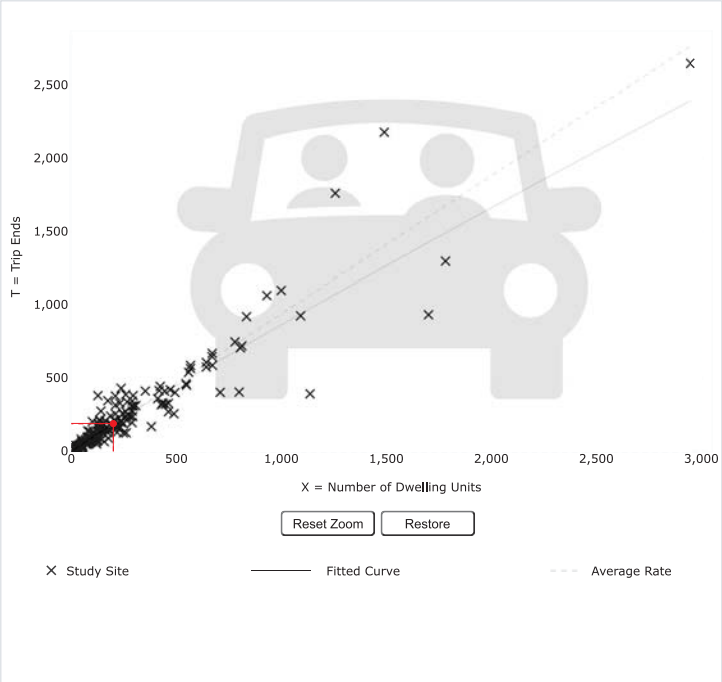
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
200 Calculate

ata Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

ATA STATISTICS

Land Use:
Single-Family Detached Housing (210) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
208

Avg. Num. of Dwelling Units:
248

Average Rate:
0.94

Range of Rates:
0.35 - 2.98

Standard eviation:
0.31

Fitted Curve Equation:
Ln(T) = 0.94 Ln(X) + 0.27

R^2:
0.92

Directional Distribution:
63% entering, 37% exiting

Calculated Trip Ends:
Average Rate: 188 (Total), 118 (Entry), 70 (Exit)
Fitted Curve: 191 (Total), 120 (Entry), 71 (Exit)

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Exhibit A-6

Southcliffe Estates

ITETripGen Web-based App

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Graph Look Up

ITETripGen Web-based App

- Graph Look Up
- How to Use *ITETripGen*
- TGM Desk Reference
- TGM Appendices
- Support Documents
- Add Users
- Comments

Query | Filter

ATA SOURCE: Trip Generation Manual, 11th Ed

SEARCH BY LAN USE CODE: 210

LAND USE GROUP: (200-299) Residential

LAND USE : 210 - Single-Family Detached Housing

LAND USE SUBCATEGORY: All Sites

SETTING/LOCATION: General Urban/Suburban

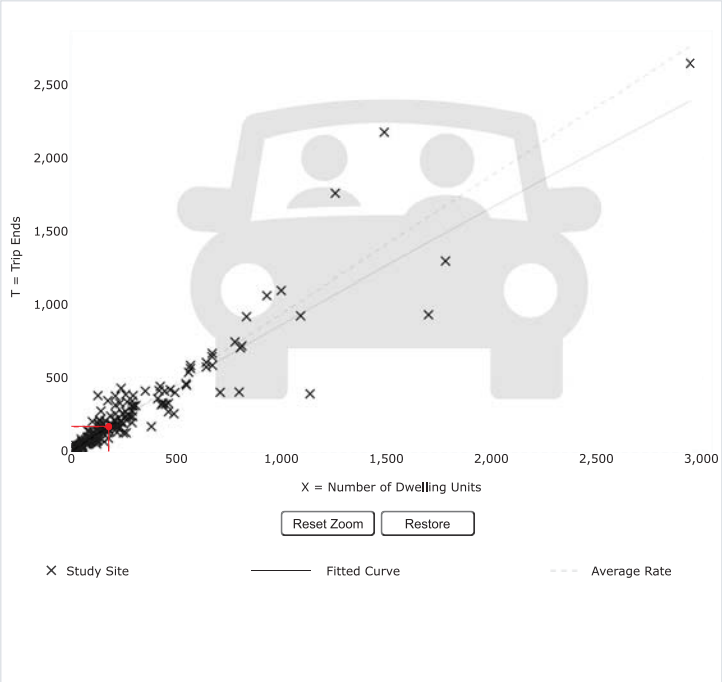
INDEPENDENT VARIABLE (IV): Dwelling Units

TIME PERIOD: Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE: Vehicle

ENTER IV VALUE TO CALCULATE TRIPS: 178 Calculate

ata Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

ATA STATISTICS

Land Use:
Single-Family Detached Housing (210) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
208

Avg. Num. of Dwelling Units:
248

Average Rate:
0.94

Range of Rates:
0.35 - 2.98

Standard eviation:
0.31

Fitted Curve Equation:
Ln(T) = 0.94 Ln(X) + 0.27

R^2:
0.92

Directional Distribution:
63% entering, 37% exiting

Calculated Trip Ends:
Average Rate: 167 (Total), 105 (Entry), 62 (Exit)
Fitted Curve: 171 (Total), 108 (Entry), 63 (Exit)

- Add-ons to do more
- OTISS Pro

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Exhibit A-6

Sherman Heights

ITETripGen Web-based App

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Graph Look Up

ITETripGen Web-based App

Graph Look Up

How to Use *ITETripGen*

TGM Desk Reference

TGM Appendices

Support Documents

Add Users

Comments

Query Filter

ATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAN USE CODE:
210

LAND USE GROUP:
(200-299) Residential

LAND USE :
210 - Single-Family Detached Housing

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

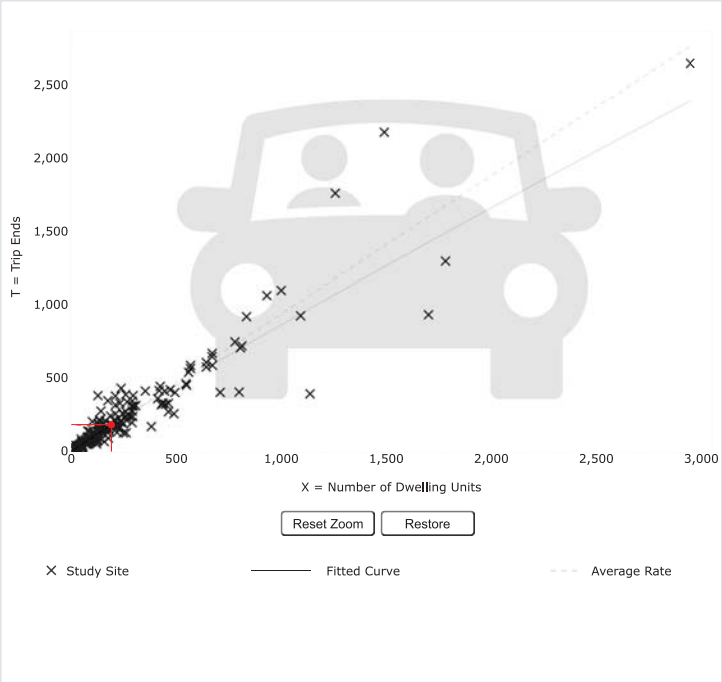
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
191 Calculate

ata Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

ATA STATISTICS

Land Use:
Single-Family Detached Housing (210) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
208

Avg. Num. of Dwelling Units:
248

Average Rate:
0.94

Range of Rates:
0.35 - 2.98

Standard eviation:
0.31

Fitted Curve Equation:
Ln(T) = 0.94 Ln(X) + 0.27

R^2:
0.92

Directional Distribution:
63% entering, 37% exiting

Calculated Trip Ends:
Average Rate: 180 (Total), 113 (Entry), 67 (Exit)
Fitted Curve: 183 (Total), 115 (Entry), 68 (Exit)

Add-ons to do more

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Exhibit A-6

Apple Valley

ITETripGen Web-based App

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Graph Look Up

ITETripGen Web-based App

- Graph Look Up
- How to Use *ITETripGen*
- TGM Desk Reference
- TGM Appendices
- Support Documents
- Add Users
- Comments

Query | Filter

ATA SOURCE: Trip Generation Manual, 11th Ed

SEARCH BY LAN USE CODE: 210

LAND USE GROUP: (200-299) Residential

LAND USE : 210 - Single-Family Detached Housing

LAND USE SUBCATEGORY: All Sites

SETTING/LOCATION: General Urban/Suburban

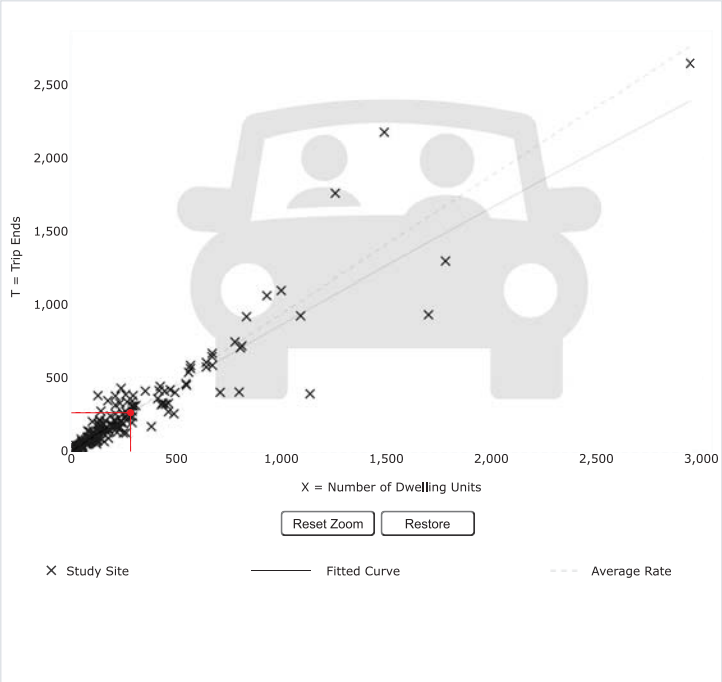
INDEPENDENT VARIABLE (IV): Dwelling Units

TIME PERIOD: Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE: Vehicle

ENTER IV VALUE TO CALCULATE TRIPS: 282 Calculate

ata Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

ATA STATISTICS

Land Use:
Single-Family Detached Housing (210) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
208

Avg. Num. of Dwelling Units:
248

Average Rate:
0.94

Range of Rates:
0.35 - 2.98

Standard eviation:
0.31

Fitted Curve Equation:
Ln(T) = 0.94 Ln(X) + 0.27

R^2:
0.92

Directional Distribution:
63% entering, 37% exiting

Calculated Trip Ends:
Average Rate: 265 (Total), 167 (Entry), 98 (Exit)
Fitted Curve: 263 (Total), 166 (Entry), 97 (Exit)

- Add-ons to do more
- OTISS Pro

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Exhibit A-6

Valley View

ITETripGen Web-based App

Help | Bhauvesh Jaya | Sign out

Graph Look Up

ITETripGen Web-based App

- Graph Look Up
- How to Use *ITETripGen*
- TGM Desk Reference
- TGM Appendices
- Support Documents
- Add Users
- Comments

Query | Filter

ATA SOURCE: Trip Generation Manual, 11th Ed

SEARCH BY LAN USE CODE: 210

LAND USE GROUP: (200-299) Residential

LAND USE : 210 - Single-Family Detached Housing

LAND USE SUBCATEGORY: All Sites

SETTING/LOCATION: General Urban/Suburban

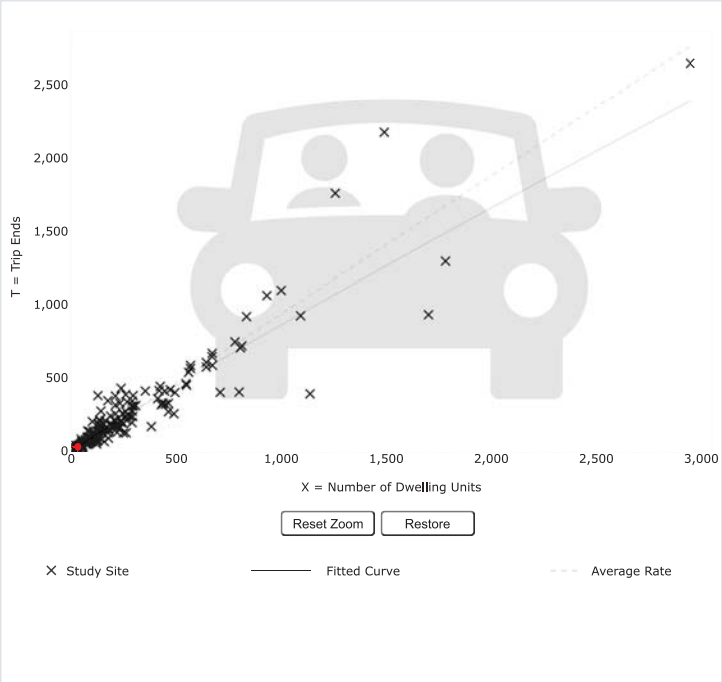
INDEPENDENT VARIABLE (IV): Dwelling Units

TIME PERIOD: Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE: Vehicle

ENTER IV VALUE TO CALCULATE TRIPS: 31 Calculate

ata Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

ATA STATISTICS

Land Use:
Single-Family Detached Housing (210) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
208

Avg. Num. of Dwelling Units:
248

Average Rate:
0.94

Range of Rates:
0.35 - 2.98

Standard eviation:
0.31

Fitted Curve Equation:
Ln(T) = 0.94 Ln(X) + 0.27

R^2:
0.92

Directional Distribution:
63% entering, 37% exiting

Calculated Trip Ends:
Average Rate: 29 (Total), 18 (Entry), 11 (Exit)
Fitted Curve: 33 (Total), 21 (Entry), 12 (Exit)

- Add-ons to do more
- OTISS Pro

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Graph Look Up

Query Filter

ATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAN USE CODE:
210

LAND USE GROUP:
(200-299) Residential

LAND USE :
210 - Single-Family Detached Housing

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

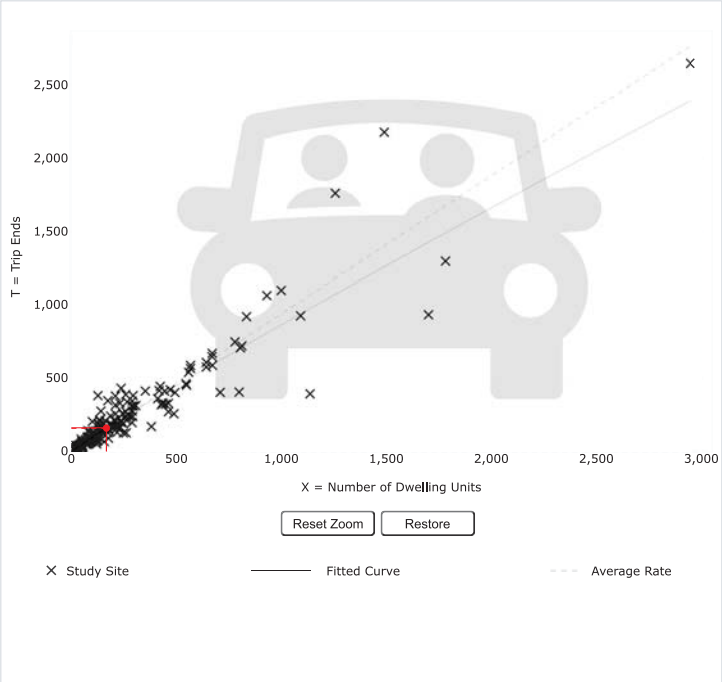
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
167 Calculate

ata Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

ATA STATISTICS

Land Use:
Single-Family Detached Housing (210) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
208

Avg. Num. of Dwelling Units:
248

Average Rate:
0.94

Range of Rates:
0.35 - 2.98

Standard eviation:
0.31

Fitted Curve Equation:
Ln(T) = 0.94 Ln(X) + 0.27

R^2:
0.92

Directional Distribution:
63% entering, 37% exiting

Calculated Trip Ends:
Average Rate: 157 (Total), 99 (Entry), 58 (Exit)
Fitted Curve: 161 (Total), 101 (Entry), 60 (Exit)

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Exhibit A-6

Symphony Ridge

ITETripGen Web-based App

Help | Bhauvesh Jaya | Sign out

Graph Look Up

ITETripGen Web-based App

- Graph Look Up
- How to Use *ITETripGen*
- TGM Desk Reference
- TGM Appendices
- Support Documents
- Add Users
- Comments

Query | Filter

ATA SOURCE: Trip Generation Manual, 11th Ed

SEARCH BY LAN USE CODE: 210

LAND USE GROUP: (200-299) Residential

LAND USE : 210 - Single-Family Detached Housing

LAND USE SUBCATEGORY: All Sites

SETTING/LOCATION: General Urban/Suburban

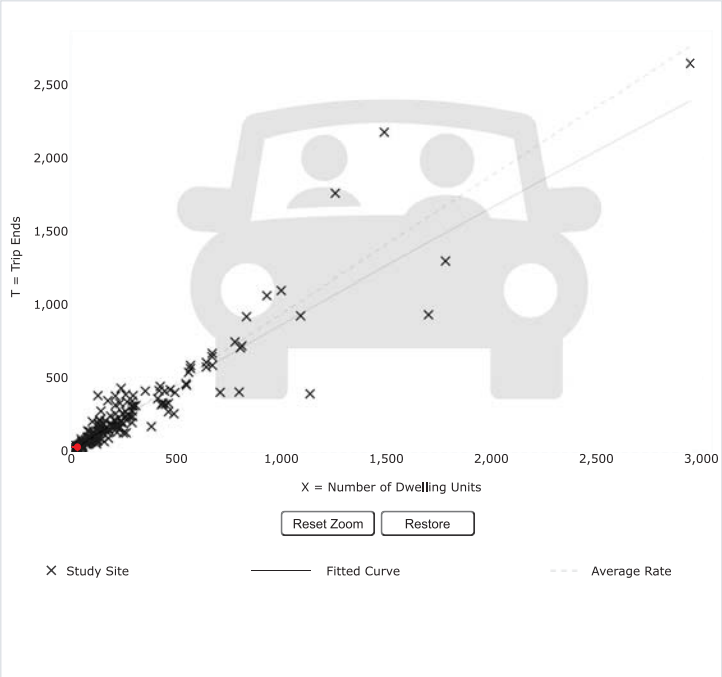
INDEPENDENT VARIABLE (IV): Dwelling Units

TIME PERIOD: Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE: Vehicle

ENTER IV VALUE TO CALCULATE TRIPS: 29 Calculate

ata Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

ATA STATISTICS

Land Use:
Single-Family Detached Housing (210) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
208

Avg. Num. of Dwelling Units:
248

Average Rate:
0.94

Range of Rates:
0.35 - 2.98

Standard eviation:
0.31

Fitted Curve Equation:
Ln(T) = 0.94 Ln(X) + 0.27

R^2:
0.92

Directional Distribution:
63% entering, 37% exiting

Calculated Trip Ends:
Average Rate: 27 (Total), 17 (Entry), 10 (Exit)
Fitted Curve: 31 (Total), 20 (Entry), 11 (Exit)

- Add-ons to do more
- OTISS Pro

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Exhibit A-6

Swanson Property

ITETripGen Web-based App

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Graph Look Up

ITETripGen Web-based App

Graph Look Up

How to Use *ITETripGen*

TGM Desk Reference

TGM Appendices

Support Documents

Add Users

Comments

Query | Filter

ATA SOURCE: Trip Generation Manual, 11th Ed

SEARCH BY LAN USE CODE: 210

LAND USE GROUP: (200-299) Residential

LAND USE : 210 - Single-Family Detached Housing

LAND USE SUBCATEGORY: All Sites

SETTING/LOCATION: General Urban/Suburban

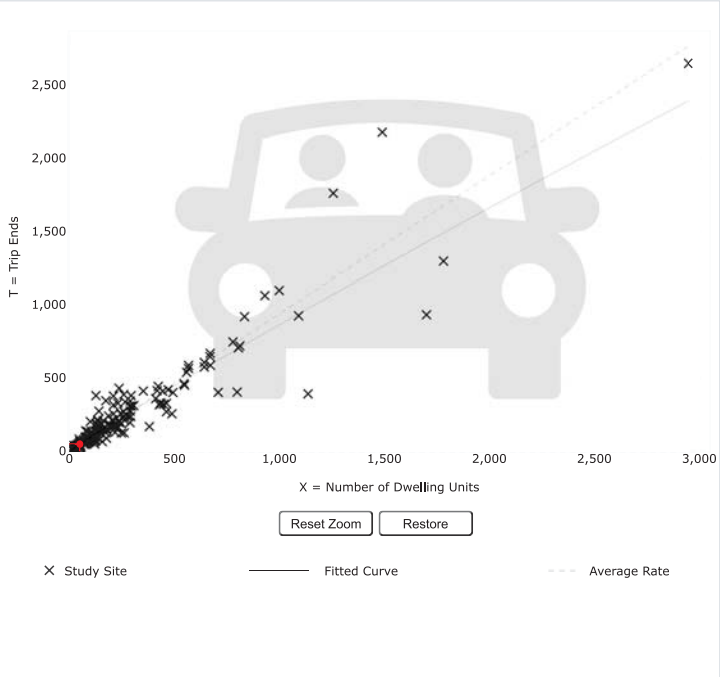
INDEPENDENT VARIABLE (IV): Dwelling Units

TIME PERIOD: Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE: Vehicle

ENTER IV VALUE TO CALCULATE TRIPS: 50 Calculate

ata Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

ATA STATISTICS

Land Use:
Single-Family Detached Housing (210) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
208

Avg. Num. of Dwelling Units:
248

Average Rate:
0.94

Range of Rates:
0.35 - 2.98

Standard eviation:
0.31

Fitted Curve Equation:
Ln(T) = 0.94 Ln(X) + 0.27

R^2:
0.92

Directional Distribution:
63% entering, 37% exiting

Calculated Trip Ends:
Average Rate: 47 (Total), 30 (Entry), 17 (Exit)
Fitted Curve: 52 (Total), 33 (Entry), 19 (Exit)

Add-ons to do more

OTISS Pro

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Appendix C

Trip Generation Calculations

Exhibit A-6

Graph Look Up

Query Filter

ATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAN USE CODE:
220

LAND USE GROUP:
(200-299) Residential

LAND USE :
220 - Multifamily Housing (Low-Rise)

LAND USE SUBCATEGORY:
Not Close to Rail Transit

SETTING/LOCATION:
General Urban/Suburban

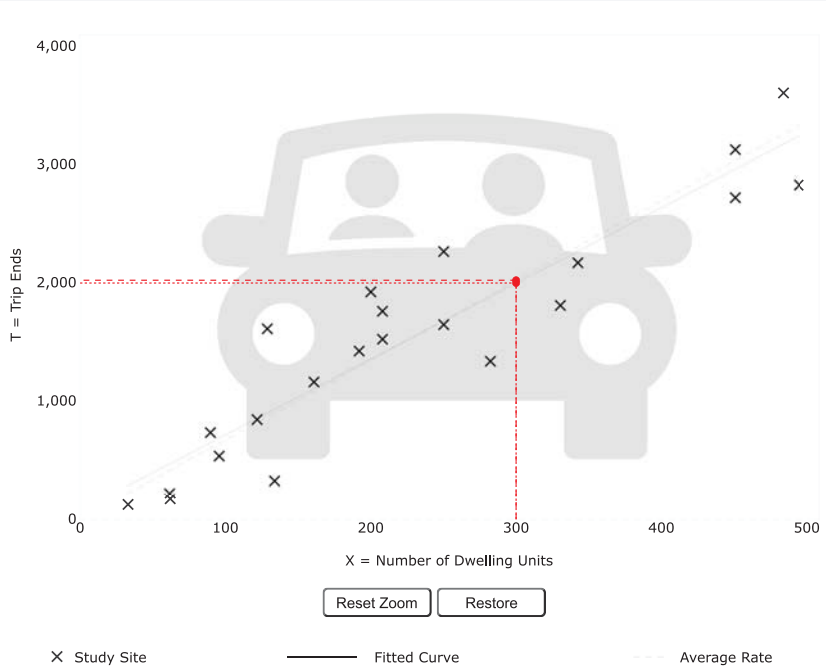
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
300 Calculate

ata Plot and Equat on



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

ATA STATISTICS

Land Use:
Multifamily Housing (Low-Rise) - Not Close to Rail Transit (220) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
22

Avg. Num. of Dwelling Units:
229

Average Rate:
6.74

Range of Rates:
2.46 - 12.50

Standard Deviation:
1.79

Fitted Curve Equation:
T = 6.41(X) + 75.31

R^2:
0.86

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 2022 (Total), 1011 (Entry), 1011 (Exit)
Fitted Curve: 1998 (Total), 999 (Entry), 999 (Exit)

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Exhibit A-6

Graph Look Up

Query Filter

ATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAN USE CODE:
220

LAND USE GROUP:
(200-299) Residential

LAND USE :
220 - Multifamily Housing (Low-Rise)

LAND USE SUBCATEGORY:
Not Close to Rail Transit

SETTING/LOCATION:
General Urban/Suburban

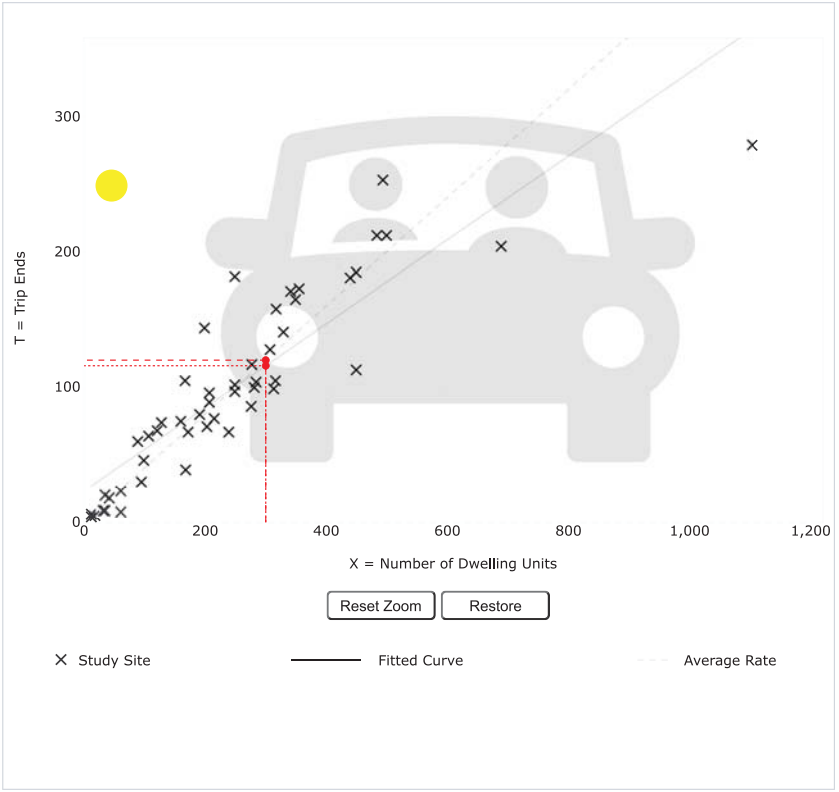
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
300 Calculate

ata Plot and Equat on



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

ATA STATISTICS

Land Use:
Multifamily Housing (Low-Rise) - Not Close to Rail Transit (220) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
49

Avg. Num. of Dwelling Units:
249

Average Rate:
0.40

Range of Rates:
0.13 - 0.73

Standard Deviation:
0.12

Fitted Curve Equation:
T = 0.31(X) + 22.85

R^2:
0.79

Directional Distribution:
24% entering, 76% exiting

Calculated Trip Ends:
Average Rate: 120 (Total), 29 (Entry), 91 (Exit)
Fitted Curve: 116 (Total), 28 (Entry), 88 (Exit)

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Exhibit A-6

Graph Look Up

Query Filter

ATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAN USE CODE:
220

LAND USE GROUP:
(200-299) Residential

LAND USE :
220 - Multifamily Housing (Low-Rise)

LAND USE SUBCATEGORY:
Not Close to Rail Transit

SETTING/LOCATION:
General Urban/Suburban

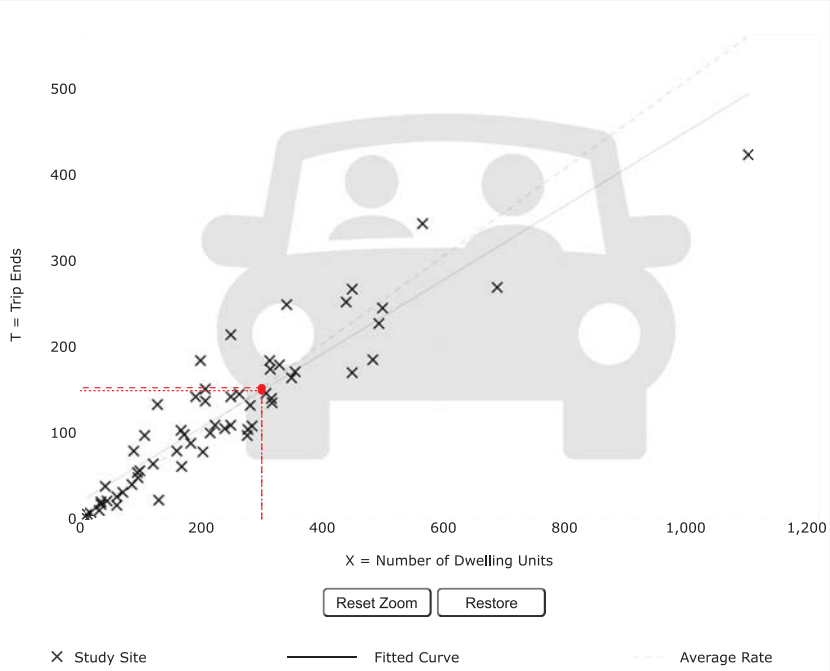
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
300 Calculate

ata Plot and Equat on



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

ATA STATISTICS

Land Use:
Multifamily Housing (Low-Rise) - Not Close to Rail Transit (220) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
59

Avg. Num. of Dwelling Units:
241

Average Rate:
0.51

Range of Rates:
0.08 - 1.04

Standard Deviation:
0.15

Fitted Curve Equation:
T = 0.43(X) + 20.55

R^2:
0.84

Directional Distribution:
63% entering, 37% exiting

Calculated Trip Ends:
Average Rate: 153 (Total), 96 (Entry), 57 (Exit)
Fitted Curve: 150 (Total), 94 (Entry), 56 (Exit)

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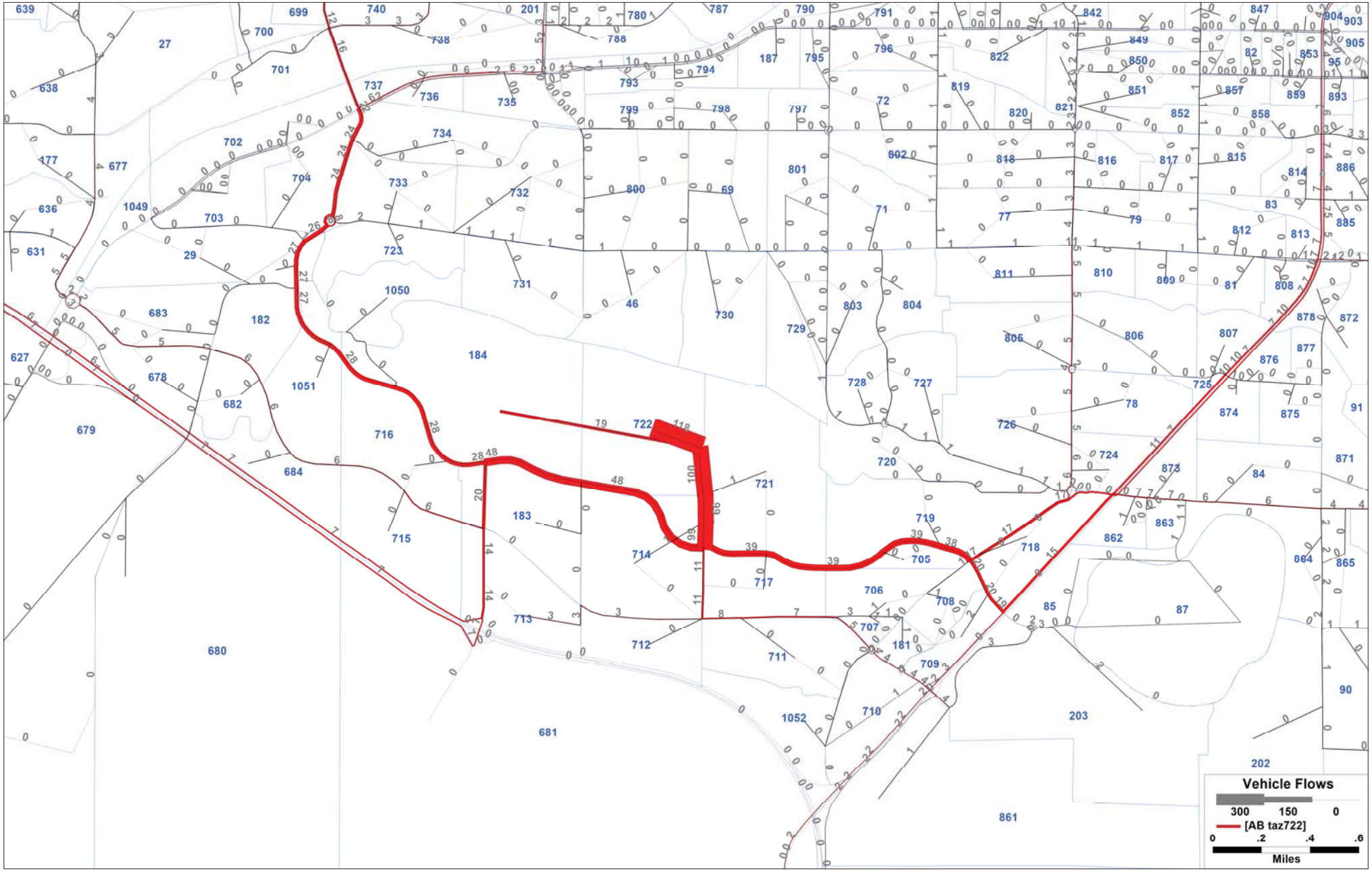
Exhibit A-6

Google Maps

imagery ©2022 Landsat / Copernicus, Maxar Technologies, USDA Farm Service Agency, Map data ©2022 1000 ft

BFCG 2040 PM Peak Hour

Exhibit A-6



Appendix D

Level of Service Calculations

HCM 6th Signalized Intersection Summary
1: Southridge Blvd & Hilderbrand Blvd

04/18/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	182	14	34	147	80	53	213	97	94	98	169
Future Volume (veh/h)	153	182	14	34	147	80	53	213	97	94	98	169
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1856	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	168	200	15	37	162	88	58	234	107	103	108	186
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	3	2	2	2	2	3	2
Cap, veh/h	489	794	59	469	365	188	492	375	417	437	430	586
Arrive On Green	0.14	0.24	0.24	0.06	0.16	0.16	0.09	0.20	0.20	0.12	0.23	0.23
Sat Flow, veh/h	1781	3352	249	1781	2262	1167	1781	1870	1576	1781	1856	1577
Grp Volume(v), veh/h	168	105	110	37	125	125	58	234	107	103	108	186
Grp Sat Flow(s),veh/h/ln	1781	1777	1824	1781	1777	1652	1781	1870	1576	1781	1856	1577
Q Serve(g_s), s	3.8	2.5	2.6	0.8	3.3	3.6	1.2	6.0	2.8	2.2	2.5	4.4
Cycle Q Clear(g_c), s	3.8	2.5	2.6	0.8	3.3	3.6	1.2	6.0	2.8	2.2	2.5	4.4
Prop In Lane	1.00		0.14	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	489	421	432	469	286	266	492	375	417	437	430	586
V/C Ratio(X)	0.34	0.25	0.25	0.08	0.44	0.47	0.12	0.62	0.26	0.24	0.25	0.32
Avail Cap(c_a), veh/h	513	846	868	627	846	786	608	1033	971	498	1024	1091
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.3	16.3	16.3	13.2	19.9	20.0	12.7	19.2	15.3	13.3	16.5	11.8
Incr Delay (d2), s/veh	0.4	0.3	0.3	0.1	1.1	1.3	0.1	1.7	0.3	0.3	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.0	1.0	0.3	1.3	1.4	0.4	2.4	0.9	0.8	0.9	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.8	16.6	16.6	13.3	20.9	21.3	12.8	20.9	15.6	13.6	16.8	12.1
LnGrp LOS	B	B	B	B	C	C	B	C	B	B	B	B
Approach Vol, veh/h		383			287			399			397	
Approach Delay, s/veh		15.8			20.1			18.3			13.7	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	13.5	11.2	15.5	8.3	17.4	9.6	17.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	8.0	25.0	8.0	29.0	8.0	25.0	8.0	29.0
Max Q Clear Time (g_c+I1), s	5.8	5.6	4.2	8.0	2.8	4.6	3.2	6.4
Green Ext Time (p_c), s	0.1	1.3	0.1	1.5	0.0	1.1	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

HCM 6th TWSC
2: Sherman St & Bob Olson Pkwy/Hildebrand Blvd

04/05/2022

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	273	60	33	225	14	62	0	14	21	1	18
Future Vol, veh/h	12	273	60	33	225	14	62	0	14	21	1	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	130	-	-	130	-	-	110	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	5	2	2
Mvmt Flow	13	303	67	37	250	16	69	0	16	23	1	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	266	0	0	370	0	0	563	703	185	510	728	133
Stage 1	-	-	-	-	-	-	363	363	-	332	332	-
Stage 2	-	-	-	-	-	-	200	340	-	178	396	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.6	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.55	4.02	3.32
Pot Cap-1 Maneuver	1295	-	-	1185	-	-	409	360	826	440	349	892
Stage 1	-	-	-	-	-	-	628	623	-	647	643	-
Stage 2	-	-	-	-	-	-	783	638	-	798	602	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1295	-	-	1185	-	-	387	345	826	418	335	892
Mov Cap-2 Maneuver	-	-	-	-	-	-	387	345	-	418	335	-
Stage 1	-	-	-	-	-	-	622	617	-	641	623	-
Stage 2	-	-	-	-	-	-	740	618	-	775	596	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1	15	11.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	387	826	1295	-	-	1185	-	-	418	820
HCM Lane V/C Ratio	0.178	0.019	0.01	-	-	0.031	-	-	0.056	0.026
HCM Control Delay (s)	16.3	9.4	7.8	-	-	8.1	-	-	14.1	9.5
HCM Lane LOS	C	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.6	0.1	0	-	-	0.1	-	-	0.2	0.1

MOVEMENT SUMMARY

Site: 3 [PM 2022 Existing Condition (Site Folder: BobOlson-Steptoe-10th)]

Bob Olson Parkway-Steptoe Street-10th Avenue Intersection
Site Category: Roundabout Intersection
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: 10th Avenue														
1a	L1	160	3.0	174	3.0	0.133	9.5	LOS A	0.5	13.9	0.35	0.65	0.35	34.6
16	R2	107	2.0	116	2.0	0.105	2.9	LOS A	0.4	10.4	0.37	0.42	0.37	30.8
Approach		267	2.6	290	2.6	0.133	6.8	LOS A	0.5	13.9	0.36	0.56	0.36	33.0
North: Steptoe Street														
7	L2	143	2.0	155	2.0	0.223	9.6	LOS A	1.3	34.0	0.39	0.56	0.39	32.1
14a	R1	432	2.0	470	2.0	0.223	3.4	LOS A	1.4	35.0	0.37	0.45	0.37	36.7
Approach		575	2.0	625	2.0	0.223	5.0	LOS A	1.4	35.0	0.38	0.48	0.38	35.4
SouthWest: Bob Olson Parkway														
5ux	U	1	2.0	1	2.0	0.175	13.3	LOS B	1.0	24.4	0.33	0.60	0.33	36.1
5ax	L1	294	2.0	320	2.0	0.175	9.3	LOS A	1.0	25.1	0.33	0.57	0.33	35.3
12ax	R1	168	2.0	183	2.0	0.175	3.2	LOS A	1.0	25.1	0.32	0.48	0.32	36.7
Approach		463	2.0	503	2.0	0.175	7.1	LOS A	1.0	25.1	0.32	0.53	0.32	35.8
All Vehicles		1305	2.1	1418	2.1	0.223	6.1	LOS A	1.4	35.0	0.35	0.51	0.35	35.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th TWSC
4: West Access & Bob Olson Pkwy

04/05/2022

Intersection	
Int Delay, s/veh	0

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	2	0	375	0	0	311	0	1	0	1	0	0	0
Future Vol, veh/h	2	0	375	0	0	311	0	1	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	90	-	-	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	426	0	0	353	0	1	0	1	0	0	0

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	353	353	0	0	426	0	0	607	783	214	571	783	177
Stage 1	-	-	-	-	-	-	-	430	430	-	353	353	-
Stage 2	-	-	-	-	-	-	-	177	353	-	218	430	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	857	1202	-	-	1130	-	-	380	324	791	404	324	835
Stage 1	-	-	-	-	-	-	-	574	582	-	637	629	-
Stage 2	-	-	-	-	-	-	-	808	629	-	764	582	-
Platoon blocked, %			-	-		-	-						
Mov Cap-1 Maneuver	857	857	-	-	1130	-	-	379	323	790	402	323	835
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	379	323	-	402	323	-
Stage 1	-	-	-	-	-	-	-	573	581	-	636	629	-
Stage 2	-	-	-	-	-	-	-	808	629	-	760	581	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.1	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	512	857	-	-	1130	-	-	-
HCM Lane V/C Ratio	0.004	0.003	-	-	-	-	-	-
HCM Control Delay (s)	12.1	9.2	-	-	0	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

HCM 6th TWSC
5: Bob Olson Pkwy & East Access

04/05/2022

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	376	311	0	0	0
Future Vol, veh/h	0	376	311	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	130	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	427	353	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	353	0	-	0	567	177
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	214	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1202	-	-	-	454	835
Stage 1	-	-	-	-	682	-
Stage 2	-	-	-	-	801	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1202	-	-	-	454	835
Mov Cap-2 Maneuver	-	-	-	-	454	-
Stage 1	-	-	-	-	682	-
Stage 2	-	-	-	-	801	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1202	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 6th Signalized Intersection Summary
1: Southridge Blvd & Hilderbrand Blvd

04/18/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	295	15	36	331	85	56	226	103	100	104	335
Future Volume (veh/h)	253	295	15	36	331	85	56	226	103	100	104	335
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1856	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	278	324	16	40	364	93	62	248	113	110	114	368
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	3	2	2	2	2	3	2
Cap, veh/h	422	915	45	428	561	142	461	440	473	434	483	617
Arrive On Green	0.13	0.27	0.27	0.06	0.20	0.20	0.08	0.24	0.24	0.11	0.26	0.26
Sat Flow, veh/h	1781	3446	170	1781	2807	708	1781	1870	1577	1781	1856	1578
Grp Volume(v), veh/h	278	166	174	40	229	228	62	248	113	110	114	368
Grp Sat Flow(s),veh/h/ln	1781	1777	1839	1781	1777	1739	1781	1870	1577	1781	1856	1578
Q Serve(g_s), s	7.6	4.7	4.7	0.9	7.3	7.4	1.5	7.2	3.3	2.7	3.0	11.4
Cycle Q Clear(g_c), s	7.6	4.7	4.7	0.9	7.3	7.4	1.5	7.2	3.3	2.7	3.0	11.4
Prop In Lane	1.00		0.09	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	422	472	488	428	355	347	461	440	473	434	483	617
V/C Ratio(X)	0.66	0.35	0.36	0.09	0.64	0.66	0.13	0.56	0.24	0.25	0.24	0.60
Avail Cap(c_a), veh/h	422	722	747	545	722	706	542	881	845	469	874	949
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	18.3	18.3	14.3	22.6	22.7	13.7	20.8	16.3	14.5	17.9	14.9
Incr Delay (d2), s/veh	3.7	0.4	0.4	0.1	2.0	2.1	0.1	1.1	0.3	0.3	0.2	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	1.8	1.9	0.4	3.0	3.0	0.5	2.9	1.1	1.0	1.2	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.8	18.8	18.8	14.4	24.6	24.8	13.9	21.9	16.5	14.8	18.2	15.8
LnGrp LOS	C	B	B	B	C	C	B	C	B	B	B	B
Approach Vol, veh/h		618			497			423			592	
Approach Delay, s/veh		19.7			23.9			19.3			16.1	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	17.3	11.8	19.5	9.0	21.3	10.2	21.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	8.0	25.0	8.0	29.0	8.0	25.0	8.0	29.0
Max Q Clear Time (g_c+I1), s	9.6	9.4	4.7	9.2	2.9	6.7	3.5	13.4
Green Ext Time (p_c), s	0.0	2.4	0.1	1.6	0.0	1.8	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

HCM 6th TWSC
2: Sherman St & Bob Olson Pkwy/Hildebrand Blvd

04/05/2022

Intersection	
Int Delay, s/veh	13

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	444	86	72	454	75	105	23	41	58	14	40
Future Vol, veh/h	49	444	86	72	454	75	105	23	41	58	14	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	130	-	-	130	-	-	110	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	5	2	2
Mvmt Flow	54	493	96	80	504	83	117	26	46	64	16	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	587	0	0	589	0	0	1069	1396	295	1074	1403	294
Stage 1	-	-	-	-	-	-	649	649	-	706	706	-
Stage 2	-	-	-	-	-	-	420	747	-	368	697	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.6	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.55	4.02	3.32
Pot Cap-1 Maneuver	984	-	-	982	-	-	176	140	701	170	139	702
Stage 1	-	-	-	-	-	-	425	464	-	386	437	-
Stage 2	-	-	-	-	-	-	581	418	-	616	441	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	984	-	-	982	-	-	134	122	701	120	121	702
Mov Cap-2 Maneuver	-	-	-	-	-	-	134	122	-	120	121	-
Stage 1	-	-	-	-	-	-	402	438	-	365	402	-
Stage 2	-	-	-	-	-	-	481	384	-	513	417	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	1.1	77.1	43.1
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	134	259	984	-	-	982	-	-	120	313
HCM Lane V/C Ratio	0.871	0.275	0.055	-	-	0.081	-	-	0.537	0.192
HCM Control Delay (s)	109.4	24.1	8.9	-	-	9	-	-	65.4	19.2
HCM Lane LOS	F	C	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	5.6	1.1	0.2	-	-	0.3	-	-	2.5	0.7

MOVEMENT SUMMARY

Site: 3 [2025 Without Project (Site Folder: BobOlson-Steptoe-10th)]

Bob Olson Parkway-Steptoe Street-10th Avenue Intersection
Site Category: Roundabout Intersection
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: 10th Avenue														
1a	L1	204	3.0	222	3.0	0.180	9.8	LOS A	0.8	19.9	0.43	0.69	0.43	34.4
16	R2	141	2.0	153	2.0	0.149	3.2	LOS A	0.6	15.4	0.44	0.48	0.44	30.6
Approach		345	2.6	375	2.6	0.180	7.1	LOS A	0.8	19.9	0.44	0.61	0.44	32.8
North: Steptoe Street														
7	L2	200	2.0	217	2.0	0.336	10.0	LOS A	2.3	57.3	0.49	0.60	0.49	32.0
14a	R1	629	2.0	684	2.0	0.336	3.8	LOS A	2.3	59.6	0.47	0.48	0.47	36.4
Approach		829	2.0	901	2.0	0.336	5.3	LOS A	2.3	59.6	0.48	0.51	0.48	35.2
SouthWest: Bob Olson Parkway														
5ux	U	1	2.0	1	2.0	0.243	13.6	LOS B	1.5	37.0	0.43	0.63	0.43	35.8
5ax	L1	413	2.0	449	2.0	0.243	9.7	LOS A	1.5	38.5	0.42	0.60	0.42	35.0
12ax	R1	199	2.0	216	2.0	0.243	3.5	LOS A	1.5	38.5	0.41	0.52	0.41	36.3
Approach		613	2.0	666	2.0	0.243	7.7	LOS A	1.5	38.5	0.42	0.57	0.42	35.4
All Vehicles		1787	2.1	1942	2.1	0.336	6.4	LOS A	2.3	59.6	0.45	0.55	0.45	34.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th TWSC
4: West Access & Bob Olson Pkwy

04/05/2022

Intersection	
Int Delay, s/veh	0

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	2	0	745	0	0	605	0	1	0	1	0	0	0
Future Vol, veh/h	2	0	745	0	0	605	0	1	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	90	-	-	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	847	0	0	688	0	1	0	1	0	0	0

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	688	688	0	0	847	0	0	1195	1539	425	1117	1539	344
Stage 1	-	-	-	-	-	-	-	851	851	-	688	688	-
Stage 2	-	-	-	-	-	-	-	344	688	-	429	851	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	526	902	-	-	786	-	-	142	115	578	162	115	652
Stage 1	-	-	-	-	-	-	-	321	375	-	403	445	-
Stage 2	-	-	-	-	-	-	-	645	445	-	574	375	-
Platoon blocked, %			-	-		-	-						
Mov Cap-1 Maneuver	526	526	-	-	786	-	-	142	115	577	161	115	652
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	142	115	-	161	115	-
Stage 1	-	-	-	-	-	-	-	320	374	-	401	445	-
Stage 2	-	-	-	-	-	-	-	645	445	-	570	374	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	20.9	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	228	526	-	-	786	-	-	-
HCM Lane V/C Ratio	0.01	0.004	-	-	-	-	-	-
HCM Control Delay (s)	20.9	11.9	-	-	0	-	-	0
HCM Lane LOS	C	B	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

HCM 6th TWSC
5: Bob Olson Pkwy & East Access

04/05/2022

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	746	605	0	0	0
Future Vol, veh/h	0	746	605	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	130	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	848	688	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	688	0	-	0	1112	344
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	424	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	902	-	-	-	203	652
Stage 1	-	-	-	-	460	-
Stage 2	-	-	-	-	628	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	902	-	-	-	203	652
Mov Cap-2 Maneuver	-	-	-	-	203	-
Stage 1	-	-	-	-	460	-
Stage 2	-	-	-	-	628	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	902	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 6th Signalized Intersection Summary
1: Southridge Blvd & Hilderbrand Blvd

04/18/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	264	306	15	36	350	85	56	226	103	100	104	354
Future Volume (veh/h)	264	306	15	36	350	85	56	226	103	100	104	354
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1856	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	290	336	16	40	385	93	62	248	113	110	114	389
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	3	2	2	2	2	3	2
Cap, veh/h	410	921	44	420	580	139	462	460	489	439	501	626
Arrive On Green	0.13	0.27	0.27	0.06	0.20	0.20	0.08	0.25	0.25	0.11	0.27	0.27
Sat Flow, veh/h	1781	3453	164	1781	2842	679	1781	1870	1577	1781	1856	1578
Grp Volume(v), veh/h	290	172	180	40	239	239	62	248	113	110	114	389
Grp Sat Flow(s),veh/h/ln	1781	1777	1840	1781	1777	1744	1781	1870	1577	1781	1856	1578
Q Serve(g_s), s	8.0	5.0	5.0	1.0	7.8	8.0	1.5	7.3	3.4	2.7	3.0	12.5
Cycle Q Clear(g_c), s	8.0	5.0	5.0	1.0	7.8	8.0	1.5	7.3	3.4	2.7	3.0	12.5
Prop In Lane	1.00		0.09	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	410	474	491	420	363	356	462	460	489	439	501	626
V/C Ratio(X)	0.71	0.36	0.37	0.10	0.66	0.67	0.13	0.54	0.23	0.25	0.23	0.62
Avail Cap(c_a), veh/h	410	701	726	531	701	688	537	856	823	472	849	922
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	18.9	18.9	14.7	23.2	23.3	13.8	20.8	16.3	14.6	18.0	15.3
Incr Delay (d2), s/veh	5.5	0.5	0.5	0.1	2.0	2.2	0.1	1.0	0.2	0.3	0.2	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	2.0	2.1	0.4	3.3	3.3	0.5	3.0	1.1	1.0	1.2	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	19.3	19.3	14.8	25.2	25.4	13.9	21.8	16.5	14.9	18.2	16.3
LnGrp LOS	C	B	B	B	C	C	B	C	B	B	B	B
Approach Vol, veh/h		642			518			423			613	
Approach Delay, s/veh		21.2			24.5			19.2			16.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	17.9	11.8	20.6	9.0	21.9	10.3	22.1
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	8.0	25.0	8.0	29.0	8.0	25.0	8.0	29.0
Max Q Clear Time (g_c+I1), s	10.0	10.0	4.7	9.3	3.0	7.0	3.5	14.5
Green Ext Time (p_c), s	0.0	2.5	0.1	1.6	0.0	1.9	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

HCM 6th TWSC
2: Sherman St & Bob Olson Pkwy/Hildebrand Blvd

04/05/2022

Intersection	
Int Delay, s/veh	18

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	466	92	72	492	75	114	23	41	58	14	40
Future Vol, veh/h	49	466	92	72	492	75	114	23	41	58	14	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	130	-	-	130	-	-	110	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	5	2	2
Mvmt Flow	54	518	102	80	547	83	127	26	46	64	16	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	630	0	0	620	0	0	1119	1467	310	1129	1477	315
Stage 1	-	-	-	-	-	-	677	677	-	749	749	-
Stage 2	-	-	-	-	-	-	442	790	-	380	728	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.6	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.55	4.02	3.32
Pot Cap-1 Maneuver	948	-	-	956	-	-	161	127	686	155	125	681
Stage 1	-	-	-	-	-	-	409	450	-	363	417	-
Stage 2	-	-	-	-	-	-	564	400	-	606	427	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	948	-	-	956	-	-	~ 120	110	686	107	108	681
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 120	110	-	107	108	-
Stage 1	-	-	-	-	-	-	386	424	-	342	382	-
Stage 2	-	-	-	-	-	-	463	366	-	501	403	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1	116.8	51.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	120	238	948	-	-	956	-	-	107	287
HCM Lane V/C Ratio	1.056	0.299	0.057	-	-	0.084	-	-	0.602	0.209
HCM Control Delay (s)	167.5	26.4	9	-	-	9.1	-	-	80	20.8
HCM Lane LOS	F	D	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	7.3	1.2	0.2	-	-	0.3	-	-	2.9	0.8

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

MOVEMENT SUMMARY

Site: 3 [2025 With Project (Site Folder: BobOlson-Steptoe-10th)]

Bob Olson Parkway-Steptoe Street-10th Avenue Intersection
Site Category: Roundabout Intersection
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: 10th Avenue														
1a	L1	209	3.0	227	3.0	0.185	9.8	LOS A	0.8	20.6	0.44	0.70	0.44	34.3
16	R2	141	2.0	153	2.0	0.150	3.3	LOS A	0.6	15.6	0.45	0.49	0.45	30.6
Approach		350	2.6	380	2.6	0.185	7.2	LOS A	0.8	20.6	0.45	0.61	0.45	32.8
North: Steptoe Street														
7	L2	200	2.0	217	2.0	0.347	10.0	LOS B	2.4	59.9	0.50	0.60	0.50	32.0
14a	R1	653	2.0	710	2.0	0.347	3.8	LOS A	2.5	62.3	0.48	0.49	0.48	36.4
Approach		853	2.0	927	2.0	0.347	5.3	LOS A	2.5	62.3	0.49	0.52	0.49	35.3
SouthWest: Bob Olson Parkway														
5ux	U	1	2.0	1	2.0	0.250	13.6	LOS B	1.5	38.3	0.43	0.63	0.43	35.8
5ax	L1	427	2.0	464	2.0	0.250	9.7	LOS A	1.6	40.0	0.43	0.60	0.43	35.0
12ax	R1	202	2.0	220	2.0	0.250	3.5	LOS A	1.6	40.0	0.41	0.52	0.41	36.2
Approach		630	2.0	685	2.0	0.250	7.7	LOS A	1.6	40.0	0.42	0.57	0.42	35.4
All Vehicles		1833	2.1	1992	2.1	0.347	6.5	LOS A	2.5	62.3	0.46	0.55	0.46	34.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th TWSC
4: West Access & Bob Olson Pkwy

04/05/2022

Intersection	
Int Delay, s/veh	0.6

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	2	38	754	0	0	611	9	1	0	1	6	0	22
Future Vol, veh/h	2	38	754	0	0	611	9	1	0	1	6	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	90	-	-	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	43	857	0	0	694	10	1	0	1	7	0	25

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	705	704	0	0	857	0	0	1294	1651	430	1219	1646	352
Stage 1	-	-	-	-	-	-	-	947	947	-	699	699	-
Stage 2	-	-	-	-	-	-	-	347	704	-	520	947	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	513	890	-	-	779	-	-	120	98	573	136	98	644
Stage 1	-	-	-	-	-	-	-	281	338	-	397	440	-
Stage 2	-	-	-	-	-	-	-	642	438	-	507	338	-
Platoon blocked, %			-	-		-	-						
Mov Cap-1 Maneuver	856	856	-	-	779	-	-	111	93	572	130	93	644
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	111	93	-	130	93	-
Stage 1	-	-	-	-	-	-	-	266	320	-	376	440	-
Stage 2	-	-	-	-	-	-	-	617	438	-	479	320	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	24.6	16.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	186	856	-	-	779	-	-	349
HCM Lane V/C Ratio	0.012	0.053	-	-	-	-	-	0.091
HCM Control Delay (s)	24.6	9.4	-	-	0	-	-	16.3
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.3

HCM 6th TWSC
5: Bob Olson Pkwy & East Access

04/05/2022

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	752	614	38	22	6
Future Vol, veh/h	9	752	614	38	22	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	130	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	855	698	43	25	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	741	0	-	0	1168	371
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	448	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	862	-	-	-	186	626
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	611	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	862	-	-	-	184	626
Mov Cap-2 Maneuver	-	-	-	-	184	-
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	611	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	24.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	862	-	-	-	217
HCM Lane V/C Ratio	0.012	-	-	-	0.147
HCM Control Delay (s)	9.2	-	-	-	24.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.5

HCM 6th Signalized Intersection Summary
1: Southridge Blvd & Hilderbrand Blvd

04/18/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	268	313	16	39	346	93	61	247	113	109	114	352
Future Volume (veh/h)	268	313	16	39	346	93	61	247	113	109	114	352
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1856	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	295	344	18	43	380	102	67	271	124	120	125	387
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	3	2	2	2	2	3	2
Cap, veh/h	406	906	47	416	570	151	460	460	494	426	500	624
Arrive On Green	0.13	0.26	0.26	0.07	0.21	0.21	0.09	0.25	0.25	0.11	0.27	0.27
Sat Flow, veh/h	1781	3435	179	1781	2775	736	1781	1870	1577	1781	1856	1578
Grp Volume(v), veh/h	295	177	185	43	242	240	67	271	124	120	125	387
Grp Sat Flow(s),veh/h/ln	1781	1777	1837	1781	1777	1734	1781	1870	1577	1781	1856	1578
Q Serve(g_s), s	8.0	5.2	5.3	1.1	8.0	8.2	1.6	8.2	3.7	3.0	3.4	12.6
Cycle Q Clear(g_c), s	8.0	5.2	5.3	1.1	8.0	8.2	1.6	8.2	3.7	3.0	3.4	12.6
Prop In Lane	1.00		0.10	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	406	468	484	416	365	356	460	460	494	426	500	624
V/C Ratio(X)	0.73	0.38	0.38	0.10	0.66	0.68	0.15	0.59	0.25	0.28	0.25	0.62
Avail Cap(c_a), veh/h	406	695	719	520	695	678	528	849	822	453	842	915
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.4	19.2	19.3	14.9	23.4	23.4	13.8	21.2	16.4	14.8	18.3	15.5
Incr Delay (d2), s/veh	6.4	0.5	0.5	0.1	2.1	2.2	0.1	1.2	0.3	0.4	0.3	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	2.1	2.2	0.4	3.3	3.4	0.6	3.3	1.2	1.1	1.3	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.8	19.7	19.8	15.0	25.4	25.7	14.0	22.4	16.6	15.1	18.5	16.5
LnGrp LOS	C	B	B	B	C	C	B	C	B	B	B	B
Approach Vol, veh/h		657			525			462			632	
Approach Delay, s/veh		22.0			24.7			19.6			16.7	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	18.1	12.0	20.7	9.3	21.8	10.6	22.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	8.0	25.0	8.0	29.0	8.0	25.0	8.0	29.0
Max Q Clear Time (g_c+I1), s	10.0	10.2	5.0	10.2	3.1	7.3	3.6	14.6
Green Ext Time (p_c), s	0.0	2.5	0.1	1.7	0.0	1.9	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

HCM 6th TWSC
2: Sherman St & Bob Olson Pkwy/Hildebrand Blvd

04/05/2022

Intersection	
Int Delay, s/veh	17.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	472	92	75	476	76	111	23	42	60	14	42
Future Vol, veh/h	50	472	92	75	476	76	111	23	42	60	14	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	130	-	-	130	-	-	110	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	5	2	2
Mvmt Flow	56	524	102	83	529	84	123	26	47	67	16	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	613	0	0	626	0	0	1126	1466	313	1124	1475	307
Stage 1	-	-	-	-	-	-	687	687	-	737	737	-
Stage 2	-	-	-	-	-	-	439	779	-	387	738	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.6	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.55	4.02	3.32
Pot Cap-1 Maneuver	962	-	-	952	-	-	160	127	683	156	125	689
Stage 1	-	-	-	-	-	-	403	446	-	369	423	-
Stage 2	-	-	-	-	-	-	567	404	-	600	422	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	962	-	-	952	-	-	~ 119	109	683	107	108	689
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 119	109	-	107	108	-
Stage 1	-	-	-	-	-	-	380	420	-	348	386	-
Stage 2	-	-	-	-	-	-	463	369	-	494	398	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1.1	112.3	52.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	119	239	962	-	-	952	-	-	107	294
HCM Lane V/C Ratio	1.036	0.302	0.058	-	-	0.088	-	-	0.623	0.212
HCM Control Delay (s)	162.5	26.5	9	-	-	9.1	-	-	82.8	20.5
HCM Lane LOS	F	D	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	7.1	1.2	0.2	-	-	0.3	-	-	3.1	0.8

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

MOVEMENT SUMMARY

Site: 3 [2030 Without Project (Site Folder: BobOlson-Steptoe-10th)]

Bob Olson Parkway-Steptoe Street-10th Avenue Intersection
Site Category: Roundabout Intersection
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: 10th Avenue														
1a	L1	220	3.0	239	3.0	0.197	9.9	LOS A	0.9	22.3	0.46	0.70	0.46	34.3
16	R2	152	2.0	165	2.0	0.163	3.4	LOS A	0.7	17.2	0.46	0.50	0.46	30.6
Approach		372	2.6	404	2.6	0.197	7.2	LOS A	0.9	22.3	0.46	0.62	0.46	32.7
North: Steptoe Street														
7	L2	214	2.0	233	2.0	0.364	10.1	LOS B	2.5	64.0	0.52	0.61	0.52	31.9
14a	R1	672	2.0	730	2.0	0.364	3.9	LOS A	2.6	66.7	0.50	0.50	0.50	36.3
Approach		886	2.0	963	2.0	0.364	5.4	LOS A	2.6	66.7	0.51	0.53	0.51	35.1
SouthWest: Bob Olson Parkway														
5ux	U	1	2.0	1	2.0	0.265	13.7	LOS B	1.6	41.3	0.46	0.64	0.46	35.8
5ax	L1	442	2.0	480	2.0	0.265	9.8	LOS A	1.7	43.2	0.45	0.60	0.45	35.0
12ax	R1	216	2.0	235	2.0	0.265	3.5	LOS A	1.7	43.2	0.43	0.53	0.43	36.2
Approach		659	2.0	716	2.0	0.265	7.7	LOS A	1.7	43.2	0.44	0.58	0.44	35.4
All Vehicles		1917	2.1	2084	2.1	0.364	6.5	LOS A	2.6	66.7	0.48	0.56	0.48	34.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th TWSC
4: West Access & Bob Olson Pkwy

04/05/2022

Intersection	
Int Delay, s/veh	0

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	2	0	782	0	0	636	0	1	0	1	0	0	0
Future Vol, veh/h	2	0	782	0	0	636	0	1	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	90	-	-	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	889	0	0	723	0	1	0	1	0	0	0

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	723	723	0	0	889	0	0	1255	1616	446	1173	1616	362
Stage 1	-	-	-	-	-	-	-	893	893	-	723	723	-
Stage 2	-	-	-	-	-	-	-	362	723	-	450	893	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	499	875	-	-	758	-	-	128	103	560	147	103	635
Stage 1	-	-	-	-	-	-	-	303	358	-	384	429	-
Stage 2	-	-	-	-	-	-	-	629	429	-	558	358	-
Platoon blocked, %			-	-		-	-						
Mov Cap-1 Maneuver	499	499	-	-	758	-	-	128	103	559	146	103	635
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	128	103	-	146	103	-
Stage 1	-	-	-	-	-	-	-	302	357	-	382	429	-
Stage 2	-	-	-	-	-	-	-	629	429	-	554	357	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	22.5	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	208	499	-	-	758	-	-	-
HCM Lane V/C Ratio	0.011	0.005	-	-	-	-	-	-
HCM Control Delay (s)	22.5	12.2	-	-	0	-	-	0
HCM Lane LOS	C	B	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

HCM 6th TWSC
5: Bob Olson Pkwy & East Access

04/05/2022

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	783	636	0	0	0
Future Vol, veh/h	0	783	636	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	130	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	890	723	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	723	0	-	0	1168	362
Stage 1	-	-	-	-	723	-
Stage 2	-	-	-	-	445	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	875	-	-	-	186	635
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	613	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	875	-	-	-	186	635
Mov Cap-2 Maneuver	-	-	-	-	186	-
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	613	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	875	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 6th Signalized Intersection Summary
1: Southridge Blvd & Hilderbrand Blvd

04/18/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	279	324	16	39	365	93	61	247	113	109	114	371
Future Volume (veh/h)	279	324	16	39	365	93	61	247	113	109	114	371
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1856	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	307	356	18	43	401	102	67	271	124	120	125	408
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	3	2	2	2	2	3	2
Cap, veh/h	394	912	46	408	588	148	460	480	510	431	518	633
Arrive On Green	0.12	0.26	0.26	0.07	0.21	0.21	0.09	0.26	0.26	0.11	0.28	0.28
Sat Flow, veh/h	1781	3442	173	1781	2809	707	1781	1870	1578	1781	1856	1578
Grp Volume(v), veh/h	307	183	191	43	252	251	67	271	124	120	125	408
Grp Sat Flow(s),veh/h/ln	1781	1777	1838	1781	1777	1739	1781	1870	1578	1781	1856	1578
Q Serve(g_s), s	8.0	5.6	5.6	1.1	8.6	8.8	1.6	8.3	3.8	3.0	3.4	13.7
Cycle Q Clear(g_c), s	8.0	5.6	5.6	1.1	8.6	8.8	1.6	8.3	3.8	3.0	3.4	13.7
Prop In Lane	1.00		0.09	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	394	471	487	408	372	364	460	480	510	431	518	633
V/C Ratio(X)	0.78	0.39	0.39	0.11	0.68	0.69	0.15	0.56	0.24	0.28	0.24	0.64
Avail Cap(c_a), veh/h	394	675	699	507	675	661	523	825	800	455	818	889
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.8	19.8	19.8	15.3	24.0	24.0	13.9	21.2	16.4	14.8	18.3	15.9
Incr Delay (d2), s/veh	9.6	0.5	0.5	0.1	2.2	2.3	0.1	1.0	0.2	0.3	0.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	2.2	2.3	0.4	3.6	3.6	0.6	3.4	1.2	1.1	1.4	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	20.3	20.3	15.4	26.1	26.3	14.0	22.3	16.6	15.2	18.6	17.0
LnGrp LOS	C	C	C	B	C	C	B	C	B	B	B	B
Approach Vol, veh/h		681			546			462			653	
Approach Delay, s/veh		24.4			25.4			19.6			17.0	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	18.8	12.1	21.9	9.4	22.4	10.6	23.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	8.0	25.0	8.0	29.0	8.0	25.0	8.0	29.0
Max Q Clear Time (g_c+I1), s	10.0	10.8	5.0	10.3	3.1	7.6	3.6	15.7
Green Ext Time (p_c), s	0.0	2.6	0.1	1.7	0.0	2.0	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	24.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	494	98	75	514	76	120	23	42	60	14	42
Future Vol, veh/h	50	494	98	75	514	76	120	23	42	60	14	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	130	-	-	130	-	-	110	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	5	2	2
Mvmt Flow	56	549	109	83	571	84	133	26	47	67	16	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	655	0	0	658	0	0	1176	1537	329	1179	1549	328
Stage 1	-	-	-	-	-	-	716	716	-	779	779	-
Stage 2	-	-	-	-	-	-	460	821	-	400	770	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.6	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.55	4.02	3.32
Pot Cap-1 Maneuver	928	-	-	926	-	-	147	115	667	142	113	668
Stage 1	-	-	-	-	-	-	387	432	-	348	404	-
Stage 2	-	-	-	-	-	-	551	387	-	589	408	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	928	-	-	926	-	-	~ 107	98	667	94	97	668
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 107	98	-	94	97	-
Stage 1	-	-	-	-	-	-	364	406	-	327	368	-
Stage 2	-	-	-	-	-	-	447	352	-	482	384	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1	167.4	65.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	107	218	928	-	-	926	-	-	94	270
HCM Lane V/C Ratio	1.246	0.331	0.06	-	-	0.09	-	-	0.709	0.23
HCM Control Delay (s)	242.1	29.5	9.1	-	-	9.3	-	-	106.3	22.3
HCM Lane LOS	F	D	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	8.9	1.4	0.2	-	-	0.3	-	-	3.6	0.9

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

MOVEMENT SUMMARY

Site: 3 [2030 With Project (Site Folder: BobOlson-Steptoe-10th)]

Bob Olson Parkway-Steptoe Street-10th Avenue Intersection
Site Category: Roundabout Intersection
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: 10th Avenue														
1a	L1	225	3.0	245	3.0	0.203	9.9	LOS A	0.9	23.0	0.46	0.71	0.46	34.3
16	R2	152	2.0	165	2.0	0.165	3.4	LOS A	0.7	17.4	0.47	0.50	0.47	30.6
Approach		377	2.6	410	2.6	0.203	7.3	LOS A	0.9	23.0	0.47	0.63	0.47	32.7
North: Steptoe Street														
7	L2	214	2.0	233	2.0	0.376	10.2	LOS B	2.6	66.8	0.53	0.61	0.53	31.9
14a	R1	696	2.0	757	2.0	0.376	3.9	LOS A	2.7	69.7	0.51	0.50	0.51	36.3
Approach		910	2.0	989	2.0	0.376	5.4	LOS A	2.7	69.7	0.52	0.53	0.52	35.2
SouthWest: Bob Olson Parkway														
5ux	U	1	2.0	1	2.0	0.272	13.7	LOS B	1.7	42.8	0.46	0.64	0.46	35.8
5ax	L1	456	2.0	496	2.0	0.272	9.8	LOS A	1.8	44.7	0.45	0.60	0.45	35.0
12ax	R1	219	2.0	238	2.0	0.272	3.6	LOS A	1.8	44.7	0.44	0.53	0.44	36.2
Approach		676	2.0	735	2.0	0.272	7.8	LOS A	1.8	44.7	0.45	0.58	0.45	35.3
All Vehicles		1963	2.1	2134	2.1	0.376	6.6	LOS A	2.7	69.7	0.48	0.57	0.48	34.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th TWSC
4: West Access & Bob Olson Pkwy

04/05/2022

Intersection	
Int Delay, s/veh	0.6

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	2	38	791	0	0	642	9	1	0	1	6	0	22
Future Vol, veh/h	2	38	791	0	0	642	9	1	0	1	6	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	90	-	-	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	43	899	0	0	730	10	1	0	1	7	0	25

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	740	740	0	0	899	0	0	1354	1729	451	1276	1724	370
Stage 1	-	-	-	-	-	-	-	989	989	-	735	735	-
Stage 2	-	-	-	-	-	-	-	365	740	-	541	989	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	487	862	-	-	751	-	-	108	87	556	124	88	627
Stage 1	-	-	-	-	-	-	-	265	323	-	377	424	-
Stage 2	-	-	-	-	-	-	-	627	421	-	493	323	-
Platoon blocked, %			-	-		-	-						
Mov Cap-1 Maneuver	827	827	-	-	751	-	-	99	82	555	119	83	627
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	99	82	-	119	83	-
Stage 1	-	-	-	-	-	-	-	251	306	-	357	424	-
Stage 2	-	-	-	-	-	-	-	602	421	-	465	306	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	26.7	17.2
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	168	827	-	-	751	-	-	327
HCM Lane V/C Ratio	0.014	0.055	-	-	-	-	-	0.097
HCM Control Delay (s)	26.7	9.6	-	-	0	-	-	17.2
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.3

HCM 6th TWSC
5: Bob Olson Pkwy & East Access

04/05/2022

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	789	645	38	22	6
Future Vol, veh/h	9	789	645	38	22	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	130	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	897	733	43	25	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	776	0	-	0	1224	388
Stage 1	-	-	-	-	755	-
Stage 2	-	-	-	-	469	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	836	-	-	-	171	611
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	596	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	836	-	-	-	169	611
Mov Cap-2 Maneuver	-	-	-	-	169	-
Stage 1	-	-	-	-	420	-
Stage 2	-	-	-	-	596	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	26.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	836	-	-	-	200
HCM Lane V/C Ratio	0.012	-	-	-	0.159
HCM Control Delay (s)	9.4	-	-	-	26.4
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Appendix E

Intersection Mitigation Level of Service Calculations

HCM 6th Signalized Intersection Summary
2: Sherman St & Bob Olson Pkwy/Hildebrand Blvd

04/11/2022

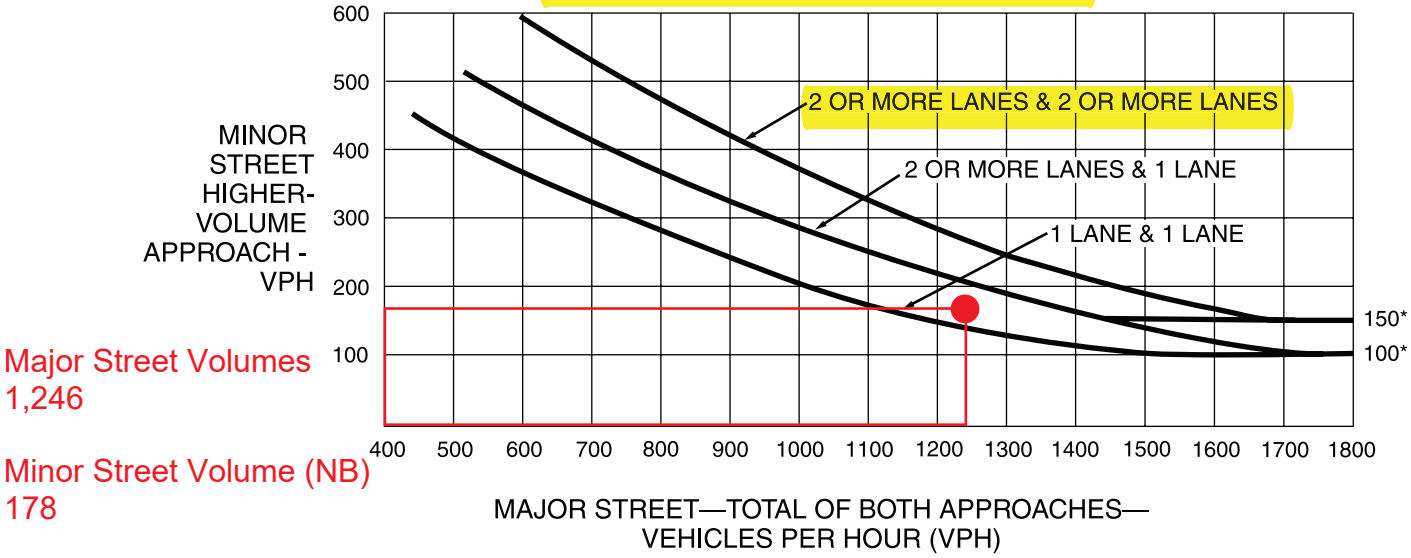
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	494	98	75	514	76	120	23	42	60	14	42
Future Volume (veh/h)	50	494	98	75	514	76	120	23	42	60	14	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1826	1870	1870
Adj Flow Rate, veh/h	56	549	109	83	571	84	133	26	47	67	16	47
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	5	2	2
Cap, veh/h	511	1245	246	508	1314	193	541	133	240	527	93	274
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	778	2945	582	776	3109	456	1339	597	1079	1295	419	1230
Grp Volume(v), veh/h	56	330	328	83	326	329	133	0	73	67	0	63
Grp Sat Flow(s),veh/h/ln	778	1777	1751	776	1777	1788	1339	0	1676	1295	0	1649
Q Serve(g_s), s	1.4	3.3	3.4	2.2	3.3	3.3	2.3	0.0	0.9	1.1	0.0	0.8
Cycle Q Clear(g_c), s	4.7	3.3	3.4	5.5	3.3	3.3	3.0	0.0	0.9	2.0	0.0	0.8
Prop In Lane	1.00		0.33	1.00		0.26	1.00		0.64	1.00		0.75
Lane Grp Cap(c), veh/h	511	751	740	508	751	756	541	0	374	527	0	367
V/C Ratio(X)	0.11	0.44	0.44	0.16	0.43	0.44	0.25	0.00	0.20	0.13	0.00	0.17
Avail Cap(c_a), veh/h	734	1260	1242	731	1260	1268	1192	0	1189	1156	0	1169
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.9	5.2	5.2	7.2	5.2	5.2	9.2	0.0	8.0	8.8	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.4	0.4	0.1	0.4	0.4	0.2	0.0	0.3	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.4	0.4	0.2	0.4	0.4	0.5	0.0	0.2	0.2	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.9	5.6	5.6	7.3	5.6	5.6	9.4	0.0	8.3	8.9	0.0	8.2
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		714			738			206			130	
Approach Delay, s/veh		5.7			5.8			9.0			8.6	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.2		15.2		10.2		15.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		5.0		6.7		4.0		7.5				
Green Ext Time (p_c), s		0.6		3.2		0.4		3.2				

Intersection Summary	
HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

PM Peak Hour Volumes
Sherman Street / Bob Olson Pkwy & Hildebrand Blvd
2025 With Project Conditions

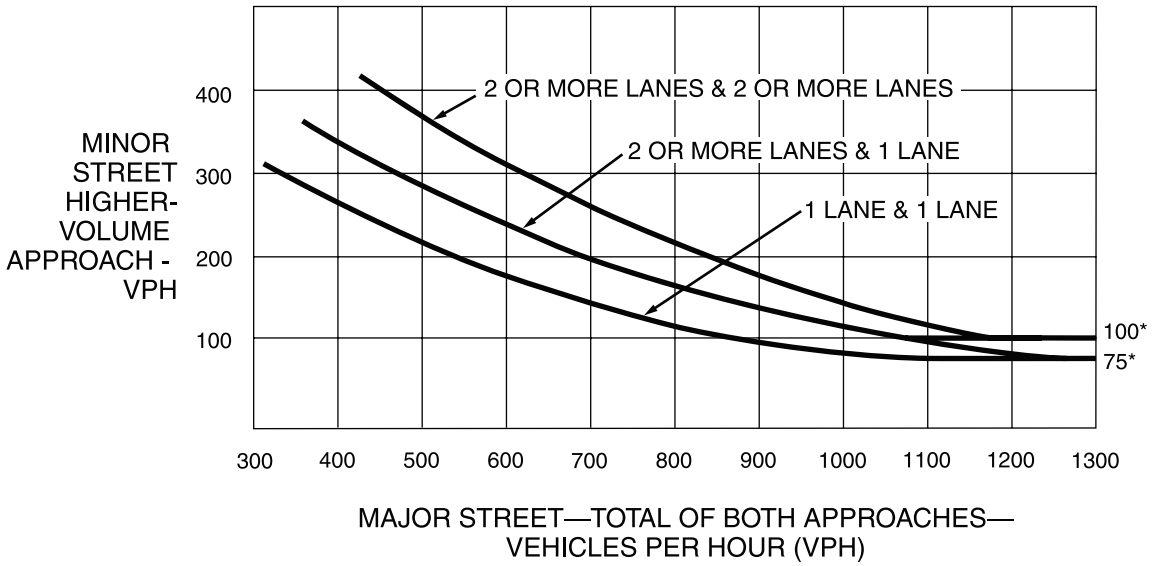
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

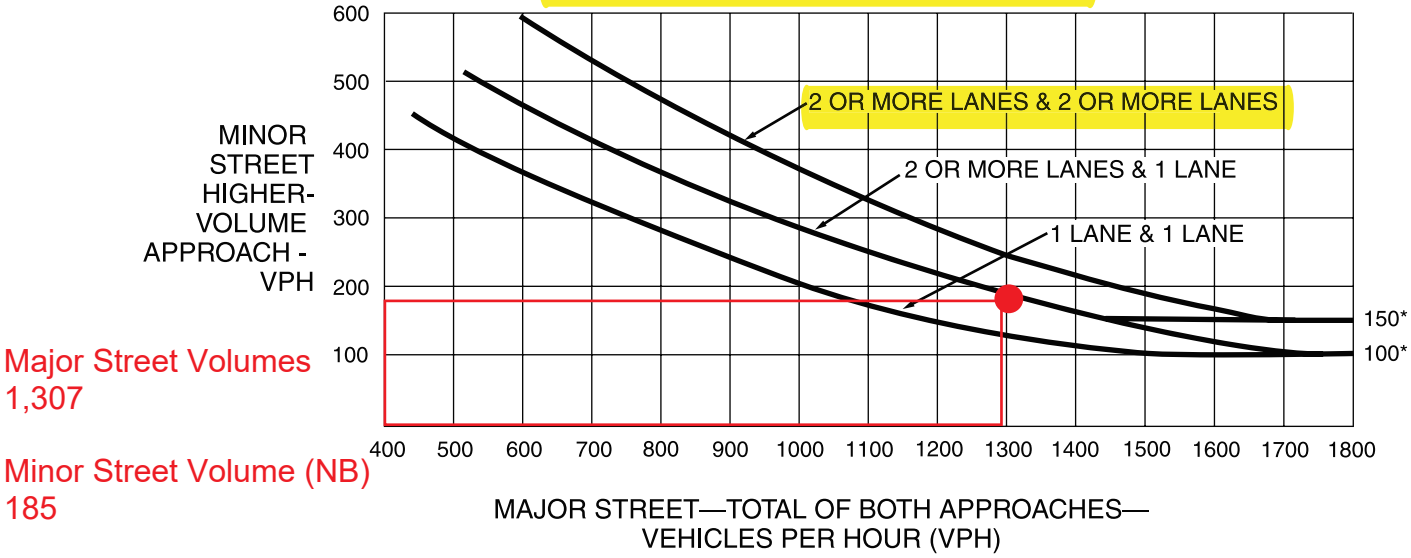
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

PM Peak Hour Volumes
Sherman Street / Bob Olson Pkwy & Hildebrand Blvd
2030 With Project Conditions

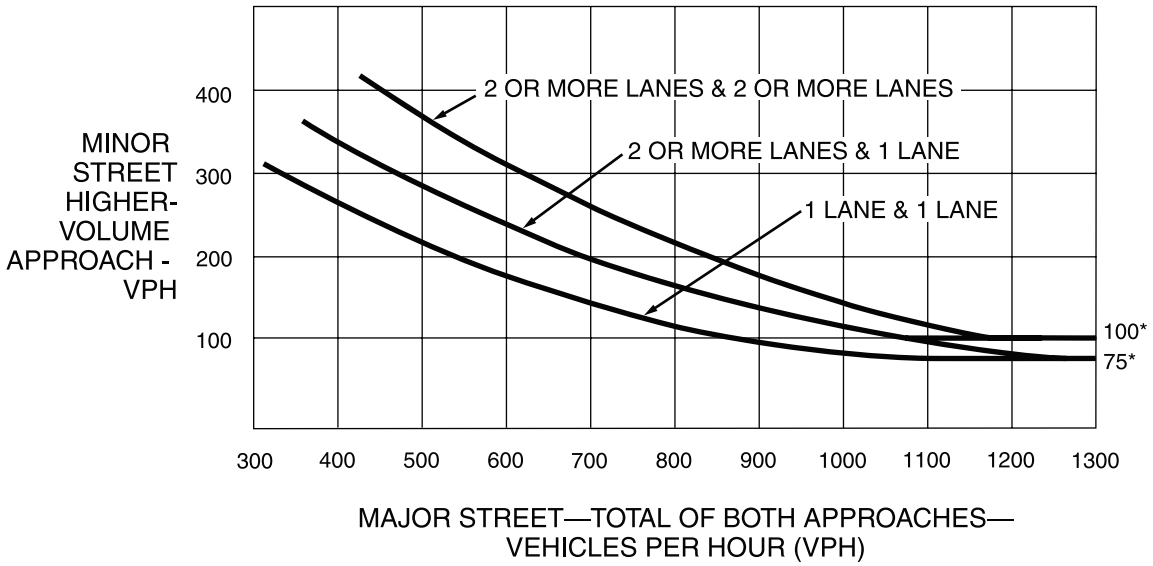
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Appendix F

SimTraffic Queue Reports

Queues
1: Southridge Blvd & Hilderbrand Blvd

04/12/2022

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	168	215	37	250	58	234	107	103	108	186
v/c Ratio	0.37	0.26	0.08	0.40	0.11	0.56	0.14	0.23	0.21	0.24
Control Delay	15.9	22.2	12.9	17.0	10.1	25.7	2.9	11.2	18.9	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	22.2	12.9	17.0	10.1	25.7	2.9	11.2	18.9	2.8
Queue Length 50th (ft)	38	34	8	26	11	72	0	20	31	0
Queue Length 95th (ft)	85	66	25	59	29	137	22	46	69	29
Internal Link Dist (ft)		679		545		567			717	
Turn Bay Length (ft)	250		175		150		100	150		165
Base Capacity (vph)	451	1640	488	1589	522	1009	790	448	999	769
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.13	0.08	0.16	0.11	0.23	0.14	0.23	0.11	0.24

Intersection Summary

HCM 6th TWSC
2: Sherman St & Bob Olson Pkwy/Hildebrand Blvd

04/05/2022

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	273	60	33	225	14	62	0	14	21	1	18
Future Vol, veh/h	12	273	60	33	225	14	62	0	14	21	1	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	130	-	-	130	-	-	110	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	5	2	2
Mvmt Flow	13	303	67	37	250	16	69	0	16	23	1	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	266	0	0	370	0	0	563	703	185	510	728	133
Stage 1	-	-	-	-	-	-	363	363	-	332	332	-
Stage 2	-	-	-	-	-	-	200	340	-	178	396	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.6	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.55	4.02	3.32
Pot Cap-1 Maneuver	1295	-	-	1185	-	-	409	360	826	440	349	892
Stage 1	-	-	-	-	-	-	628	623	-	647	643	-
Stage 2	-	-	-	-	-	-	783	638	-	798	602	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1295	-	-	1185	-	-	387	345	826	418	335	892
Mov Cap-2 Maneuver	-	-	-	-	-	-	387	345	-	418	335	-
Stage 1	-	-	-	-	-	-	622	617	-	641	623	-
Stage 2	-	-	-	-	-	-	740	618	-	775	596	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1	15	11.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	387	826	1295	-	-	1185	-	-	418	820
HCM Lane V/C Ratio	0.178	0.019	0.01	-	-	0.031	-	-	0.056	0.026
HCM Control Delay (s)	16.3	9.4	7.8	-	-	8.1	-	-	14.1	9.5
HCM Lane LOS	C	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.6	0.1	0	-	-	0.1	-	-	0.2	0.1

MOVEMENT SUMMARY

Site: 3 [PM 2022 Existing Condition (Site Folder: BobOlson-Steptoe-10th)]

Bob Olson Parkway-Steptoe Street-10th Avenue Intersection
Site Category: Roundabout Intersection
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: 10th Avenue														
1a	L1	160	3.0	174	3.0	0.133	9.5	LOS A	0.5	13.9	0.35	0.65	0.35	34.6
16	R2	107	2.0	116	2.0	0.105	2.9	LOS A	0.4	10.4	0.37	0.42	0.37	30.8
Approach		267	2.6	290	2.6	0.133	6.8	LOS A	0.5	13.9	0.36	0.56	0.36	33.0
North: Steptoe Street														
7	L2	143	2.0	155	2.0	0.223	9.6	LOS A	1.3	34.0	0.39	0.56	0.39	32.1
14a	R1	432	2.0	470	2.0	0.223	3.4	LOS A	1.4	35.0	0.37	0.45	0.37	36.7
Approach		575	2.0	625	2.0	0.223	5.0	LOS A	1.4	35.0	0.38	0.48	0.38	35.4
SouthWest: Bob Olson Parkway														
5ux	U	1	2.0	1	2.0	0.175	13.3	LOS B	1.0	24.4	0.33	0.60	0.33	36.1
5ax	L1	294	2.0	320	2.0	0.175	9.3	LOS A	1.0	25.1	0.33	0.57	0.33	35.3
12ax	R1	168	2.0	183	2.0	0.175	3.2	LOS A	1.0	25.1	0.32	0.48	0.32	36.7
Approach		463	2.0	503	2.0	0.175	7.1	LOS A	1.0	25.1	0.32	0.53	0.32	35.8
All Vehicles		1305	2.1	1418	2.1	0.223	6.1	LOS A	1.4	35.0	0.35	0.51	0.35	35.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th TWSC
4: West Access & Bob Olson Pkwy

04/05/2022

Intersection	
Int Delay, s/veh	0

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	2	0	375	0	0	311	0	1	0	1	0	0	0
Future Vol, veh/h	2	0	375	0	0	311	0	1	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	90	-	-	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	426	0	0	353	0	1	0	1	0	0	0

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	353	353	0	0	426	0	0	607	783	214	571	783	177
Stage 1	-	-	-	-	-	-	-	430	430	-	353	353	-
Stage 2	-	-	-	-	-	-	-	177	353	-	218	430	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	857	1202	-	-	1130	-	-	380	324	791	404	324	835
Stage 1	-	-	-	-	-	-	-	574	582	-	637	629	-
Stage 2	-	-	-	-	-	-	-	808	629	-	764	582	-
Platoon blocked, %			-	-		-	-						
Mov Cap-1 Maneuver	857	857	-	-	1130	-	-	379	323	790	402	323	835
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	379	323	-	402	323	-
Stage 1	-	-	-	-	-	-	-	573	581	-	636	629	-
Stage 2	-	-	-	-	-	-	-	808	629	-	760	581	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.1	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	512	857	-	-	1130	-	-	-
HCM Lane V/C Ratio	0.004	0.003	-	-	-	-	-	-
HCM Control Delay (s)	12.1	9.2	-	-	0	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

HCM 6th TWSC
5: Bob Olson Pkwy & East Access

04/05/2022

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	376	311	0	0	0
Future Vol, veh/h	0	376	311	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	130	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	427	353	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	353	0	-	0	567	177
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	214	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1202	-	-	-	454	835
Stage 1	-	-	-	-	682	-
Stage 2	-	-	-	-	801	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1202	-	-	-	454	835
Mov Cap-2 Maneuver	-	-	-	-	454	-
Stage 1	-	-	-	-	682	-
Stage 2	-	-	-	-	801	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1202	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Queues
1: Southridge Blvd & Hilderbrand Blvd

04/12/2022

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	278	340	40	457	62	248	113	110	114	368
v/c Ratio	0.68	0.34	0.08	0.59	0.12	0.59	0.15	0.27	0.23	0.43
Control Delay	25.0	22.0	12.6	24.2	12.6	29.1	3.4	14.0	21.5	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	22.0	12.6	24.2	12.6	29.1	3.4	14.0	21.5	3.8
Queue Length 50th (ft)	70	58	9	77	14	86	0	25	36	3
Queue Length 95th (ft)	#168	104	28	133	37	166	26	59	82	50
Internal Link Dist (ft)		679		545		567			717	
Turn Bay Length (ft)	250		175		150		100	150		165
Base Capacity (vph)	410	1515	493	1478	499	929	766	410	921	846
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.22	0.08	0.31	0.12	0.27	0.15	0.27	0.12	0.43

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th TWSC
2: Sherman St & Bob Olson Pkwy/Hildebrand Blvd

04/05/2022

Intersection	
Int Delay, s/veh	13

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	444	86	72	454	75	105	23	41	58	14	40
Future Vol, veh/h	49	444	86	72	454	75	105	23	41	58	14	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	130	-	-	130	-	-	110	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	5	2	2
Mvmt Flow	54	493	96	80	504	83	117	26	46	64	16	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	587	0	0	589	0	0	1069	1396	295	1074	1403	294
Stage 1	-	-	-	-	-	-	649	649	-	706	706	-
Stage 2	-	-	-	-	-	-	420	747	-	368	697	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.6	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.55	4.02	3.32
Pot Cap-1 Maneuver	984	-	-	982	-	-	176	140	701	170	139	702
Stage 1	-	-	-	-	-	-	425	464	-	386	437	-
Stage 2	-	-	-	-	-	-	581	418	-	616	441	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	984	-	-	982	-	-	134	122	701	120	121	702
Mov Cap-2 Maneuver	-	-	-	-	-	-	134	122	-	120	121	-
Stage 1	-	-	-	-	-	-	402	438	-	365	402	-
Stage 2	-	-	-	-	-	-	481	384	-	513	417	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	1.1	77.1	43.1
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	134	259	984	-	-	982	-	-	120	313
HCM Lane V/C Ratio	0.871	0.275	0.055	-	-	0.081	-	-	0.537	0.192
HCM Control Delay (s)	109.4	24.1	8.9	-	-	9	-	-	65.4	19.2
HCM Lane LOS	F	C	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	5.6	1.1	0.2	-	-	0.3	-	-	2.5	0.7

MOVEMENT SUMMARY

Site: 3 [2025 Without Project (Site Folder: BobOlson-Steptoe-10th)]

Bob Olson Parkway-Steptoe Street-10th Avenue Intersection
Site Category: Roundabout Intersection
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: 10th Avenue														
1a	L1	204	3.0	222	3.0	0.180	9.8	LOS A	0.8	19.9	0.43	0.69	0.43	34.4
16	R2	141	2.0	153	2.0	0.149	3.2	LOS A	0.6	15.4	0.44	0.48	0.44	30.6
Approach		345	2.6	375	2.6	0.180	7.1	LOS A	0.8	19.9	0.44	0.61	0.44	32.8
North: Steptoe Street														
7	L2	200	2.0	217	2.0	0.336	10.0	LOS A	2.3	57.3	0.49	0.60	0.49	32.0
14a	R1	629	2.0	684	2.0	0.336	3.8	LOS A	2.3	59.6	0.47	0.48	0.47	36.4
Approach		829	2.0	901	2.0	0.336	5.3	LOS A	2.3	59.6	0.48	0.51	0.48	35.2
SouthWest: Bob Olson Parkway														
5ux	U	1	2.0	1	2.0	0.243	13.6	LOS B	1.5	37.0	0.43	0.63	0.43	35.8
5ax	L1	413	2.0	449	2.0	0.243	9.7	LOS A	1.5	38.5	0.42	0.60	0.42	35.0
12ax	R1	199	2.0	216	2.0	0.243	3.5	LOS A	1.5	38.5	0.41	0.52	0.41	36.3
Approach		613	2.0	666	2.0	0.243	7.7	LOS A	1.5	38.5	0.42	0.57	0.42	35.4
All Vehicles		1787	2.1	1942	2.1	0.336	6.4	LOS A	2.3	59.6	0.45	0.55	0.45	34.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	0

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	2	0	745	0	0	605	0	1	0	1	0	0	0
Future Vol, veh/h	2	0	745	0	0	605	0	1	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	90	-	-	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	847	0	0	688	0	1	0	1	0	0	0

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	688	688	0	0	847	0	0	1195	1539	425	1117	1539	344
Stage 1	-	-	-	-	-	-	-	851	851	-	688	688	-
Stage 2	-	-	-	-	-	-	-	344	688	-	429	851	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	526	902	-	-	786	-	-	142	115	578	162	115	652
Stage 1	-	-	-	-	-	-	-	321	375	-	403	445	-
Stage 2	-	-	-	-	-	-	-	645	445	-	574	375	-
Platoon blocked, %			-	-		-	-						
Mov Cap-1 Maneuver	526	526	-	-	786	-	-	142	115	577	161	115	652
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	142	115	-	161	115	-
Stage 1	-	-	-	-	-	-	-	320	374	-	401	445	-
Stage 2	-	-	-	-	-	-	-	645	445	-	570	374	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	20.9	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	228	526	-	-	786	-	-	-
HCM Lane V/C Ratio	0.01	0.004	-	-	-	-	-	-
HCM Control Delay (s)	20.9	11.9	-	-	0	-	-	0
HCM Lane LOS	C	B	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

HCM 6th TWSC
5: Bob Olson Pkwy & East Access

04/05/2022

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	746	605	0	0	0
Future Vol, veh/h	0	746	605	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	130	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	848	688	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	688	0	-	0	1112	344
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	424	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	902	-	-	-	203	652
Stage 1	-	-	-	-	460	-
Stage 2	-	-	-	-	628	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	902	-	-	-	203	652
Mov Cap-2 Maneuver	-	-	-	-	203	-
Stage 1	-	-	-	-	460	-
Stage 2	-	-	-	-	628	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	902	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Queues
1: Southridge Blvd & Hilderbrand Blvd

04/12/2022

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	290	352	40	478	62	248	113	110	114	389
v/c Ratio	0.71	0.34	0.08	0.59	0.13	0.60	0.15	0.27	0.23	0.47
Control Delay	26.9	21.8	12.5	24.2	13.0	29.8	3.6	14.5	22.0	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	21.8	12.5	24.2	13.0	29.8	3.6	14.5	22.0	4.9
Queue Length 50th (ft)	74	62	9	82	14	89	0	26	38	12
Queue Length 95th (ft)	#186	108	28	141	39	171	27	61	84	64
Internal Link Dist (ft)		679		545		567			717	
Turn Bay Length (ft)	250		175		150		100	150		165
Base Capacity (vph)	407	1494	493	1458	494	917	759	405	908	833
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.24	0.08	0.33	0.13	0.27	0.15	0.27	0.13	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th TWSC
2: Sherman St & Bob Olson Pkwy/Hildebrand Blvd

04/05/2022

Intersection	
Int Delay, s/veh	18

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	466	92	72	492	75	114	23	41	58	14	40
Future Vol, veh/h	49	466	92	72	492	75	114	23	41	58	14	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	130	-	-	130	-	-	110	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	5	2	2
Mvmt Flow	54	518	102	80	547	83	127	26	46	64	16	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	630	0	0	620	0	0	1119	1467	310	1129	1477	315
Stage 1	-	-	-	-	-	-	677	677	-	749	749	-
Stage 2	-	-	-	-	-	-	442	790	-	380	728	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.6	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.55	4.02	3.32
Pot Cap-1 Maneuver	948	-	-	956	-	-	161	127	686	155	125	681
Stage 1	-	-	-	-	-	-	409	450	-	363	417	-
Stage 2	-	-	-	-	-	-	564	400	-	606	427	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	948	-	-	956	-	-	~ 120	110	686	107	108	681
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 120	110	-	107	108	-
Stage 1	-	-	-	-	-	-	386	424	-	342	382	-
Stage 2	-	-	-	-	-	-	463	366	-	501	403	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1	116.8	51.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	120	238	948	-	-	956	-	-	107	287
HCM Lane V/C Ratio	1.056	0.299	0.057	-	-	0.084	-	-	0.602	0.209
HCM Control Delay (s)	167.5	26.4	9	-	-	9.1	-	-	80	20.8
HCM Lane LOS	F	D	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	7.3	1.2	0.2	-	-	0.3	-	-	2.9	0.8

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

MOVEMENT SUMMARY

Site: 3 [2025 With Project (Site Folder: BobOlson-Steptoe-10th)]

Bob Olson Parkway-Steptoe Street-10th Avenue Intersection
Site Category: Roundabout Intersection
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: 10th Avenue														
1a	L1	209	3.0	227	3.0	0.185	9.8	LOS A	0.8	20.6	0.44	0.70	0.44	34.3
16	R2	141	2.0	153	2.0	0.150	3.3	LOS A	0.6	15.6	0.45	0.49	0.45	30.6
Approach		350	2.6	380	2.6	0.185	7.2	LOS A	0.8	20.6	0.45	0.61	0.45	32.8
North: Steptoe Street														
7	L2	200	2.0	217	2.0	0.347	10.0	LOS B	2.4	59.9	0.50	0.60	0.50	32.0
14a	R1	653	2.0	710	2.0	0.347	3.8	LOS A	2.5	62.3	0.48	0.49	0.48	36.4
Approach		853	2.0	927	2.0	0.347	5.3	LOS A	2.5	62.3	0.49	0.52	0.49	35.3
SouthWest: Bob Olson Parkway														
5ux	U	1	2.0	1	2.0	0.250	13.6	LOS B	1.5	38.3	0.43	0.63	0.43	35.8
5ax	L1	427	2.0	464	2.0	0.250	9.7	LOS A	1.6	40.0	0.43	0.60	0.43	35.0
12ax	R1	202	2.0	220	2.0	0.250	3.5	LOS A	1.6	40.0	0.41	0.52	0.41	36.2
Approach		630	2.0	685	2.0	0.250	7.7	LOS A	1.6	40.0	0.42	0.57	0.42	35.4
All Vehicles		1833	2.1	1992	2.1	0.347	6.5	LOS A	2.5	62.3	0.46	0.55	0.46	34.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th TWSC
4: West Access & Bob Olson Pkwy

04/05/2022

Intersection	
Int Delay, s/veh	0.6

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	2	38	754	0	0	611	9	1	0	1	6	0	22
Future Vol, veh/h	2	38	754	0	0	611	9	1	0	1	6	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	90	-	-	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	43	857	0	0	694	10	1	0	1	7	0	25

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	705	704	0	0	857	0	0	1294	1651	430	1219	1646	352
Stage 1	-	-	-	-	-	-	-	947	947	-	699	699	-
Stage 2	-	-	-	-	-	-	-	347	704	-	520	947	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	513	890	-	-	779	-	-	120	98	573	136	98	644
Stage 1	-	-	-	-	-	-	-	281	338	-	397	440	-
Stage 2	-	-	-	-	-	-	-	642	438	-	507	338	-
Platoon blocked, %			-	-		-	-						
Mov Cap-1 Maneuver	856	856	-	-	779	-	-	111	93	572	130	93	644
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	111	93	-	130	93	-
Stage 1	-	-	-	-	-	-	-	266	320	-	376	440	-
Stage 2	-	-	-	-	-	-	-	617	438	-	479	320	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	24.6	16.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	186	856	-	-	779	-	-	349
HCM Lane V/C Ratio	0.012	0.053	-	-	-	-	-	0.091
HCM Control Delay (s)	24.6	9.4	-	-	0	-	-	16.3
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	752	614	38	22	6
Future Vol, veh/h	9	752	614	38	22	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	130	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	855	698	43	25	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	741	0	-	0	1168	371
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	448	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	862	-	-	-	186	626
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	611	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	862	-	-	-	184	626
Mov Cap-2 Maneuver	-	-	-	-	184	-
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	611	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	24.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	862	-	-	-	217
HCM Lane V/C Ratio	0.012	-	-	-	0.147
HCM Control Delay (s)	9.2	-	-	-	24.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Queues
1: Southridge Blvd & Hilderbrand Blvd

04/12/2022

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	295	362	43	482	67	271	124	120	125	387
v/c Ratio	0.74	0.35	0.09	0.59	0.13	0.61	0.16	0.30	0.24	0.46
Control Delay	29.5	22.3	13.1	24.4	13.0	29.9	3.4	14.8	21.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	22.3	13.1	24.4	13.0	29.9	3.4	14.8	21.9	4.8
Queue Length 50th (ft)	78	64	10	84	15	99	0	29	42	11
Queue Length 95th (ft)	#204	114	30	145	41	187	28	66	91	64
Internal Link Dist (ft)		679		545		567			717	
Turn Bay Length (ft)	250		175		150		100	150		165
Base Capacity (vph)	397	1447	479	1412	503	888	774	397	879	843
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.25	0.09	0.34	0.13	0.31	0.16	0.30	0.14	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th TWSC
2: Sherman St & Bob Olson Pkwy/Hildebrand Blvd

04/05/2022

Intersection	
Int Delay, s/veh	17.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	472	92	75	476	76	111	23	42	60	14	42
Future Vol, veh/h	50	472	92	75	476	76	111	23	42	60	14	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	130	-	-	130	-	-	110	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	5	2	2
Mvmt Flow	56	524	102	83	529	84	123	26	47	67	16	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	613	0	0	626	0	0	1126	1466	313	1124	1475	307
Stage 1	-	-	-	-	-	-	687	687	-	737	737	-
Stage 2	-	-	-	-	-	-	439	779	-	387	738	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.6	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.55	4.02	3.32
Pot Cap-1 Maneuver	962	-	-	952	-	-	160	127	683	156	125	689
Stage 1	-	-	-	-	-	-	403	446	-	369	423	-
Stage 2	-	-	-	-	-	-	567	404	-	600	422	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	962	-	-	952	-	-	~ 119	109	683	107	108	689
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 119	109	-	107	108	-
Stage 1	-	-	-	-	-	-	380	420	-	348	386	-
Stage 2	-	-	-	-	-	-	463	369	-	494	398	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1.1	112.3	52.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	119	239	962	-	-	952	-	-	107	294
HCM Lane V/C Ratio	1.036	0.302	0.058	-	-	0.088	-	-	0.623	0.212
HCM Control Delay (s)	162.5	26.5	9	-	-	9.1	-	-	82.8	20.5
HCM Lane LOS	F	D	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	7.1	1.2	0.2	-	-	0.3	-	-	3.1	0.8

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Exhibit A-6

HCM 6th TWSC
4: West Access & Bob Olson Pkwy

04/05/2022

Intersection	
Int Delay, s/veh	0

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	2	0	782	0	0	636	0	1	0	1	0	0	0
Future Vol, veh/h	2	0	782	0	0	636	0	1	0	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	90	-	-	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	889	0	0	723	0	1	0	1	0	0	0

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	723	723	0	0	889	0	0	1255	1616	446	1173	1616	362
Stage 1	-	-	-	-	-	-	-	893	893	-	723	723	-
Stage 2	-	-	-	-	-	-	-	362	723	-	450	893	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	499	875	-	-	758	-	-	128	103	560	147	103	635
Stage 1	-	-	-	-	-	-	-	303	358	-	384	429	-
Stage 2	-	-	-	-	-	-	-	629	429	-	558	358	-
Platoon blocked, %			-	-		-	-						
Mov Cap-1 Maneuver	499	499	-	-	758	-	-	128	103	559	146	103	635
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	128	103	-	146	103	-
Stage 1	-	-	-	-	-	-	-	302	357	-	382	429	-
Stage 2	-	-	-	-	-	-	-	629	429	-	554	357	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	22.5	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	208	499	-	-	758	-	-	-
HCM Lane V/C Ratio	0.011	0.005	-	-	-	-	-	-
HCM Control Delay (s)	22.5	12.2	-	-	0	-	-	0
HCM Lane LOS	C	B	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

HCM 6th TWSC
5: Bob Olson Pkwy & East Access

04/05/2022

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	783	636	0	0	0
Future Vol, veh/h	0	783	636	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	130	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	890	723	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	723	0	-	0	1168	362
Stage 1	-	-	-	-	723	-
Stage 2	-	-	-	-	445	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	875	-	-	-	186	635
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	613	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	875	-	-	-	186	635
Mov Cap-2 Maneuver	-	-	-	-	186	-
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	613	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	875	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Queues
1: Southridge Blvd & Hilderbrand Blvd

04/12/2022

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	307	374	43	503	67	271	124	120	125	408
v/c Ratio	0.79	0.35	0.09	0.60	0.13	0.61	0.16	0.30	0.24	0.49
Control Delay	33.0	22.2	13.1	24.7	13.2	30.1	3.5	15.1	22.1	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	22.2	13.1	24.7	13.2	30.1	3.5	15.1	22.1	5.8
Queue Length 50th (ft)	83	67	10	89	16	100	0	29	42	20
Queue Length 95th (ft)	#224	117	30	152	42	189	28	67	92	82
Internal Link Dist (ft)		679		545		567			717	
Turn Bay Length (ft)	250		175		150		100	150		165
Base Capacity (vph)	391	1434	476	1401	501	879	771	395	871	833
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.26	0.09	0.36	0.13	0.31	0.16	0.30	0.14	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th TWSC
2: Sherman St & Bob Olson Pkwy/Hildebrand Blvd

04/05/2022

Intersection	
Int Delay, s/veh	24.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	494	98	75	514	76	120	23	42	60	14	42
Future Vol, veh/h	50	494	98	75	514	76	120	23	42	60	14	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	130	-	-	130	-	-	110	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	5	2	2
Mvmt Flow	56	549	109	83	571	84	133	26	47	67	16	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	655	0	0	658	0	0	1176	1537	329	1179	1549	328
Stage 1	-	-	-	-	-	-	716	716	-	779	779	-
Stage 2	-	-	-	-	-	-	460	821	-	400	770	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.6	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.6	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.55	4.02	3.32
Pot Cap-1 Maneuver	928	-	-	926	-	-	147	115	667	142	113	668
Stage 1	-	-	-	-	-	-	387	432	-	348	404	-
Stage 2	-	-	-	-	-	-	551	387	-	589	408	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	928	-	-	926	-	-	~ 107	98	667	94	97	668
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 107	98	-	94	97	-
Stage 1	-	-	-	-	-	-	364	406	-	327	368	-
Stage 2	-	-	-	-	-	-	447	352	-	482	384	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1	167.4	65.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	107	218	928	-	-	926	-	-	94	270
HCM Lane V/C Ratio	1.246	0.331	0.06	-	-	0.09	-	-	0.709	0.23
HCM Control Delay (s)	242.1	29.5	9.1	-	-	9.3	-	-	106.3	22.3
HCM Lane LOS	F	D	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	8.9	1.4	0.2	-	-	0.3	-	-	3.6	0.9

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

MOVEMENT SUMMARY

Site: 3 [2030 With Project (Site Folder: BobOlson-Steptoe-10th)]

Bob Olson Parkway-Steptoe Street-10th Avenue Intersection
Site Category: Roundabout Intersection
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: 10th Avenue														
1a	L1	225	3.0	245	3.0	0.203	9.9	LOS A	0.9	23.0	0.46	0.71	0.46	34.3
16	R2	152	2.0	165	2.0	0.165	3.4	LOS A	0.7	17.4	0.47	0.50	0.47	30.6
Approach		377	2.6	410	2.6	0.203	7.3	LOS A	0.9	23.0	0.47	0.63	0.47	32.7
North: Steptoe Street														
7	L2	214	2.0	233	2.0	0.376	10.2	LOS B	2.6	66.8	0.53	0.61	0.53	31.9
14a	R1	696	2.0	757	2.0	0.376	3.9	LOS A	2.7	69.7	0.51	0.50	0.51	36.3
Approach		910	2.0	989	2.0	0.376	5.4	LOS A	2.7	69.7	0.52	0.53	0.52	35.2
SouthWest: Bob Olson Parkway														
5ux	U	1	2.0	1	2.0	0.272	13.7	LOS B	1.7	42.8	0.46	0.64	0.46	35.8
5ax	L1	456	2.0	496	2.0	0.272	9.8	LOS A	1.8	44.7	0.45	0.60	0.45	35.0
12ax	R1	219	2.0	238	2.0	0.272	3.6	LOS A	1.8	44.7	0.44	0.53	0.44	36.2
Approach		676	2.0	735	2.0	0.272	7.8	LOS A	1.8	44.7	0.45	0.58	0.45	35.3
All Vehicles		1963	2.1	2134	2.1	0.376	6.6	LOS A	2.7	69.7	0.48	0.57	0.48	34.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection	
Int Delay, s/veh	0.6

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	2	38	791	0	0	642	9	1	0	1	6	0	22
Future Vol, veh/h	2	38	791	0	0	642	9	1	0	1	6	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	90	-	-	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	43	899	0	0	730	10	1	0	1	7	0	25

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	740	740	0	0	899	0	0	1354	1729	451	1276	1724	370
Stage 1	-	-	-	-	-	-	-	989	989	-	735	735	-
Stage 2	-	-	-	-	-	-	-	365	740	-	541	989	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	487	862	-	-	751	-	-	108	87	556	124	88	627
Stage 1	-	-	-	-	-	-	-	265	323	-	377	424	-
Stage 2	-	-	-	-	-	-	-	627	421	-	493	323	-
Platoon blocked, %			-	-		-	-						
Mov Cap-1 Maneuver	827	827	-	-	751	-	-	99	82	555	119	83	627
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	99	82	-	119	83	-
Stage 1	-	-	-	-	-	-	-	251	306	-	357	424	-
Stage 2	-	-	-	-	-	-	-	602	421	-	465	306	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	26.7	17.2
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	168	827	-	-	751	-	-	327
HCM Lane V/C Ratio	0.014	0.055	-	-	-	-	-	0.097
HCM Control Delay (s)	26.7	9.6	-	-	0	-	-	17.2
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.3

HCM 6th TWSC
5: Bob Olson Pkwy & East Access

04/05/2022

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	789	645	38	22	6
Future Vol, veh/h	9	789	645	38	22	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	130	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	897	733	43	25	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	776	0	-	0	1224	388
Stage 1	-	-	-	-	755	-
Stage 2	-	-	-	-	469	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	836	-	-	-	171	611
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	596	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	836	-	-	-	169	611
Mov Cap-2 Maneuver	-	-	-	-	169	-
Stage 1	-	-	-	-	420	-
Stage 2	-	-	-	-	596	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	26.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	836	-	-	-	200
HCM Lane V/C Ratio	0.012	-	-	-	0.159
HCM Control Delay (s)	9.4	-	-	-	26.4
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Appendix G

Collision Rate Calculations and Data

Exhibit A-6

OFFICER REPORTED CRASHES THAT OCCURRED ON ALL ROADS IN BENTON COUNTY
01/01/2016 - 12/30/2020

Under 23 U.S. Code § 148 and 23 U.S. Code § 409, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

Loc	JURISDICTION	COUNTY	CITY	COUNTY ONLY COUNTY RD NAME	PRIMARY TRAFFICWAY	BLOCK NUMBER	INTERSECTING TRAFFICWAY	DIST FROM REF POINT	MI or FT	DIR FROM REF POINT	REFERENCE POINT NAME	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE							VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER	ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2020 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	STATE PLANE SOUTH - Y 2010 - FORWARD
1	City Street	Benton	Kennewick	SOUTHRIDGE BLVD	SOUTHRIDGE BLVD	0	W HILDEBRAND BLVD					E89262	########	10:53	No Apparent Injury							Passenger Car		At Intersection and Related	Snowing	Snow/Slush	Daylight	Linear Curb	Making Right Turn		South	East			Exceeding Reas. Safe Speed			Intersecting Trafficway	########	########
1	City Street	Benton	Kennewick	SOUTHRIDGE BLVD	SOUTHRIDGE BLVD	3100		0.1	M	NE	W HILDEBRAND BLVD	E53595	########	17:35	No Apparent Injury							Pickup,Panel Truck or Vanette under 10,000 l	Passenger Car	Intersection Related but Not at Intersectio	Clear or Partly Cloudy	Dry	Daylight	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign	North	South	Vehicle Stoppe	Vehicle Stoppe	Driver Interacting with Passengers, Anim		None	Lane of Primary Trafficway	########	########
1	City Street	Benton	Kennewick	W HILDEBRAND BLVD	W HILDEBRAND BLVD	5200		145	F	NW	SOUTHRIDGE BLVD	E98015	########	14:35	No Apparent Injury							Passenger Car	Pickup,Panel Truck or Vanette under 10,000 l	Intersection Related but Not at Intersectio	Clear or Partly Cloudy	Dry	Daylight	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped for Traffic	West	North	West	North	Follow Too Closely		None	Lane of Primary Trafficway	########	########
1	City Street	Benton	Kennewick	SOUTHRIDGE BLVD	SOUTHRIDGE BLVD	3200		200	F	SW	W HILDEBRAND BLVD	E86861	########	10:57	No Apparent Injury							Passenger Car	Pickup,Panel Truck or Vanette under 10,000 l	Intersection Related but Not at Intersectio	Fog or Smog or Smoke	Dry	Daylight	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped for Traffic	South	North	South	Vehicle Stoppe	Follow Too Closely		None	Lane of Primary Trafficway	########	########
1	City Street	Benton	Kennewick	SOUTHRIDGE BLVD	SOUTHRIDGE BLVD	3200		101	F	SW	W HILDEBRAND BLVD	E51230	########	14:35	Suspected Minor Injury							Passenger Car	Passenger Car	Intersection Related but Not at Intersectio	Clear or Partly Cloudy	Dry	Daylight	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped for Traffic	South	North	Vehicle Stoppe	Vehicle Stoppe	Other Driver Distractions Inside Vehicle		Driver Not Distracted	Lane of Primary Trafficway	########	########
1	City Street	Benton	Kennewick	SOUTHRIDGE BLVD	SOUTHRIDGE BLVD	0	W HILDEBRAND BLVD					E84236	########	18:26	Possible Injury							Passenger Car	Pickup,Panel Truck or Vanette under 10,000 l	At Intersection and Related	Fog or Smog or Smoke	Dry	Dusk	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign	South	North	Vehicle Stoppe	Vehicle Stoppe	Follow Too Closely		None	Lane of Primary Trafficway	########	########
1	City Street	Benton	Kennewick	SOUTHRIDGE BLVD	SOUTHRIDGE BLVD	0	W HILDEBRAND BLVD					E60640	########	15:05	No Apparent Injury							Pickup,Panel Truck or Vanette under 10,000 l	Pickup,Panel Truck or Vanette under 10,000 l	At Intersection and Related	Clear or Partly Cloudy	Dry	Daylight	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign	East	West	East	Vehicle Stoppe	Inattention	Eating or Drinking	None	Lane of Primary Trafficway	########	########
1	City Street	Benton	Kennewick	W HILDEBRAND BLVD	W HILDEBRAND BLVD	0	SOUTHRIDGE BLVD					E63089	########	18:37	No Apparent Injury							Passenger Car	Pickup,Panel Truck or Vanette under 10,000 l	At Intersection and Related	Snowing	Snow/Slush	Daylight	From same direction - all others	Changing Lanes	Stopped at Signal or Stop Sign	West	East	Vehicle Stoppe	Vehicle Stoppe	Exceeding Reas. Safe Speed		None	Lane of Primary Trafficway	########	########
1	City Street	Benton	Kennewick	SOUTHRIDGE BLVD	SOUTHRIDGE BLVD	0	W HILDEBRAND BLVD					E99590	########	17:26	Possible Injury							Not Stated	Passenger Car	At Intersection and Related	Overcast	Wet	Dawn	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead	East	South	West	East	Did Not Grant RW to Vehicle		None	Lane of Primary Trafficway	########	########
1	City Street	Benton	Kennewick	SOUTHRIDGE BLVD	SOUTHRIDGE BLVD	0	W HILDEBRAND BLVD					E96189	########	19:35	No Apparent Injury							Pickup,Panel Truck or Vanette under 10,000 l	Pickup,Panel Truck or Vanette under 10,000 l	At Intersection and Related	Clear or Partly Cloudy	Dry	Dark-Street Lights On	From opposite direction - one left turn - one straight	Going Straight Ahead	Making Left Turn	South	North	North	East	Light Violation: No Lights/Fail to Dim		None	Lane of Primary Trafficway	########	########
1	City Street	Benton	Kennewick	W HILDEBRAND BLVD	W HILDEBRAND BLVD	5200	SOUTHRIDGE BLVD					E54991	########	17:18	No Apparent Injury							Pickup,Panel Truck or Vanette under 10,000 l	Pickup,Panel Truck or Vanette under 10,000 l	At Intersection and Related	Clear or Partly Cloudy	Wet	Daylight	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead	East	South	West	East	Improper Turn/Merge		None	Lane of Primary Trafficway	########	########
1	City Street	Benton	Kennewick	SOUTHRIDGE BLVD	SOUTHRIDGE BLVD	0	W HILDEBRAND BLVD					EA1415	########	17:57	No Apparent Injury							Passenger Car	Pickup,Panel Truck or Vanette under 10,000 l	At Intersection and Related	Clear or Partly Cloudy	Dry	Daylight	Entering at angle	Going Straight Ahead	Going Straight Ahead	East	West	North	South	Disregard Traffic Sign and Signals		None	Lane of Primary Trafficway	########	########
3	City Street	Benton	Kennewick	S STEPTOE ST	S STEPTOE ST	800	W 10TH AVE					E90266	########	17:03	No Apparent Injury							Passenger Car	Pickup,Panel Truck or Vanette under 10,000 l	Entering Roundabout	Clear or Partly Cloudy	Dry	Daylight	Entering at angle	Going Straight Ahead	Making Left Turn	North	South	West	South	Inattention		None	Lane of Primary Trafficway	########	########
3	City Street	Benton	Kennewick	W 10TH AVE	W 10TH AVE	9600	S STEPTOE ST					EA0261	########	15:31	No Apparent Injury							Passenger Car	Pickup,Panel Truck or Vanette under 10,000 l	Entering Roundabout	Snowing	Wet	Daylight	From same direction - all others	Slowing	Slowing	East	West	East	West	Exceeding Reas. Safe Speed		None	Lane of Primary Trafficway	########	########
3	City Street	Benton	Kennewick	BOB OLSON PKWY	BOB OLSON PKWY	9100	W 10TH AVE					E91324	########	19:28	No Apparent Injury							Pickup,Panel Truck or Vanette under 10,000 l	Passenger Car	Entering Roundabout	Clear or Partly Cloudy	Dry	Daylight	From same direction - both going straight - both moving - sideswipe	Other*	Other*	South	North	South	North	Driver Not Distracted		None	Lane of Primary Trafficway	########	########
3	City Street	Benton	Kennewick	A STEPTOE ST	A STEPTOE ST		W 10TH AVE					E99636	########	11:28	No Apparent Injury							Passenger Car		Circulating Roundabout	Clear or Partly Cloudy	Dry	Daylight	Metal Sign Post	Going Straight Ahead		South	North			Exceeding Reas. Safe Speed			Other Location (City/County/Misc. Trafficway)	########	########
3	City Street	Benton	Kennewick	W 10TH AVE	W 10TH AVE	9500	S STEPTOE ST					E70218	########	17:45	No Apparent Injury							Passenger Car	Pickup,Panel Truck or Vanette under 10,000 l	Entering Roundabout	Clear or Partly Cloudy	Dry	Daylight	Same direction -- both turning right -- both moving -- rear end	Making Right Turn	Making Right Turn	West	Northwest	West	Northwest	Follow Too Closely		None	Lane of Primary Trafficway	########	########
3	City Street	Benton	Kennewick	W 10TH AVE	W 10TH AVE		S STEPTOE ST					EA1953	########	17:42	Dead at Scene							Pickup,Panel Truck or Vanette under 10,000 lb		Entering Roundabout	Clear	Dry	Dark-Street Lights On	Traffic Island	Going Straight Ahead		East	West			Apparently Emotional (Depressed, Angry,			Other Location (City/County/Misc. Trafficway)	########	########

Collision Rate Calculations at
Southridge Blvd / Hildebrand Blvd

Exhibit A-6

Intersection:	Southridge Blvd / Hildebrand Blvd	Date	4/7/2022

Ra =	System Wide Average accident rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
	ADT	3490
		3630
		3610
		2610
M=	Millions of Vehicles for a five year period =	**24.3455**
Rc=	Critical Rate =	**0.84**

Collision Rate

Number of accidents =	12
Number of years =	5
Collision Rate =	**0.49**

Rc= Ra+(K*Ra/M)^.5)-1/(2*M)

ADT = 2022 PM Count X 10
PM Peak Hour= Approx. 10% ADT

Exhibit A-6

Collision Rate Calculations at
Sherman St / Bob Olson Pkwy Hilderbrand Blvd

Intersection: Sherman St / Bob Olson Pkwy & Hilderbrar Date 4/7/2022

Ra =	System Wide Average accident rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
	ADT	400
		3450
		2720
		760
M=	Millions of Vehicles for a five year period =	**13.37725**
Rc=	Critical Rate =	**0.91**

Collision Rate

Number of accidents =	0
Number of years =	5
Collision Rate =	**0.00**

Rc= Ra+(K*Ra/M)^.5)-1/(2*M)

ADT = 2022 PM Count X 10
PM Peak Hour= Approx. 10% ADT

Exhibit A-6

Collision Rate Calculations at
Bob Olson Parkway/Steptoe Street/10th Avenue

Intersection: Bob Olson Parkway/Steptoe Street/10th Av Date 4/7/2022

Ra =	System Wide Average accident rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
	ADT	5750
		2670
		4630
M=	Millions of Vehicles for a five year period =	**23.81625**
Rc=	Critical Rate =	**0.84**

Collision Rate

Number of accidents =	5
Number of years =	5
Collision Rate =	**0.21**

Rc= Ra+(K*Ra/M)^.5)-1/(2*M)

ADT = 2022 PM Count X 10
PM Peak Hour= Approx. 10% ADT

Collision Rate Calculations at
West Access / Bob Olson Pkwy

Exhibit A-6

Intersection: West Access / Bob Olson Pkwy Date 4/7/2022

Ra =	System Wide Average accident rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
	ADT	3770
		3110
		20
M=	Millions of Vehicles for a five year period =	**12.5925**
Rc=	Critical Rate =	**0.92**

Collision Rate

Number of accidents =	0
Number of years =	5
Collision Rate =	**0.00**

Rc= Ra+(K*Ra/M)^.5)-1/(2*M)

ADT = 2022 PM Count X 10
PM Peak Hour= Approx. 10% ADT

Collision Rate Calculations at
East Access / Bob Olson Pkwy

Exhibit A-6

Intersection: East Access / Bob Olson Pkwy Date 4/7/2022

Ra =	System Wide Average accident rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
	ADT	3770
		3110
M=	Millions of Vehicles for a five year period =	**12.556**
Rc=	Critical Rate =	**0.92**

Collision Rate

Number of accidents =	0
Number of years =	5
Collision Rate =	**0.00**

Rc= Ra+(K*Ra/M)^.5)-1/(2*M)

ADT = 2022 PM Count X 10
PM Peak Hour= Approx. 10% ADT

CRITICAL AREAS REPORT – BIOLOGICAL RESOURCES

Parcel #107894000001003
8224 Bob Olson Parkway | Kennewick
Benton County, Washington

Prepared for:

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March 23, 2022

GG Environmental
WETLANDS • FISH • WILDLIFE

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Executive Summary

Murow Development Consultants, in collaboration with Red Tail Development, LLC (Client), is proposing to construct approximately 300 multi-family single-story rental units within multiple three-story buildings on Benton County parcel #107894000001003 (13.76 acres), located at 8224 Bob Olson Parkway, within the city limits of Kennewick, Washington.

The Client retained GG Environmental (Geoffrey Gray, MA, PWS) to complete a "Biological Resources Report" (Critical Areas Report), per guidance provided in the Kennewick Municipal Code (KMC), to evaluate the potential for biological resources (wetlands, streams, and/or fish and wildlife habitat conservation areas)[1] to be present within the study area. The study area includes the proposed project footprint (project footprint) and all areas within a 200-foot radius[2] of the project footprint (31.64 acres).

A reconnaissance-level field visit was completed on February 11, 2022 followed by a site survey on March 11, 2022. The survey area was traversed on foot, except for zones south of Bob Olson Parkway that were readily observed from the road.

Based on best available science, including, but not limited to, soil data, topography, existing GIS data, historic aerial imagery, consultation with the Washington Department of Fish and Wildlife and City of Kennewick, and observational data collected onsite, it is determined that no regulated wetlands or streams are present within the survey area nor do any regulatory buffers intersect the project footprint. Furthermore, no impacts to sensitive species or habitats are anticipated.

[1] The report also includes data on migratory birds, including nesting habitat.
[2] Per KMC 18.58.080.1 *Jurisdiction – Critical Areas*.

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Acronyms and Abbreviations

DNR	Department of Natural Resources
ESA	Endangered Species Act
GIS	Geographic Information System
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
HUC	Hydrologic Unit Code
KID	Kennewick Irrigation District
KMC	Kennewick Municipal Code
LRR	Land Resource Region
MBTA	Migratory Bird Treaty Act
MLRA	Major Land Resource Area
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
PHS	Priority Habitats and Species
PWS	Professional Wetland Scientist
USFWS	United States Fish and Wildlife Service
WDFW	Washington State Department of Fish and Wildlife
WGS84	World Geodetic System 1984
WNHP	Washington Natural Heritage Program
WRIA	Water Resource Inventory Area

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1. Introduction

Murow Development Consultants, in collaboration with Red Tail Development, LLC (Client), is proposing to construct approximately 300 multi-family single-story rental units within multiple three-story buildings on Benton County parcel #107894000001003 (13.76 acres), located at 8224 Bob Olson Parkway within the city limits of Kennewick, Washington (**Figure 1**).

The parcel occurs within the southwest quarter of the southeast quarter of Section 7 in Township 8 North, Range 29 East (**Figure 2**). The approximate geospatial center of the project footprint is latitude 46°11'15.18" north, longitude 119°13'51.63" west (WGS84). Elevation is approximately 650 feet (Google 2022).

The study area also occurs within USDA Land Resource Region (LRR) B, the Columbia Basin USDA Major Land Resource Area (NRCS 2006), Water Resource Inventory Area (WRIA) 37 (Lower Yakima), and Coyote Canyon subwatershed (12th Hydrologic Unit Code 170300031204).

Figure 1. Project Location

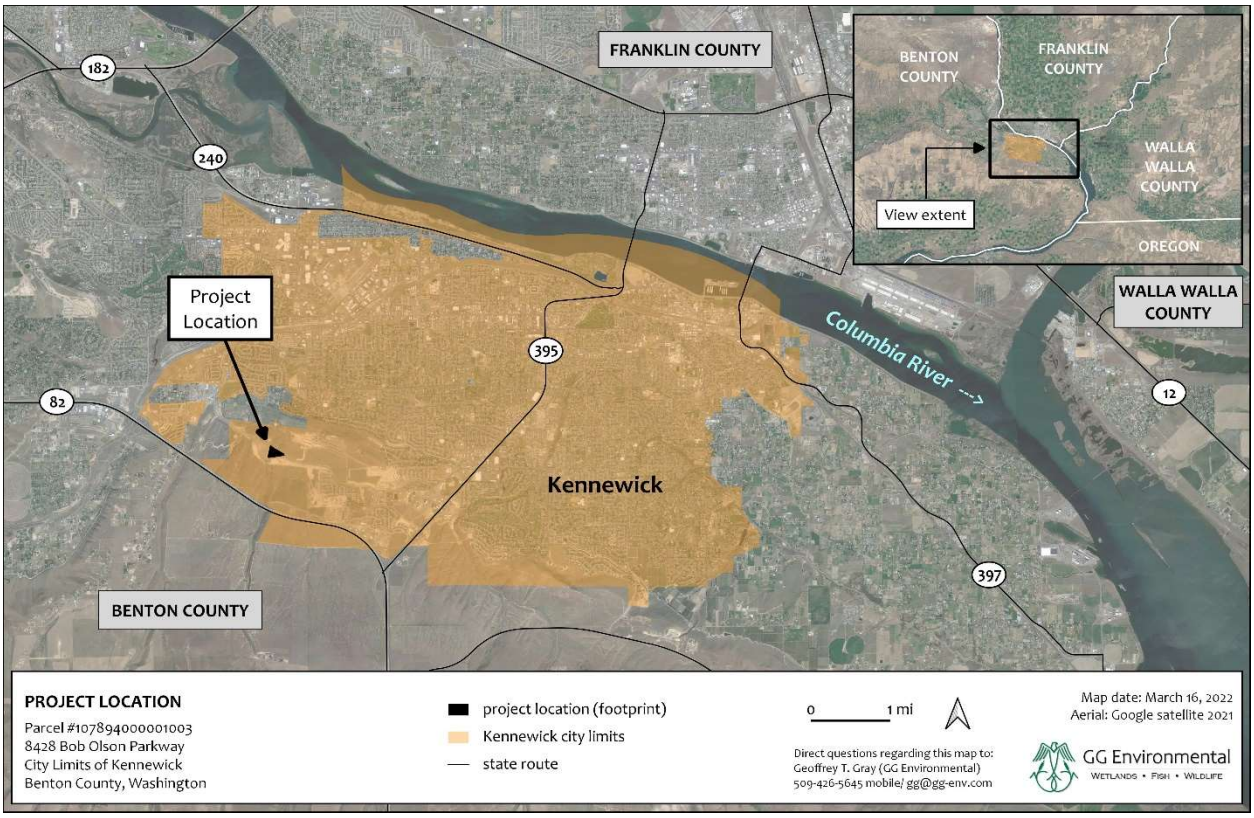
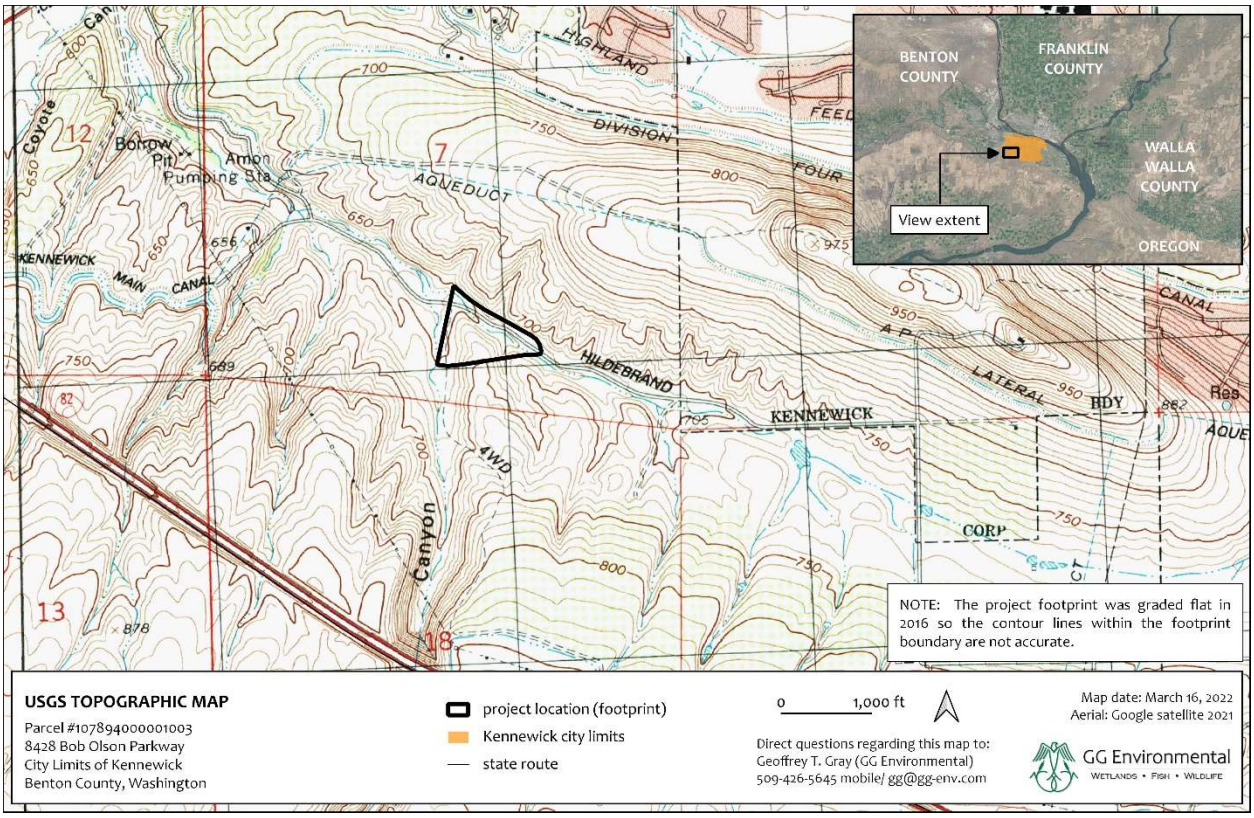


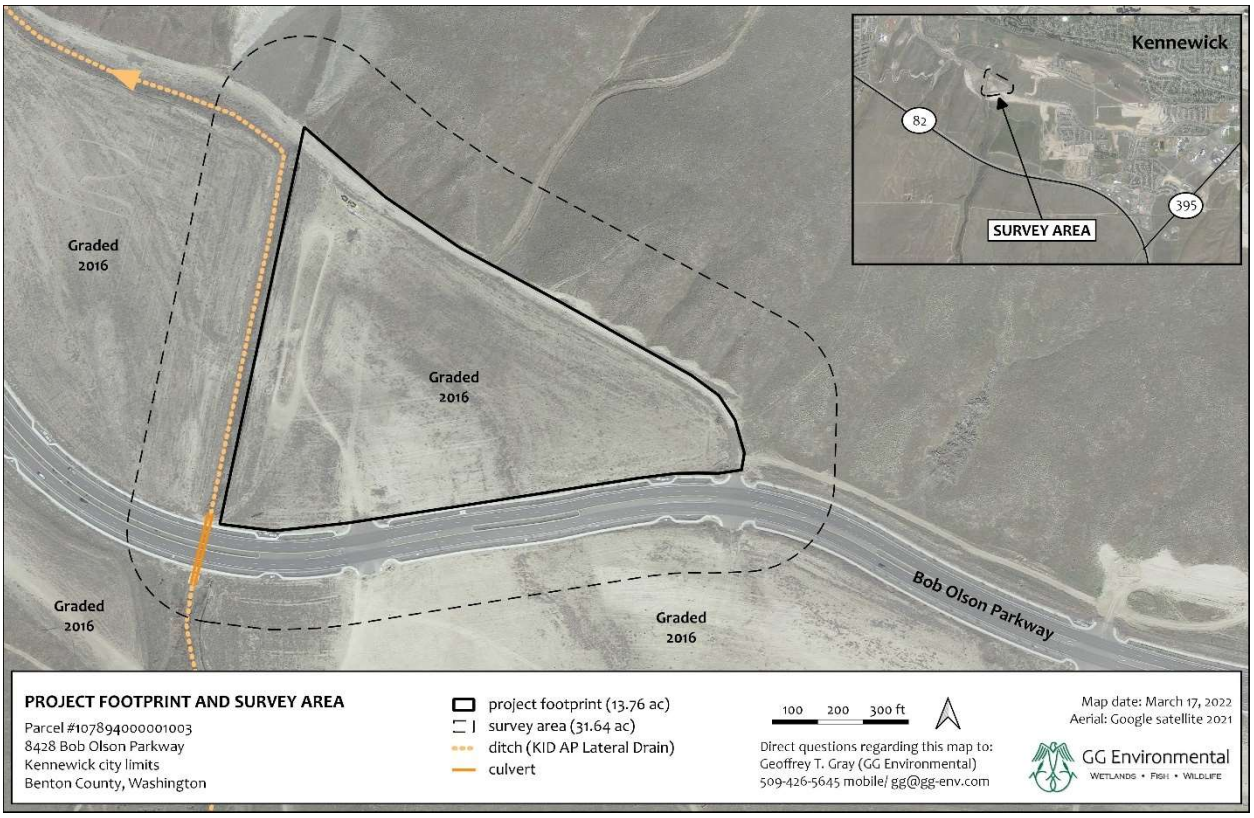
Figure 2. USGS Topographic Map



The Client retained GG Environmental (Geoffrey Gray, MA, PWS) to complete a "Biological Resources Report" (Critical Areas Report), per guidance provided in the Kennewick Municipal Code (KMC), to evaluate the potential for biological resources (wetlands, streams, and/or fish and wildlife habitat conservation areas) to be present within the study area.[3] The study area includes the proposed project footprint (project footprint) (13.76 acres) and all areas within a 200-foot radius[4] of the project footprint (31.64 acres) (**Figure 3**).

[3] The report also includes data on migratory birds, including nesting habitat.
[4] Per KMC 18.58.080.1 *Jurisdiction – Critical Areas.*

Figure 3. Project Footprint and Survey Area



2. Methods

An overview of the methods employed to evaluate aquatic resources, sensitive species, and habitats is presented in this section.

2.1. Background Data

The following sources were referenced for existing data on soils, topography, land use history, vegetation, wetlands, streams, sensitive species, and habitats:

- National Wetlands Inventory (NWI) (USFWS 2022a) (**Appendix A-1**).
- Natural Resources Conservation Service soil survey data (NRCS 2022). (**Appendix A-2**).
- Amon Wasteway and Drain System Map (KID 2022) (**Appendix A-3**).
- Historic aerial photography: 1955 (CWU 2022) and 1996-2021 (Google 2022).
- Federal and state-listed sensitive species (USFWS 2022b, NOAA 2022b, WDFW 2020, WDFW 2022a).
- Designated critical habitats (USFWS 2022c, NOAA 2022b).
- Priority Habitats and Species (PHS) (WDFW 2022a).
- Washington Natural Heritage Program (DNR 2022) (**Appendix A-4**).

2.2. Field Investigation

Fieldwork was completed by GG Environmental (Geoffrey Gray, MA, PWS). A reconnaissance-level site visit was completed on February 11, 2022 followed by a site survey on March 11, 2022. The survey area was traversed on foot, except for zones south of Bob Olson Parkway that were readily observed from the road.

Particular survey effort was directed toward the hillslope north of the project footprint with focus on the presence/absence of Townsend's ground squirrel (TGS) (*Spermophilus townsendii*) (State Candidate), burrowing owl (*Athene cunicularia*) (State Candidate) and migratory birds with an emphasis on nesting habitat (especially raptors).

The TGS survey involved scanning the ground for TGS sign (scat, appropriately-sized burrow, tracks) and listening for TGS vocalization.

Based on input from WDFW (WDFW 2022b), survey effort was also focused toward burrowing owl, with the ground scanned for appropriately-sized burrows with molted feathers, cast pellets, prey remains, eggshell fragments, and/or excrement at or near the burrow entrance.

The migratory bird survey involved searching for stick nests in trees, shrubs, or on man-made structures while recording observations of bird nests of any kind, including swallows and passerines.

Photographs of the survey area are presented in **Appendix B**.

2.3. Geospatial Documentation

Features were geospatially surveyed with a Motorola G7 Power mobile phone, running the Mapit Spatial Geopackage Manager application paired via Bluetooth® with a Juniper Systems Geode$_{TM}$ Multi-Global Navigation Satellite System (Multi-GNSS) receiver capable of sub-meter horizontal accuracy.

3. Existing Conditions

3.1. Project Footprint and Vicinity

According to satellite imagery (Google 2022), the project footprint and vicinity along Bob Olson Parkway was graded and leveled in 2016. Grading work included the excavation of a deep drainage ditch (see **Section 3.2**) that parallels, but lies outside, the west border of the project footprint (**Figure 3**). Bob Olson Parkway borders the project footprint to the south. A dirt road was constructed along the north boundary of the project footprint, along the toe of a hillslope.

3.2. Hydrology

Prior to 2016 grading, historic satellite imagery (Google 2022) and USGS topographic map (**Figure 2**) show a stream feature to be present in the general vicinity of the existing ditch. Draining Amon Canyon toward the north, the stream is mapped by the Kennewick Irrigation District (KID) as the "AP Lateral Drain," (APLD) managed as a component of the Amon Wasteway and Drain System

(**Appendix A-3**). In 2016, the APLD was culverted under Bob Olson Parkway, channelized, and armored with rock from that point downstream. This deep drainage ditch is located outside the project footprint.

The former (pre-2016) location of the APLD is currently mapped by the National Wetlands Inventory (NWI) (USFWS 2022a) as Freshwater Forested/Shrub Wetland. A second stream feature, labeled as "Riverine," is mapped as bisecting the project footprint (**Appendix A-1**).

3.3. Soils

Five soil map units intersect the study area (**Appendix A-2**), but given historic grading, only one unit, associated with the adjacent hillslope, is undisturbed. This undisturbed unit, Warden very fine sandy loam, 15 to 30 percent slopes, eroded, is comprised of loess over lacustrine deposits. Depth to a restrictive layer is more than 80 inches. Not listed as a hydric soil, the soil map unit is well drained and does not flood or pond.

3.4. Vegetation

The project footprint is highly disturbed by grading, upon which a variety of plants, primarily non-native annuals and noxious weeds, have colonized. At the bottom of the APLD, trace amounts of reed canarygrass and coyote willow are rooted into the rock armoring. Hills to the north are dominated by native bluebunch wheatgrass (*Pseudoroegneria spicata*), interspersed with non-native annual cheatgrass (*Bromus tectorum*), with trace rabbitbrush (*Chrysothamnus nauseosus*) and arrowleaf balsamroot (*Balsamorhiza sagittata*). No trees or large shrubs are rooted within the survey area. A list of plants observed is included in **Appendix C**.

3.5. Sensitive Species and Habitats

Sensitive species and critical habitats protected under the federal Endangered Species Act (ESA) are listed by the United States Fish and Wildlife Service (USFWS) (USFWS 2022b, USFWS 2022c) and National Oceanic and Atmospheric Administration (NOAA) (NOAA 2022a, NOAA 2022b). Migratory birds, including nests, are protected under the federal Migratory Bird Treaty Act (MBTA) (USFWS 2022d). Priority Habitats and Species (PHS) are managed at the state level by the Washington State Department of Fish and Wildlife (WDFW) (WDFW 2020, WDFW 2022a).

Federal and state sensitive species and habitat lists were queried for the project vicinity[5] with results summarized in **Table 1** (federal) and **Table 2** (state). Migratory birds, including nesting habitat, is included in **Table 1**. A list of wildlife observed in included in **Appendix C.**

[5] Results are for general reference only within the query zone, and do not conclusively determine that a particular species or habitat is present.

Table 1. ESA-listed Species (USFWS[6]) and Migratory Birds

Common Name	Scientific Name	Federal Status
Monarch butterfly	*Danaus plexippus*	Candidate
yellow-billed cuckoo	*Coccyzus americanus*	Threatened
bull trout	*Salvelinus confluentus*	Threatened
migratory birds, including nesting habitat	------	Protected under the MBTA

Table 2. Priority Habitats and Species (WDFW)

Species Name	Habitat Name
Townsend's ground squirrel *Spermophilus townsendii* (State Candidate) Burrowing owl *Athene cunicularia*[7] (State Candidate)	Shrub-steppe Eastside Steppe Freshwater Forested/Shrub Wetland

4. Findings

4.1. Wetlands and Streams

The NWI-mapped alignment of the APLD does not match the existing ditch (**Figure 3, Appendix A-1**). A second stream feature, bisecting the project footprint and mapped by the NWI as "Riverine," is not present onsite.

No wetlands were observed within the study area, north of Bob Olson Parkway. At the narrow bottom of the APLD, trace reed canarygrass (*Phalaris arundinaceae*) (FACW[8]) and coyote willow (*Salix exigua*) (FACW) are rooted in the rock armoring. However, upland species, including yarrow (*Achillea millefolium*) (FACU[9]) and prickly lettuce (*Lactuca serriola*) (FACU) are present in the lower ditch as well. No evidence of flow was observed, neither sediment deposition, erosion, nor wracked debris. Much of the ditch is filled with wind-blown prickly Russian thistle (*Salsola tragus*) (FACU).

[6] No species regulated by NOAA are mapped as potentially present within the study area.
[7] Added to the list based on input from Michael Ritter, Fish and Wildlife Area Habitat Biologist (WDFW 2022b).
[8] FACW (Facultative Wetland Plants) – Usually occur in wetlands, but may occur in non-wetlands.

[9] FACU (Facultative Upland Plants) – Usually occur in non-wetlands, but may occur in wetlands.

Seasonal flow is relatively certain to occur under heavy precipitation, rain-on-snow events, or surplus irrigation releases into the APLD by the KID. That said, the APLD may function like a seasonal stream in the channelization of excess flows, but north of Bob Olson Parkway, its construction and profile is artificial, it lacks habitat value, and it will likely continue to be managed and maintained as a component of KID infrastructure, including vegetation management and bank stabilization.

The City of Kennewick does not regulate the APLD as a critical area under KMC Chapter 18.63 (Fish and Wildlife Habitat Conservation Areas) and does not require a regulatory setback (City of Kennewick 2022).

4.2. Sensitive Species and Habitats

According to the WDFW (WDFW 2022b), approximately 2,500 acres (including the study area) was identified and studied (economics, transportation, environmental, etc.) as part of the City of Kennewick's Southridge Subarea Plan in the early 2000s. In about 2005, the subarea plan was approved and the area has seen tremendous growth the past five years. The WDFW did comment on the subarea plan and it identified some burrowing owl issues. Given infrastructure development, probably a fire or two, and construction of buildings and homes, there is little left in terms of meaningful shrub steppe habitat and associated species. Vegetation types observed within the study area is depicted in **Figure 4**. The vegetation community on the hillside north of the project footprint is adequately described as Eastside Steppe per WDFW 2008 insofar as the prevailing cover component is bluebunch wheatgrass with scattered shrubs (rabbitbrush).

None of the federal ESA-listed species in **Table 1** would be affected by the proposed project due to lack of suitable habitat within the study area. No impacts to migratory bird nests would result from the proposed project due to lack of suitable habitat. No trees, large shrubs, or infrastructure that would support raptor nests are present within the study area. No nests of any kind, including swallows or passerines, were observed.

Of the state-regulated species listed in **Table 2,** none are likely to be adversely affected by the proposed project, as determined in **Table 3**.

Figure 4. Vegetation Types

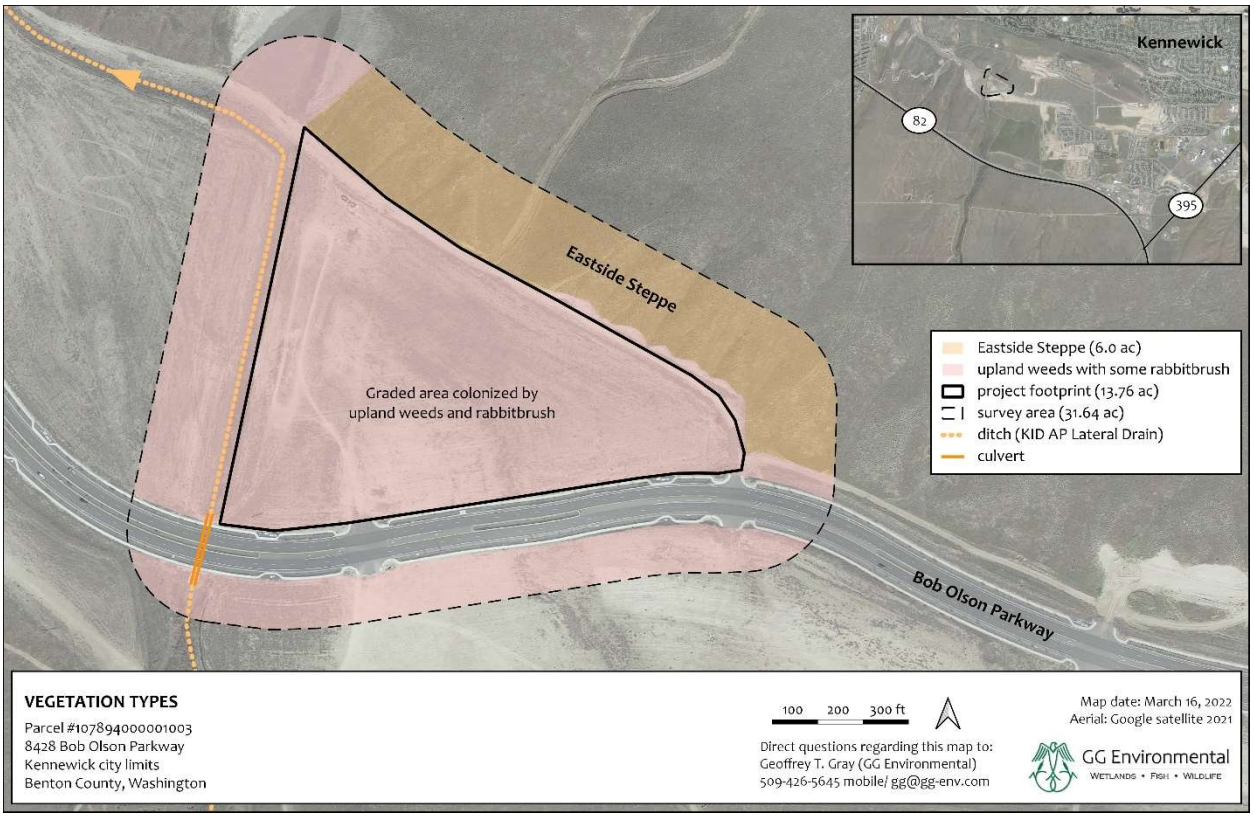


Table 3. WDFW Priority Habitats and Species – Determination

Species or Habitat	Determination
Townsend's ground squirrel	**Not likely present.** Although the survey was completed early in the year, prior to a typical April-May survey window, no TGS sign was observed. Survey data, given the disturbance history of the vicinity as communicated by WDFW (2022b), suggests that TGS is not likely present within the study area.
Burrowing owl	**Not likely present.** No burrowing owl sign was observed. These survey data, given the disturbance history of the vicinity as communicated by WDFW (2022b), suggests that burrowing owl is not likely present within the study area.
Shrub-steppe	**Not present.** In an undisturbed condition, shrub cover, dominated by big sagebrush and other co-dominant shrubs, varies between 10 to 30 percent or greater. Shrub height typically is medium tall (1.6-3.3 ft) although some sites support shrubs approaching 9 feet tall (WDFW 2009). This vegetation community is not present in the study area.
Eastside Steppe	**Present.** The hillslope is dominated by bluebunch wheatgrass, interspersed with cheatgrass. Scattered rabbitbrush and arrowleaf balsamroot are also present. However, this vegetation community lies outside the project footprint.
Freshwater Forested/Shrub Wetland	**Not present.** The former (pre-2016) location of the APLD is mapped by the NWI as Freshwater Forested/Shrub Wetland. However, no wetlands were identified within the existing APLD alignment (ditch).
Streams	**"Present" but not regulated.** The APLD ditch may function as a channelized, seasonal stream but it is highly modified and is a component of the Amon Wasteway and Drain System managed by KID. The City of Kennewick does not regulate the ditch as a stream (City of Kennewick 2022). A second stream feature, mapped as "Riverine" by the NWI and bisecting the project footprint, is not present onsite.

4.3. Washington Natural Heritage Program

Wetlands, rare plants, and nonvascular species of high conservation value are mapped by the Washington State Department of Natural Resources (DNR), Washington Natural Heritage Program (WNHP) (DNR 2022). Known locations were queried for a five-mile radius around the project footprint. One rare plant occurrence is documented 3.5-miles north of the project footprint near the Columbia River (**Appendix A-4**). Given the large distance and existing urban development between the project footprint and the mapped occurrence, no adverse effect is anticipated to result from the project.

5. Consultant Qualifications

Geoffrey Gray is a professional biologist and wetland scientist whose 25-year career has provided him with a unique breadth of experience that can readily assist you in moving your project forward.

Investing eight years in higher education, he earned a Bachelor's Degree in Business Management and a Master's degree in Biology from California State University at Fresno.

Continuously employed as a wetland, fish, and wildlife biologist since 1997, while serving tenures in field research, a large environmental consulting firm, state agencies in both California and Washington, and 10 years as an independent environmental consultant, Geoff's resume includes 17 years of full-time duty as a wetland biologist, with experience ranging from the unique vernal pool wetland habitats of California's Central Valley to the diverse wetlands of Eastern Washington State, stretching from the Cascade crest to Idaho.

Spanning his career, Geoff has performed over 120 wetland delineations and has managed 35 wetland mitigation/riparian restoration sites. As a fish and wildlife biologist, he has evaluated over 700 projects for compliance under the Endangered Species Act, including 128 federal consultations.

Geoff founded GG Environmental in 2015, and has since served a diverse palette of clients including habitat restoration groups, private landowners, real estate firms, private industry, and city governments who need assistance in overcoming the challenges of Critical Areas/Shorelines permitting and Endangered Species Act consultation.

A professional-level GPS/GIS user for over 20 years, Geoff employs cutting-edge GPS technology in the field and is proficient in GIS mapping with ArcGIS and QGIS.

Certified as a Professional Wetland Scientist by the Society of Wetland Scientists, Geoff's work is performed to the highest standards and is fully insured (Align General #ENV562007841-00, Allstate 648953645).

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Appendix A. Background Information

Appendix A includes the following sub-appendices:

A-1 USFWS National Wetlands Inventory

A-2 NRCS Soil Survey Map

A-3 Amon Wasteway and Drain System Map

A-4 Wetlands and Rare Plants of Conservation Value

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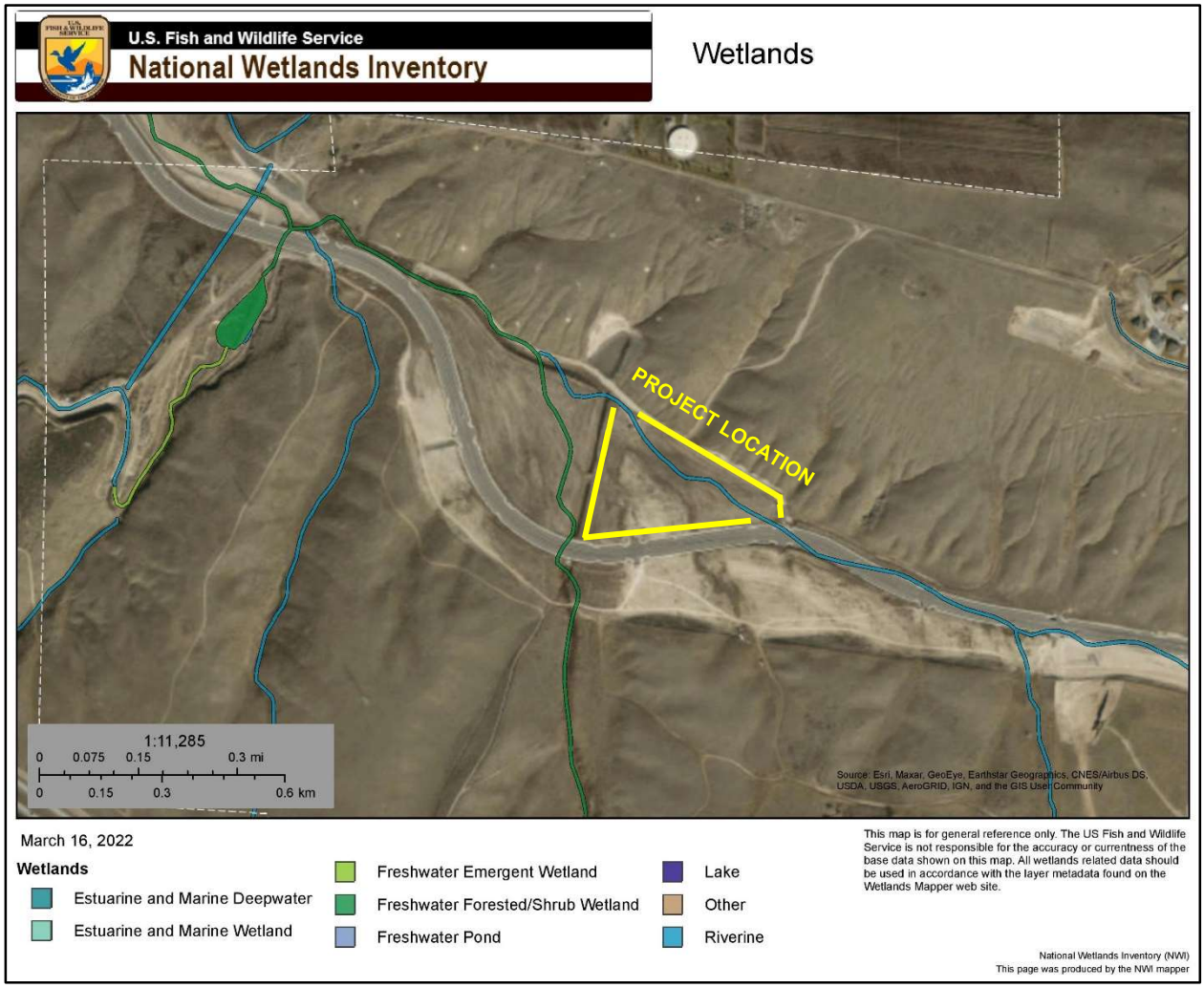
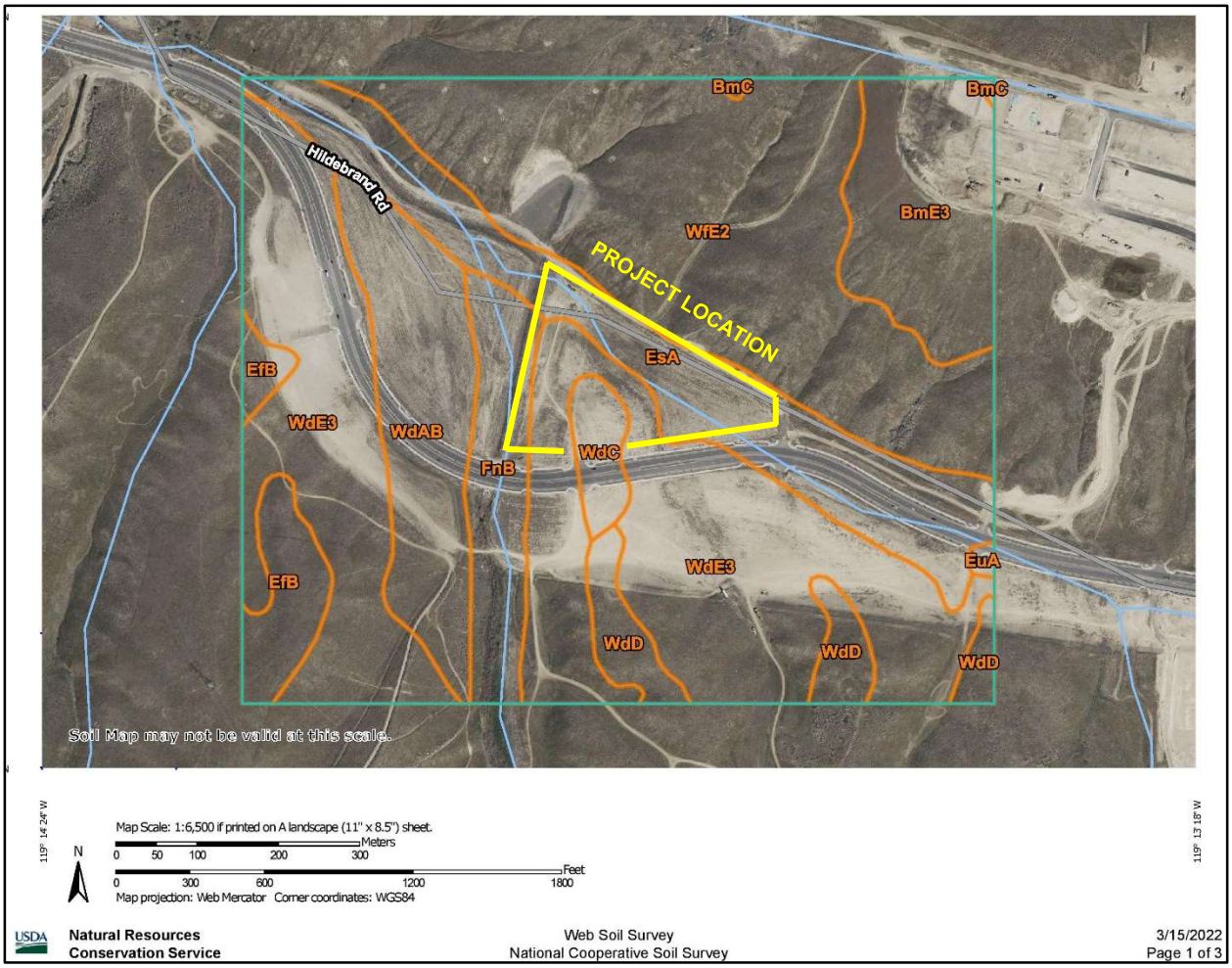
Appendix A-1. National Wetlands Inventory



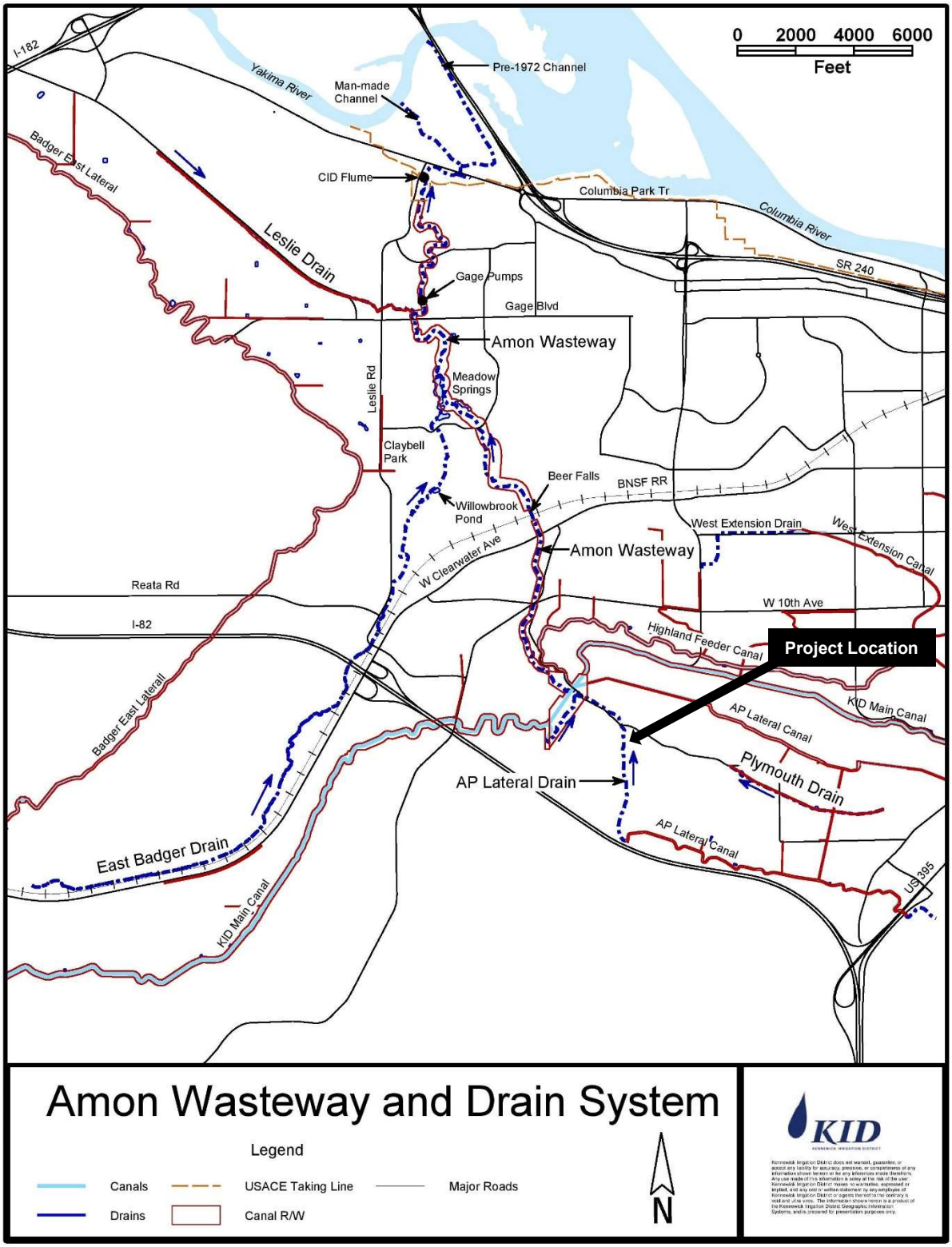
Appendix A-2. NRCS Soil Survey Map



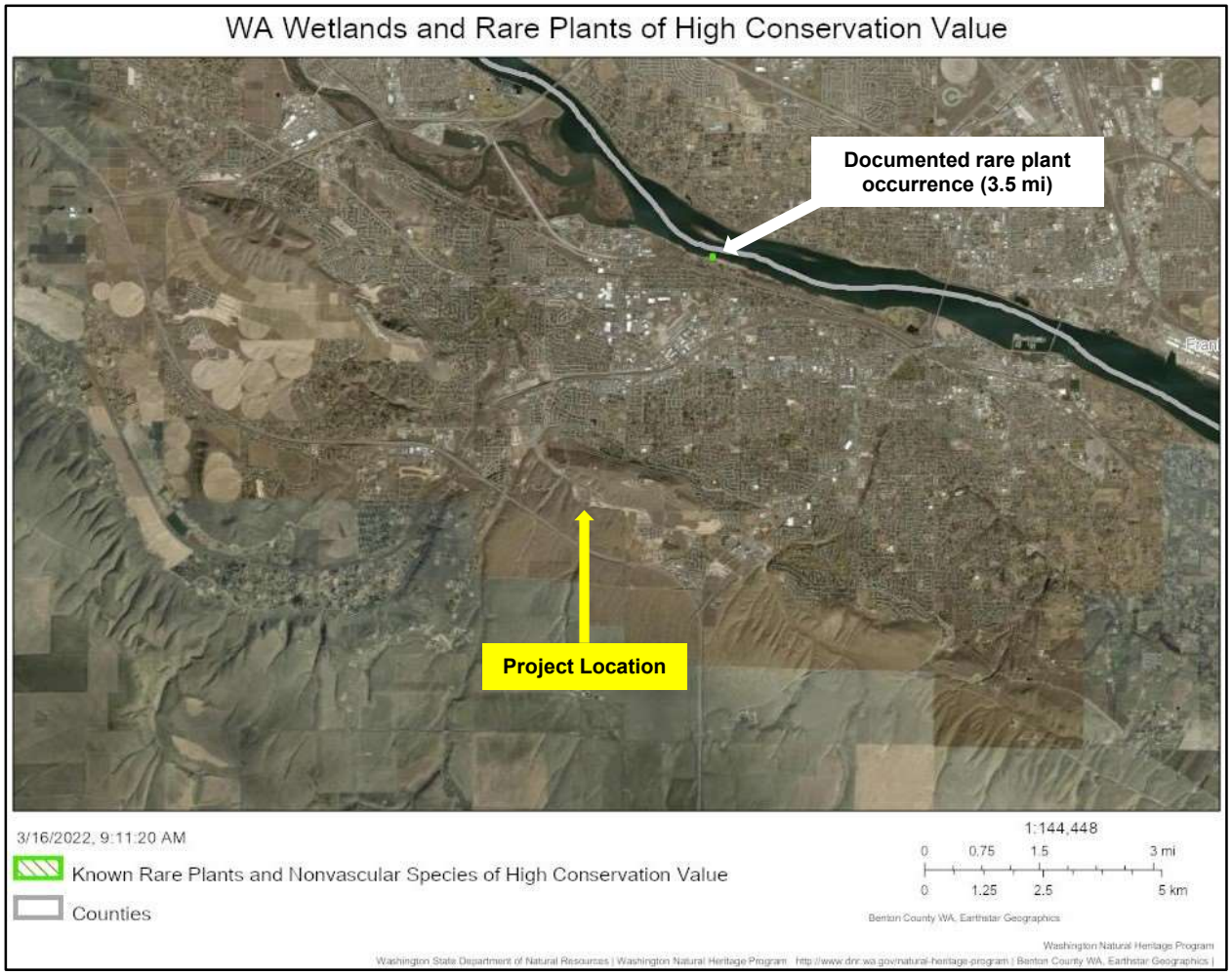
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BmC	Burke silt loam, 5 to 8 percent slopes	0.3	0.2%
BmE3	Burke silt loam, 15 to 30 percent slopes, severely eroded	13.8	7.8%
EfB	Ellisforde silt loam, 0 to 5 percent slopes	5.9	3.3%
EsA	Esquatzel fine sandy loam, 0 to 2 percent slopes	22.0	12.4%
EuA	Esquatzel silt loam, 0 to 2 percent slopes	0.3	0.2%
FnB	Finley fine sandy loam, moderately deep, 2 to 5 percent slopes	9.1	5.2%
WdAB	Warden silt loam, 0 to 5 percent slopes	15.6	8.8%
WdC	Warden silt loam, 5 to 8 percent slopes	2.7	1.5%
WdD	Warden silt loam, 8 to 15 percent slopes	6.0	3.4%
WdE3	Warden silt loam, 15 to 30 percent slopes, severely eroded	56.5	32.0%
WfE2	Warden very fine sandy loam, 15 to 30 percent slopes, eroded	44.7	25.3%
Totals for Area of Interest		**176.9**	**100.0%**

Appendix A-3. KID Amon Wasteway and Drain System



Appendix A-4. Wetlands and Rare Plants of Conservation Value



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Appendix B. Photos

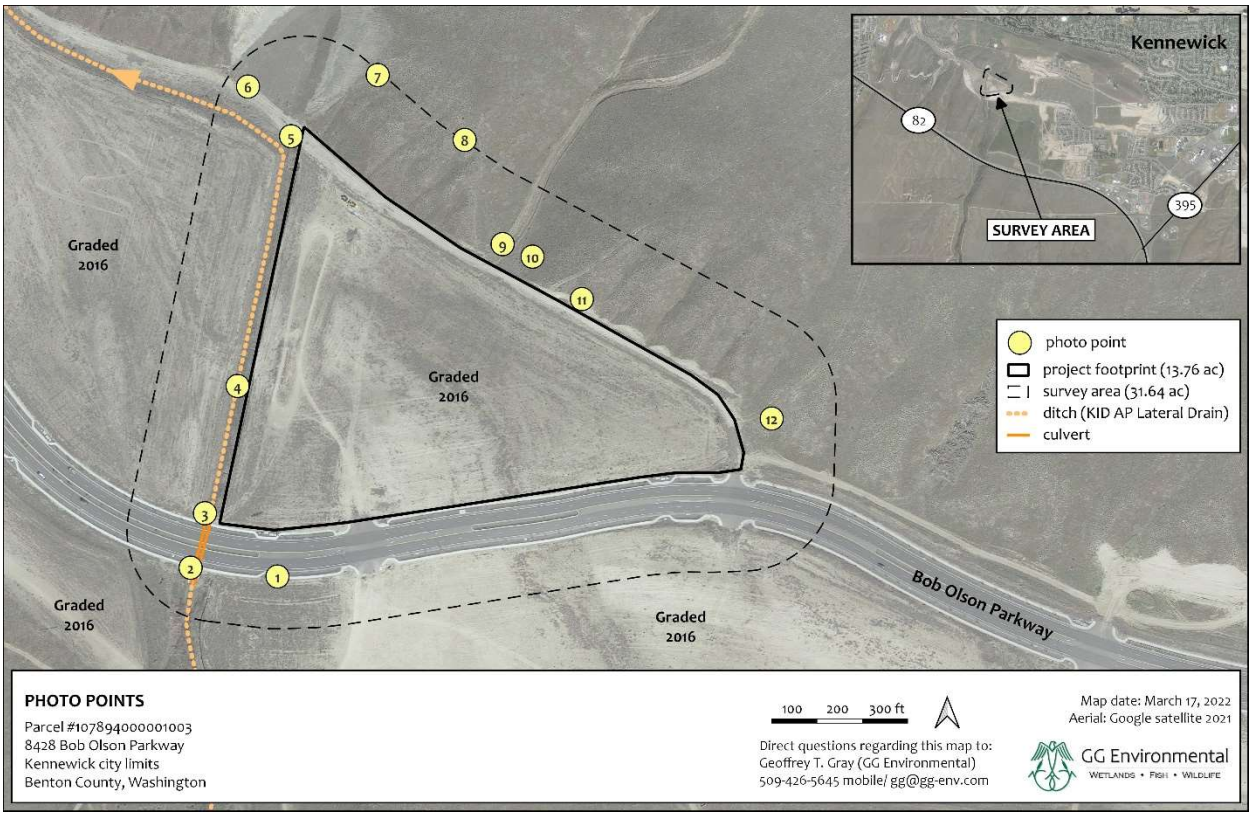

Photo Point 1
view toward south

Photo Point 2
view toward south

Photo Point 3
view toward north

Photo Point 4
view toward north

Photo Point 5
view toward south

Photo Point 6
view toward east

Photo Point 7
view toward south

Photo Point 8
view toward south

Photo Point 9
view toward northeast

Photo Point 10
view toward northeast

Photo Point 11
view toward southeast

Photo Point 12
view toward northwest

Appendix C. Plants and Wildlife Observed

SURVEY DATES: February 11, 2022, March 11, 2022.

Dominant Plants Observed in Disturbed Areas, Including Ditch

Achillea millefolium	Common yarrow	native
Bassia scoparia	Mexican-fireweed	Benton County Class B noxious weed[10]
Bromus tectorum	cheatgrass	non-native
Centaurea solstitialis	yellow star thistle	Benton County Class B noxious weed
Elaeagnus angustifolia	Russian olive	State Class C noxious weed[11]
Lactuca serriola	prickly lettuce	Non-native
Phalaris arundinaceae	reed canarygrass	Benton County Class C noxious weed
Salix exigua	coyote willow	native
Salsola tragus	prickly Russian-thistle	non-native
Sisymbrium altissimum	tumble mustard	non-native
Symphyotrichum sp.	aster, possibly *chilense*	native
Tragopogon dubius	yellow goat's beard	non-native

Plants Observed on the Hillside

Balsamorhiza sagittata	arrowleaf balsamroot	native
Bromus tectorum	cheatgrass	non-native
Chrysothamnus nauseosus	yellow rabbitbrush	native
Pseudoroegneria spicata	bluebunch wheatgrass	native

Wildlife Observed

Canis latrans	Coyote (scat)	native
Small rodents (burrows)	Vole, gopher	native

[10] Benton County (2022)
[11] Washington State (2022)

Exhibit A-8

Northern, Inc.

Consulting Engineers Environmental Scientists Geologists
Construction Materials Testing Geophysical Services

GEOTECHNICAL SITE INVESTIGATION AND CRITICAL AREAS REPORT

PROPOSED KENNEWICK MULTI-FAMILY APARTMENTS
8224 BOB OLSON PARKWAY
KENNEWICK, WASHINGTON

GNN PROJECT NO. 222-1508

MARCH 2022

Prepared for

RED TAIL DEVELOPMENT, LLC
2082 MICHELSON DRIVE, 4TH FLOOR
IRVINE, CALIFORNIA 92612

Prepared by

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March 29, 2022 **GNN Project No. 222-1508**

Red Tail Development LLC
2082 Michelson Drive, 4th Floor
Irvine, California 92612

Attention: Ron Wu

CC: Kelly Nguyen – knguyen@murowdc.com
Bob Garrison – bgarrison@murowdc.com

Subject: Geotechnical Site Investigation & Critical Areas Report
Proposed Kennewick Multi-Family Apartments
8224 Bob Olson Parkway, Kennewick, Washington

Dear Mr. Wu:

As requested, GN Northern (GNN) has completed a geotechnical site investigation and critical areas report for the proposed Kennewick Multi-Family Apartments to constructed at 8224 Bob Olson Parkway in Kennewick, Washington.

Based on the findings of our subsurface study, we conclude that the site is suitable for the proposed construction provided that our geotechnical recommendations presented in this report are followed during the design and construction phases of the project.

This report describes in detail the results of our investigation, summarizes our findings, and presents our recommendations concerning earthwork and the design and construction of foundation for the proposed project. It is important that GN Northern provide consultation during the design phase as well as field compaction testing and geotechnical monitoring services during the construction phase to review and monitor the implementation of the geotechnical recommendations.

If you have any questions regarding this report, please contact us at 509-734-9320.

Respectfully submitted,
GN Northern, Inc.

Karl A. Harmon, LEG, PE
Senior Geologist/Engineer

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Appendix V – NRCS Soil Survey
Appendix VI – WA DOE Well Logs

1.0 EXECUTIVE SUMMARY

GN Northern (GNN) has prepared this executive summary to provide a general overview of the geotechnical site investigation and critical areas report for the proposed Kennewick Multi-Family Apartments development. The report itself should be relied upon for information about the findings, conclusions, recommendations, and other concerns.

We understand that Red Tail Development, LLC intends to develop the 13.76-acre property with fourteen (14) 3-story buildings comprising 300 multi-family apartment units, a club house and amenity areas. The subject site currently consists of undeveloped land that has recently been cut graded to form a relatively flat site. A *Conceptual Site Plan*, prepared by Architects Orange, was provided by you via email on February 4, 2022. It is important that GNN be given an opportunity to review the final grading and foundation plans to provide revised or augmented recommendations, if warranted.

Surface soils are generally considered to be moderately to highly erodible. Portions of the project site are mapped within the City of Kennewick's Critical Areas for geologic hazards consisting of Steep Slopes (>15%) and Erosion Hazard due to potentially erodible soils.

The intent of this report is to assess various geologic hazards and geotechnical constraints that may impact the proposed development at the site and provide our geotechnical related recommendations for appropriate development as well as mitigation of potential hazards, as necessary. Our evaluation of potential geologic hazards / critical areas has been prepared for general compliance with the requirements of the City of Kennewick's Critical Areas Ordinance No. 5206, Chapters 18.58 and 18.62.

Our site assessment was performed to identify common geologic conditions in the project region, including general and site-specific soil and bedrock conditions, groundwater, slopes, drainage, erosion, and geologic hazards. A review of selected information pertaining to the subject property and surrounding region was performed that included published technical literature, published geologic maps, available aerial photographs, and previous geotechnical/geologic studies prepared for other sites in the vicinity. Site-specific geologic and geotechnical data was obtained from our

field exploration program consisting of sixteen (16) test-pits to observe the subsurface soil conditions and obtain samples for laboratory testing.

Based on our geotechnical site evaluation and analyses, our findings indicate that the proposed project can be constructed as planned, provided that the recommendations in this report are incorporated in the final design and construction. The subject property is situated in an area where sheet flow and erosion may occur, and near-surface site soils are known to exhibit a risk for erosion. Erosion concerns will require mitigation with appropriate best management practices (BMPs), including proper drainage design as well as collection and disposal (conveyance) of water to approved points of discharge in a non-erosive manner.

In our professional opinion, the proposed project can be constructed as planned, provided that the recommendations in this report are incorporated in the final design and construction. Based on our site evaluation, near surface site soils will not be subject to a significant threat of erosion, provided that the recommendations within this report are incorporated during site grading operations along with appropriate project design, construction, and maintenance. Furthermore, although the site has been mapped with steep slopes on the City's Critical Areas Map, this concern has been mitigated with recent site grading that has cut the topography to create a relatively flat and level surface

2.0 INTRODUCTION

2.1 Project Description

This Geotechnical Site Investigation and Critical Areas Report has been prepared for the 13.76-acre site of the proposed multi-family apartment project located at 8224 Bob Olson Parkway, in the City of the Kennewick, Benton County, Washington. Portions of the the subject property lie within the City of Kennewick – Critical Areas Map - Geologically Hazardous Areas Map, with selected areas mapped for steep slopes and erosion hazards. We understand that the proposed development will include fourteen (14) 3-story buildings comprising 300 multi-family apartment units, a club house, amenity areas, along with associated parking, drive lanes, landscaping, and infrastructure improvements.

We anticipate the 3-story apartment buildings will be constructed using wood-frame construction with slab-on-grade. We assume that the structures will be founded on shallow spread type foundations. Structural loading information was not available at the time of this report. Based on our experience with similar projects, we expect wall loads to be on the order of 3.0 to 4.0 klf and maximum column loads for the structure to be less than 100 kips. If loading conditions differ from those described herein, GNN should be given an opportunity to perform re-analysis. Settlement tolerances for the structure is assumed to be limited to 1 inch, with differential settlement limited to ½ inch.

2.2 Purpose and Scope of Services

The purpose of our services was to evaluate the surface and subsurface soil and bedrock conditions and potential geologic hazards as they relate to the proposed development, and provide professional opinions and recommendations regarding design and construction of the proposed development and for mitigation of any identified geologic hazards and constraints. Our study was completed in general accordance with our *Proposal for Geotechnical Engineering Services* dated February 7, 2022; notice to proceed was provided via email on February 17, 2022 by Tyler White, Project Manager, with Red Tail Multifamily Land Development, LLC. The scope of work included the following:

- A detailed reconnaissance of the site.
- Subsurface exploration by excavating sixteen (16) exploratory test-pits.
- Laboratory testing of selected soil samples obtained from the exploratory test-pits.
- A review of selected published technical literature pertaining to the site and previous geotechnical/geologic reports prepared for similar projects in the vicinity.
- Review of selected available geologic maps, soil maps, historic aerial photos, USGS topographic maps, and WA State DOE water well logs for the project site and/or vicinity.
- A geologic/engineering analysis and evaluation of the acquired data from the exploration and testing programs.
- A summary of our findings and recommendations in this written report.

This report contains the following:

- A summary of field exploration and laboratory test data.
- Discussions on subsurface soil and groundwater conditions.
- Discussions on regional and local geologic conditions.
- Discussions on geologic and seismic hazards.
- Recommendations regarding site development and grading criteria.
- Recommendations for geotechnical design parameters and bearing capacity.

3.0 METHODS OF EXPLORATION AND TESTING

3.1 Technical Literature and Aerial Photo Review

A review of selected information pertaining to the site and surrounding area was performed that included published technical literature, published geologic maps, aerial photographs and previous geotechnical and geologic reports prepared for other sites in the vicinity. The review was performed to identify typical geotechnical and geologic constraints that may affect the proposed development, including soil and bedrock conditions, groundwater, slopes, drainage, erosion, and geologic hazards.

3.2 Field Reconnaissance

Field reconnaissance of the subject property was performed in conjunction with our subsurface exploration on March 8, 2022, to observe the on-site surficial geologic and geotechnical conditions and to confirm the data obtained from our technical literature review.

3.3 Field Exploration

Our field exploration was completed on March 8, 2022. A local public utility clearance was obtained prior to the field exploration. Sixteen (16) test pits were completed at locations shown on the *Site & Exploration Map* (Figure 2, Appendix I). The test-pits were excavated by Big D's Construction using a CASE CX160 track-hoe to depths ranging from approximately 13 to 14.5 feet below existing ground surface (BGS). The test-pits were logged by a GNN field geotechnical engineer. Upon completion, the test-pits were loosely backfilled with the excavated spoils. Test-pit locations are shown on *Site Exploration Map* (Figure 2, Appendix I).

The soils observed during our field exploration were classified according to the Unified Soil Classification System (USCS), utilizing the field classification procedures as outlined in ASTM D2488. A copy of the USCS Classification Chart is included in Appendix II. Photographs of the site are presented in Appendix IV following this report. Depths referred to in this report are relative to the existing ground surface elevation at the time of our investigation. The surface and subsurface conditions described in this report are as observed at the time of our field investigation.

3.4 Laboratory Testing

Representative samples of the exposed soils obtained from the test-pits were selected for testing to determine the index properties of the subsurface soils in general accordance with ASTM procedures. The following laboratory tests were performed:

Table 1: Laboratory Tests Performed

Test	To determine
Particle Size Distribution (ASTM D6913)	Soil classification based on proportion of sand, silt, and clay-sized particles
Natural Moisture Content (ASTM D2216)	Soil moisture content indicative of in-situ condition at the time samples were taken

Results of the laboratory test are included on the test-pit logs and are also presented in graphic form in Appendix III attached to the end of the report.

4.0 DISCUSSION

4.1 Site Conditions

The 13.76-acre irregular-shaped project site is located on the north side of Bob Olson Parkway between W. Hildebrand Road and S. Sherman Street. The site is located in the SE ¼ of the SW ¼ and in the SW ¼ of the SE ¼ of Section 7, Township 8 North and Range 29 East, Willamette Meridian, Benton County, Washington. The undeveloped project site is generally covered with a sparse to moderate growth of weeds and sagebrush.

The site is bound by concrete sidewalks along Bob Olson Parkway to the south/southeast, an existing drainage ditch to the west, and an ascending slope to the north/northeast. Surface conditions include a relatively gentle downward slopes going east, west, and north from the location of the historic hill. A dirt road has been constructed along the base of the slope to the north of the site and is elevated approximately 5 feet above the project site grade.

The site has been historically cut-graded to a relatively flat and level surface condition. A large hill used to be located near the center of the western portion of the site and had ~30 feet of relief from top to bottom of the hill. Recent aerial photographs obtained from Google Earth (shown below) show the general sequence of an apparent native condition in 2013, an actively graded site in 2016, and the transition to a relatively flat site.

4.2 Subsurface Soil Conditions

Based on our subsurface exploration and the results of laboratory testing, subsurface soils at the site primarily consist of native silt. The site soils were predominately classified as Silt (ML) and Silt with Sand (ML). These native onsite silty site soils consist of alluvial and/or lacustrine deposit. The native soils were observed to have a relative in-place density of 'medium dense' to 'very dense' and were typically observed to be 'moist' to 'damp'. Test-pit logs in Appendix II show detailed descriptions and stratification of the soils encountered.

4.3 NRCS Soil Survey

Although known to have been altered at the surface from recent site grading activity, the soil survey map of the site prepared by the Natural Resources Conservation Service (NRCS) identifies native site soils as *Esquatzel fine sandy loam, 0 to 2 percent slopes (EsA), Finley fine sandy loam, 2 to 5 percent slopes (FnB), and Warden silt loam (WdC & WdE3)* and *very fine sandy loam (WfE2),* situated on slopes ranging from 5 to 30%. The landform settings for these soils are identified as flood plains and terraces.

The parent material for the *Esquatzel* and *Finley* soils is identified as alluvium. The parent material for the *Warden* soils is identified as loess over lacustrine deposits. According to the NRCS, these units generally consist of *well drained* materials with a capacity of the most limiting layer to transmit water (Ksat) identified as *moderately high* to *high* (0.57 to 1.98 in/hr). Refer to the *NRCS Soil Survey Map* in Appendix V for more details.

4.4 Groundwater

Groundwater was not encountered within any of the test pits to a maximum depth of approximately 14.5 feet BGS. No evidence of onsite surface ponding, springs or seeps was noted during our site reconnaissance. To assist in our evaluation, we have reviewed the Washington State Department of Ecology (DOE) database of nearby well logs (see Appendix VI) to estimated groundwater levels in the vicinity. Based on our review of these well logs, the groundwater table in the site vicinity has been noted at depths ranging from 15 to 26 feet BGS. Groundwater levels will fluctuate with precipitation, irrigation, drainage, and regional pumping from wells. Evaluation of these factors is beyond the scope of our current study.

4.5 Geologic Setting

Regional Geology: The project site is located on the northern slopes of the Horse Heaven Hills of the Yakima Fold Belts within the vast Columbia Basin physiographic province of southeastern Washington. The Horse Heaven Hills consist of an east-west trending anticline ridge of the Yakima Fold Belt formed by north–south compression in the regional lava flows. This region is underlain by a sequence of lava flows identified as the Miocene Columbia River Basalt Group (CRBG) which emanated from fissures and vents in Oregon, Washington, and Idaho approximately 12 to 26 million years ago. The Columbia River Basalts cover over 35% of the state of Washington, with some areas believed to be in excess of 15,000 feet thick.

Near the end of the Pleistocene, the Columbia Basin was subjected to a series of incredibly massive, high energy floods known as the Missoula Floods. During this time, a lobe of the Cordilleran ice sheet extended south into Idaho, damming up the Clark Fork River and creating Glacial Lake Missoula, impounding as much as 500 cubic miles of water. These ice dams periodically failed and then reformed numerous times during this period, draining the lake

suddenly and unleashing a series of massive torrents of water that significantly scoured and altered landscapes in the Columbia Basin including significant erosion and deposition.

Local Geology: In the Tri-Cities area the uppermost layers of the CRBG are fractured bedrock of the Wanapum Basalt formation. Regionally, the top surface of the Wanapum Basalt is known to slope to the northeast toward the Columbia River, although local variations exist in the area. Overlying sediments at the project site include surficial deposits of Plio-Pleistocene loess, including silt and fine-grained sands, along with localized areas of Quaternary alluvium and a sequence of Pleistocene-age outburst flood deposits, commonly identified as the Missoula Flood Deposits. Based on the findings of our subsurface exploration, bedrock will not be encountered to the anticipated depths of excavations at the site.

4.6 Seismic Design Parameters

As per the *2018 International Building Code* (IBC), a Site Class 'D' may be used for seismic design purposes. Site Class 'D' corresponds to 'stiff soil'. The following site-specific design values may be used:

Table 2: IBC 2018 Design Response Spectra Parameters

Seismic Design Parameter	Value (unit)	Definition
S_S	0.431 (g)	MCE spectral response acceleration at short periods
S_1	0.163 (g)	MCE spectral response acceleration at 1-second period
F_a	1.455 (unitless)	Site coefficient for short periods
F_v	2.274 (unitless)	Site coefficient for 1-second period
S_{MS}	0.627 (g)	MCE spectral response acceleration at short periods as adjusted for site effects
S_{M1}	0.371 (g)	MCE spectral response acceleration at 1-second period as adjusted for site effects
S_{DS}	0.418 (g)	Design spectral response acceleration at short periods
S_{D1}	0.247 (g)	Design spectral response acceleration at 1-second period

5.0 GEOLOGIC HAZARDS

Geologic hazards that may affect the development include seismic hazards (ground shaking, surface fault rupture, soil liquefaction, and other secondary earthquake-related hazards), slope instability, flooding, ground subsidence, and erosion. A discussion follows on the specific hazards to this site:

5.1 Surface Fault Rupture

For the purposes of this report, an active fault is defined as a fault that has had displacement within the Holocene epoch or last 11,000 years. While the region is subject to areas of known faulting and deformation related to activity along the Yakima Fold Belts, due to the lack of any known active fault traces in the immediate site vicinity, surface fault rupture is unlikely to occur at the subject property. While fault rupture would most likely occur along previously established fault traces, future fault rupture could occur at other locations.

5.2 Seismic Conditions

The Tri-Cities area is generally not considered to be located within an area of high seismic activity. There are no confirmed major faults in the Benton County region capable of producing strong earthquakes. Anticipated ground motions in the region due to seismic activity along faults in other parts of the Northwest are relatively low.

5.3 Secondary Seismic Hazards

Secondary seismic hazards related to ground shaking include soil liquefaction, ground subsidence, tsunamis, and seiches. The site is far inland, so the hazard from tsunamis is non-existent. The potential hazard from seiches in also nil due to the lack of any significant nearby surface water bodies and the noted low magnitudes of potential seismic shaking.

5.4 Soil Liquefaction

Liquefaction is the loss of soil strength from sudden shock or vibration (usually earthquake shaking), causing the soil to become a fluid mass. Liquefaction results in a loss of soil strength and can cause the structure/utility to settle if it occurs in the bearing zone. Soil liquefaction is a natural phenomenon that occurs when saturated granular soils (below the water table) are subjected to vibratory motions, causing an increase in the water pressure within soil pores, as the soil tends to

reduce in volume. When the pore water pressure reaches the vertical effective stress, the soil particles become suspended in water causing a complete loss in soil strength.

Based on the published *Liquefaction Susceptibility Map of Benton County, Washington* (dated September 2004) prepared by Washington State Department of Natural Resources, the potential for liquefaction to occur at this site is considered 'Moderate to High'.

In general, for the effects of liquefaction to be manifested at the surface, groundwater levels must be within 50 feet of the ground surface and the soils within the saturated zone must also be susceptible to liquefaction. Liquefaction can cause excessive structural settlement, ground rupture, lateral spreading (movement), or failure of shallow bearing foundations. The following four conditions are generally required for liquefaction to occur and none of these conditions apply to this site:

- The soils must be saturated below a relatively shallow groundwater level. Generally speaking, shallow groundwater level is considered 10 feet or less. *Groundwater was not encountered in the test pits to a depth of 14.5 feet BGS. Groundwater depths range from 15 to 26 feet BGS in the site vicinity.*
- The soils must be loosely deposited (low to medium relative density). Saturated soils with SPT blow counts less than 20 to 30 are potentially susceptible to liquefaction, depending on the severity of seismic loading. *Based on the results of our field exploration, the soils exhibit dense to very dense relative density.*
- The soils must be relatively cohesionless (not clayey). Clean, poorly graded sands are the most susceptible. Silt (fines) content increase the liquefaction resistance in that more cycles of ground motions are required to fully develop pore pressures. Saturated soils with less than 15 percent fines are potentially susceptible to liquefaction. *The site soils are Silt, Silt with sand and Sandy Silt with fines content ranges from 61 -97 percent.*
- Ground shaking must be of sufficient intensity to act as a trigger mechanism. Two important factors that affect the potential for soil liquefaction are duration as indicated by earthquake magnitude (M) and intensity as indicated by peak ground acceleration (PGA). *The Tri-Cities area is <u>not</u> considered to be located within an area of high seismic activity.*

There are no confirmed major faults in the Benton County region capable of producing strong earthquakes.

Based on the findings of our site exploration and review of available geologic data, the risk from liquefaction at the project site is generally considered to be relatively low. A full detailed analysis of the risk from liquefaction settlement and lateral spreading at the project site was beyond the scope of our services for this project.

5.5 Site Slopes

Portions of the subject property lie within the City of Kennewick – Critical Areas Map - Geologically Hazardous Areas Map, with selected areas mapped for steep slopes and erosion hazards. However, due to relatively recent grading activities conducted at the site, the site has been cut to a relatively flat and level surface. The only slopes currently present at the site are located along the northern perimeter of the site, below the elevated dirt roadway. A field reconnaissance of the subject property was performed to observe site conditions and correlate the information gathered from our preliminary research. During our reconnaissance we looked for common geomorphic features of landslides as well as indications of possible signs demonstrating recent activity and instability of slide masses. No indications of recent failures or significant slope instability were observed on or near the site.

5.6 Flooding and Erosion

The subject property is not located in area mapped by FEMA regarding flooding concerns. Portions of the subject property are however situated in areas where sheet flow and erosion may occur. The near-surface site soils and surface conditions are known to exhibit a moderate to severe risk for erosion.

Erosion susceptibility from water is based on several factors, including the intensity of rainfall and runoff, soil erodibility, length and steepness of slopes, and surface condition. The erodibility factor of the soils is a measure of the soils resistance to erosion based on its physical characteristics. Typically, very fine sand, silt and clay soils are generally susceptible to erosion. Based on site specific field exploration, observations, and laboratory testing, the surficial soil exposed at the project site consists primarily of silt with fine sand (sandy loam).

Soil erodibility is only one of several factors affecting the erosion susceptibility. Soil erosion by water also increases with the length and steepness of the site slopes due to the increased velocity of runoff and resulting greater degree of scour and sediment transport. Appropriate erosion and sediment control plan(s) and a drainage plan shall be prepared by the project civil engineer with the final construction drawings.

The need for and design of flood control devices and erosion protection measures is within the purview of the design Civil Engineer and/or Landscape Architect. In general, erosion should be mitigated with best management practices (BMPs) consisting of proper drainage design including collecting and disposal (conveyance) of water to approved points of discharge in a non-erosive manner, placement of vegetative covers and erosion control mats to on slope surfaces. Appropriate project design, construction, and maintenance will be necessary to mitigate the site erosion hazards.

6.0 FINDINGS AND CONCLUSIONS

The following is a summary of our findings, conclusions and professional opinions based on the data obtained from a review of selected technical literature and the site evaluation:

General:

- ***Based on our current understanding of the proposed development and subsurface conditions encountered, from a geologic & geotechnical perspective, it is our professional opinion that the site is suitable for the proposed development, provided the recommendations in this report are followed in the design and construction of this project. GN Northern shall be consulted during the design phase to review the final site grading and drainage plans and confirm that the geotechnical recommendations are incorporated in the design plans.***

Geologic/Geotechnical Constraints and Mitigation:

- The primary geologic hazard and site constraint for the proposed project is surface erosion, which is considered minimal. Appropriate engineered design of stormwater management and disposal facilities will readily mitigate this concern. Preventative measures to control runoff and reduce erosion should be incorporated into site grading plans.

- Other common geologic hazards, including fault rupture, liquefaction, and seismic shaking are considered low or negligible on this site.
- Free groundwater was not encountered in any of the exploration test-pits. Groundwater depth in the site vicinity is believed to be greater than 15 feet BGS. Groundwater will not be a factor in design or construction at the project site.
- Excavation of the native silt soils can be accomplished with most types of conventional earth excavation equipment.
- Adherence to the preliminary grading recommendations in this report should reduce the potential risk of erosion and settlement.
- The onsite soils are suitable for use as engineered fill and utility trench backfill, provided they are free of significant organic or deleterious matter.
- Based on our experience with similar soil types in this area, the use of Type I cement is considered suitable for foundation construction.
- Site grading, excavation, placement of fill, setbacks, drainage and terracing, and erosion control shall conform to the provisions of Appendix J, *Grading*, of 2018 IBC. Any deviations or revision incorporated into the final design shall be approved by the Geotechnical Engineer of Record.
- The near-surface site soils are susceptible to wind and water erosion when exposed during grading operations. Preventative measures and appropriate BMPs to control runoff and reduce erosion should be incorporated into site grading plans.
- The underlying geologic condition for seismic design is site class 'D'. The *minimum* seismic design should comply with the *2018 International Building Code* (IBC) *Minimum Design Loads for Buildings and Other Structures*.
- ***In our professional opinion, the proposed development at the site will not pose a threat to the health or safety of the public, or increase hazards to surrounding properties, provided the recommendations in this report are followed in the design and construction of this project.***

7.0 GEOTECHNICAL RECOMMENDATIONS

The following geotechnical recommendations are based on our current understanding of the proposed project as described in Section 2.0 of this report. The report is prepared to comply with the 2018 International Building Code Section 1803, Geotechnical Investigations, and as required by Subsection 1803.2, Investigations Required. Please note that Soil Design Parameters and Recommendations presented in this report are predicated upon appropriate geotechnical monitoring and testing of the site preparation and foundation and building pad construction by a representative of GNN's **Geotechnical-Engineer-of-Record (GER)**. Any deviation and nonconformity from this requirement may invalidate, partially or in whole, the following recommendations. We recommend that we be engaged to review grading and foundation plans in order to provide revised, augmented, and/or additional geotechnical recommendations as required.

7.1 Site Grading

Site grading shall incorporate the requirements of IBC 2018 Appendix J. The project GER or a representative of the GER should observe site clearing, grading, and the bottoms of excavations before placing fills. Local variations in soil conditions may warrant increasing the depth of over-excavation and recompaction. Seasonal weather conditions may adversely affect grading operations. To improve compaction efforts and prevent potential pumping and unstable ground conditions, we suggest performing site grading during dryer periods of the year.

Soil conditions shall be evaluated by in-place density testing, visual evaluation, probing, and proof-rolling of the imported fill and re-compacted on-site soil as it is prepared to check for compliance with recommendations of this report. A moisture-density curve shall be established in accordance with the ASTM D1557 method for all onsite soils and imported fill materials used as structural fill.

Do not commence site clearing and grading operations until temporary erosion and sedimentation control measures are in place. Provide erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff to adjacent properties, hardscape areas, paved roadways and walkways, according to Stormwater Pollution Protection Plan (SWPPP) and requirements of the Authorities Having Jurisdiction (AHJ). Verify that flows of water are redirected from grading areas or runoff generated by construction activity do not enter work zones.

At the completion of the field exploration activities, the test pits were loosely backfilled with the excavated materials. At test pit locations within the proposed building footprints, over-excavate the loose backfill materials, and replace in accordance with Section 7.10.

Uniformly grade areas to a relatively smooth and level surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated on plans. Provide a smooth transition between adjacent existing grades and new grades. Use smooth bladed equipment to create undisturbed subgrades. Place backfill evenly adjacent to structures, piping, or conduit to required elevations. Wedging action shall be prevented of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift. A representative of the GER should verify the resulting subgrade consists of suitable, undisturbed soil and verify subgrade compaction and stability requirements are met.

Allow a representative of the GER to observe earth moving processes, to inspect and test subgrades and each fill or backfill layer, and to observe completed work. Proceed with subsequent earthmoving only after inspections confirm previously completed work complies with requirements. Inspections and tests include:

1. Determine prior to placement of fill that subgrade has been prepared in compliance with requirements of the Geotechnical Report and project specifications.
2. Determine that fill material classification and maximum lift thickness comply with requirements of the Geotechnical Report.
3. Determine, during placement and compaction, that in-place density of compacted fill complies with requirements of the Geotechnical Report and project specifications.

<u>7.1.1 Mitigation of Loose or otherwise Unsatisfactory Soils</u>: Over-excavate soft, loose, or wet soils, and areas of pumping or rutting, to a firm bearing surface or to a depth determined by the GER below working subgrade, extend over-excavation laterally beyond the delineated unstable area. A representative of the GER shall inspect the excavations when subgrade has reached the required elevation. If the GER determines that unsatisfactory soil is present, or that subgrade does not meet requirements specified herein, continue excavation and replace with suitable compacted

granular backfill or fill material as directed. Place each lift of backfill and fill soil materials evenly to the required elevations. Condition each lift of fill to near-optimum moisture content and compact to specified density before placing subsequent lifts. Proof-roll the subgrade with two or three passes of heavy construction equipment, such as a water truck or tandem axle dump truck that is fully loaded, to identify remaining soft, loose, or pumping areas within the working subgrade. In areas not accessible by trucks for proof rolling, during wet weather, or when the exposed subgrade is unsuitable for proof rolling, the subgrade should be evaluated by observing excavation activity and probing with a steel T-probe.

7.1.2 Soil Moisture Control: All fill soils must be maintained within near-optimum moisture content at time of compaction. Uniformly moisten subgrade and each subsequent fill or backfill soil layer before compaction to near-optimum moisture content, unless indicated otherwise. For native silty soils, assume ± 1% limit unless compaction efforts prove a higher tolerance is acceptable to meet compaction requirements. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds near-optimum moisture content and is too wet to compact to specified dry density. Do not place backfill or fill soil material on surfaces that are saturated, muddy, frozen, or contain frost, snow, or ice.

7.2 Clearing and Grubbing

At the start of site grading, existing vegetation, large roots, non-engineered/artificial fill, soil/rock stockpiles, trash, debris, and any abandoned underground utilities shall be removed from the areas of proposed construction. The surface shall be stripped of all topsoil and/or organic growth that may exist within the proposed structural areas. The topsoil and organic rich soils shall either be stockpiled on-site separately for future use or be removed from the construction area. Depth of stripping can be minimized with real-time onsite observation of sufficient removals. Areas disturbed during clearing shall be properly backfilled and compacted as described below.

7.3 Wet Weather and Wet Soil Conditions

Native fine-grained silty soils are moisture- and disturbance-sensitive due to fines content and may be susceptible to pumping when excessively moist or wet and disturbed by construction traffic. Soil disturbance will negatively impact the soils performance.

Disturbed and/or un-compacted soil shall not be allowed within building pad and hardscape areas. Accomplish earthwork in small sections and carry such work through to completion to reduce exposure to wet weather. Soils that become too wet for compaction are to be removed and replaced with clean, imported granular material.

Carefully stage equipment and/or stockpiles, route construction equipment away from subgrades, and implement aggressive site drainage procedures to help reduce saturating subgrades during wet weather conditions.

Cover work areas and stockpiles with plastic. Use straw bales, straw wattles, geotextile silt fences, and/or other measures as appropriate to control soil erosion.

Equipment with large tracks, lugs, or having toothed buckets has a significant potential to disturb the site soil prior to or following compaction. Rubber-tired vehicles should not access prepared subgrades unless the subgrade is sufficiently stiff to allow construction traffic without disturbance.

Maintain the subgrade in a compacted condition and protect subgrades from construction traffic disturbance after they have been prepared and meet compaction requirements. Consequently, do not operate construction equipment or vehicles on prepared subgrade areas during wet weather conditions.

Prior to rain and other events that may cause onsite native fine-grained soils to exceed optimum moisture content, stabilize such soils to minimize potential for erosion into adjacent excavations.

Earthwork should not be performed immediately after rainfall, or until soil can dry sufficiently to allow construction traffic without disturbing the subgrade. After inclement weather, inspect all subgrade areas prepared before the inclement weather conditions.

If necessary for continuing operations after wet weather, provide a layer of ballast rock or quarry spalls course for access or haul roads, with or without underlying geotextile fabric.

For soils exhibiting pumping, rutting, weaving, or otherwise exhibiting unstable performance, moisture-condition (typically dry) and re-compact the soil, or remove and replace the unstable soils as described below:

1. For any areas that become unstable, comply with recommendations of the GER. If moisture-conditioning is impractical or may create project delays, suitable options include, but are not limited to:

    a. Over-excavate to firm bearing using smooth-bladed equipment, replace unsuitable material with imported crushed rock structural fill material compacted as appropriate for its location within the building pad and hardscape areas.

    b. Mechanically stabilize subgrades with coarse crushed aggregate underlain with geotextile fabric, compacted into the subgrade.

    c. Perform excavation and fill placement in the presence of a representative of the GER to verify that unsuitable materials are fully removed and that grading achieves suitable compaction and site drainage.

7.4 Subgrade Protection

The degree to which construction grading problems develop is expected to be dependent, in part, on the time of year that construction proceeds and the precautions which are taken by the contractor to protect the subgrade. The near-surface fine-grained soils currently present on site may be moisture and disturbance sensitive due to their fines content and may become unstable (pumping) if allowed to increase in moisture content and are disturbed (rutted) by construction traffic if wet. If necessary, the construction access road shall be covered with a layer of ballast or quarry spalls. The soils are also susceptible to erosion in the presence of moving water. The soils shall be stabilized to minimize the potential of erosion into the foundation excavation. The site shall be graded to prevent water from ponding within construction areas and/or flowing into excavations. Accumulated water must be removed immediately along with any unstable soil. Foundation concrete shall be placed and excavations backfilled as soon as possible to protect the bearing grade. We further recommend that soils that become unstable are to be either:

- Removed and replaced with structural compacted gravel fill, or
- Mechanically stabilized with a coarse crushed aggregate and compacted into the subgrade.

1. Protect subgrades from damage and degradation from construction activities, weather, run-off or run-on, and other environmental or construction conditions.

2. Protect subgrades against freezing temperatures and frost. If a subgrade freezes, it must be re-compacted and retested prior to acceptance.

3. Protect subgrades from disturbance due to construction traffic. Rubber-tired vehicles should not access prepared subgrades unless the subgrade is sufficiently stiff to allow construction traffic without disturbance.

4. Protect subgrades from softening and damage by rain or water accumulation. Repair subgrades that are disturbed, soft, or otherwise do not meet requirements stated herein.

5. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions. Scarify or remove and replace soil material to depth as directed by Geotechnical Engineer of Record; reshape and recompact at optimum moisture content to the required density.

7.5 Temporary Excavations

It shall be the responsibility of the contractor to maintain safe temporary slope configurations since the contractor is at the job site, able to observe the nature and conditions of the slopes and be able to monitor the subsurface conditions encountered. Unsupported vertical cuts deeper than 4 feet are not recommended if worker access is necessary. The cuts shall be adequately sloped, shored or supported to prevent injury to personnel from caving and sloughing. The contractor and subcontractors shall be aware of and familiar with applicable local, state and federal safety regulation including the current OSHA Excavation and Trench Safety Standards, and OSHA Health and Safety Standards for Excavations, 29 CFR Part 1929, or successor regulations.

According to chapter 296-155 of the Washington Administrative Code (WAC), it is our opinion that the near-surface soil encountered at the site is classified as Type C soils. We recommend that temporary, unsupported, open cut slopes shall be no steeper than 1.5 feet horizontal to 1.0 feet

vertical (1.5H:1V) in Type C soils. No heavy equipment should be allowed near the top of temporary cut slopes unless the cut slopes are adequately braced. Where unstable soils are encountered, flatter slopes may be required. Final (permanent) fill slopes should be graded to an angle of 2H:1V or flatter. We recommend that permanent slopes be hydroseeded and/or planted with vegetation after construction. Where unstable soils are encountered, flatter slopes may be required. We recommend protecting slopes with waterproof covering during periods of wet weather to reduce sloughing and erosion.

7.6 Utility Excavation, Pipe Bedding and Trench Backfill

To provide suitable support and bedding for the pipe, we recommend the utilities be founded on suitable bedding material consisting of clean sand and/or sand & gravel mixture. To minimize trench subgrade disturbance during excavation, the excavator should use a smooth-edged bucket rather than a toothed bucket.

Pipe bedding and pipe zone materials shall conform to Section 9-03.12(3) of the Washington State Department of Transportation (WSDOT) 2018 Standard Specifications. Pipe bedding should provide a firm uniform cradle for support of the pipes. A minimum 4-inch thickness of bedding material beneath the pipe should be provided. Prior to installation of the pipe, the pipe bedding should be shaped to fit the lower part of the pipe exterior with reasonable closeness to provide uniform support along the pipe. Pipe bedding material should be used as pipe zone backfill and placed in layers and tamped around the pipes to obtain complete contact. To protect the pipe, bedding material should extend at least 6 inches above the top of the pipe.

Placement of bedding material is particularly critical where maintenance of precise grades is essential. Backfill placed within the first 12 inches above utility lines should be compacted to at least 90% of the maximum dry density (ASTM D1557), such that the utility lines are not damaged during backfill placement and compaction. In addition, rock fragments greater than 1 inch in maximum dimension should be excluded from this first lift. The remainder of the utility excavations should be backfilled and compacted to 95% of the maximum dry density as determined by ASTM D1557.

Onsite soils are considered suitable for utility trench backfill provided they are free of oversize material, significant organic/deleterious matter and can be adequately compacted. All excavations should be wide enough to allow for compaction around the haunches of pipes and underground tanks. We recommend that utility trenching, installation, and backfilling conform to all applicable federal, state, and local regulations such as OSHA and WISHA for open excavations.

7.7 Suitability of the Onsite Soils as Engineered Fill

The onsite silty soils, free of significant organics, deleterious materials including trash/debris, and oversize rocks greater than 4-inches in nominal diameter, are generally suitable for use as general fill/backfill. Engineered fill should be placed in maximum 8-inch lifts (loose) and compacted to at least 95% relative compaction (ASTM D1557) near its optimum moisture content. The onsite soils will require compaction to be performed within a range of ±1% of optimum moisture to achieve the proper degree of compaction. Compaction should be verified by testing.

The shrinkage factor for earthwork is expected to range from approximately 10% to 20% for the upper excavated or scarified silty site soils. This estimate is based on compactive effort to achieve a minimum relative compaction of 95% and may vary with contractor methods. Losses from site clearing will affect earthwork quantity calculations and should be considered.

7.8 Imported Fill Soils

If needed, imported fill soils should be non-expansive, granular soils meeting the USCS classifications of SM, SP-SM, or SW-SM with a maximum rock size of 4 inches, minimum 70% passing the No. 4 sieve, and 5 to 20% passing the No. 200 sieve. The GER should evaluate the import fill soils before hauling to the site.

7.9 Imported Crushed Rock Structural Fill

Imported crushed rock structural fill shall consist of well-graded, crushed aggregate material meeting the grading requirements of WSDOT 2018 Standard Specifications, Section 9-03.9(3) (1-1/4 inch minus Base Course Material) presented here:

Table 3: WSDOT Standard Spec. 9-03.9(3) (1-1/4" minus Base Course)

Sieve Size	Percent Passing (by Weight)
1¼ Inch Square	99 - 100
1 Inch Square	80 - 100
5/8 Inch Square	50 – 80
U.S. No. 4	25 - 45
U.S. No. 40	3 – 18
U.S. No. 200	Less than 7.5

A fifty (50) pound sample of each imported fill material shall be collected by GNN personnel prior to placement to ensure proper gradation and establish the moisture-density relationship (proctor curve).

7.10 Compaction Requirements for Structural Fill

All fill or backfill shall be approved by a representative of the GER, placed in uniform lifts, and compacted to a minimum 95% of the maximum dry density as determined by ASTM D1557. The compaction effort must be verified by a representative of the GER in the field using a nuclear density gauge in accordance with ASTM D6938. The thickness of the loose, non-compacted, lift of structural fill shall not exceed 8 inches.

7.11 Foundation Bearing Support & Allowable Bearing Capacity

In our opinion, the proposed structures may be supported on conventional shallow foundations bearing on a layer of imported crushed rock placed atop an engineered fill or compacted native subgrade in accordance with the recommendations of this report. The minimum footing depth shall be 24 inches below adjacent exterior finished grades for frost protection and bearing capacity considerations.

In order to provide a uniform bearing condition and minimize the potential for differential settlement, all foundations shall bear on a minimum of 12-inches of imported 1¼-inch minus imported crushed rock structural fill meeting the grading requirements of Section 7.9 of this report. The crushed rock shall be moisture conditioned and compacted to minimum 95% of the maximum dry density as determined by the Modified Proctor (ASTM D1557). Prior to placement of crushed rock, the native subgrade shall be scarified as needed, moisture-conditioned to near optimum, and recompacted to minimum 95% of the maximum dry density as determined by ASTM D1557 or proof-compacted to a dense and non-yielding condition. The crushed rock, and recompaction of the

native subgrade (if required), shall extend a minimum of 24-inches beyond all sides of the foundations.

Footings constructed in accordance with the above recommendations may be designed for an allowable **2,200 pounds per square foot (psf)** bearing pressure. The allowable bearing pressure presented above may be increased by 1/3 for short-term, transient loading conditions. Provided footing subgrades are prepared in accordance with the recommendations presented in this report, based on theory of elasticity we estimate total foundation settlements will be less than 1-inch, with differential settlement less than half that magnitude.

Lateral forces on foundations from short term wind and seismic loading would be resisted by friction at the base of foundations and passive earth pressure against the buried portions. We recommend an allowable passive earth pressure for compacted onsite fill of **220 psf** per foot of embedment depth at depths greater than 2 feet below adjacent grades. This lateral foundation resistance value includes a factor of safety of 1.5. We recommend a coefficient of friction of **0.45** be used between cast-in-place concrete and imported crushed rock. An appropriate factor of safety should be used to calculate sliding resistance at the base of footings.

Based on our experience with similar soil types in this area, the use of Type I cement is considered suitable for foundation construction.

7.12 Slab-on-Grade Floors

We recommend placing a minimum 6-inch layer of crushed aggregate fill beneath the slabs. The material shall meet the WSDOT Specification section 9-03.9 (3), “Crushed Surfacing Top Course”, with less than 5 percent passing the No. 200 sieve (fines). The crushed rock material shall be compacted to at least 95% of the maximum dry density as determined by the ASTM D1557 method. Prior to placing the crushed aggregate fill, the subgrade soils shall be scarified and moisture conditions to a minimum depth of 12 inches and then proof-rolled with a minimum 20-ton smooth drum roller to a dense and non-yielding surface and to at least 95% of the maximum dry density as determined by ASTM D1557 method. Any areas pumping during proof-compaction shall be over-excavated and re-compacted. We recommend a modulus of subgrade reaction equal to **120 pounds per cubic inch (pci)** based on a value for gravel presented in the Portland Cement

Association Publication No. EB075.01D. Slab thickness, reinforcement and joint spacing shall be determined by a licensed engineer based on the intended use and loading.

An appropriate vapor retarder (15-mil polyethylene liner) shall be used (ASTM E1745/E1643) beneath areas receiving moisture sensitive resilient flooring/VCT where prevention of moisture migration through slab is essential. The slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder. The architect shall determine the need and use of a vapor retarder.

7.13 Lateral Earth Pressures

We recommend the following lateral earth pressures, in terms of equivalent fluid pressure, for design of retaining walls or below-grade structures, these pressure values assume drained condition:

At-Rest = 60 psf/ft of embedment
Active = 40 psf/ft of embedment

We assume that the structural wall backfill is adequately drained to avoid saturation and introduction of hydrostatic pressures. For calculation of active pressures, we assume that the wall can deflect in order to develop an active condition. Use at-rest pressures for restrained or braced walls. The horizontal resultant force (pressure x H/2 where H is height of buried wall) should be applied at an H/3 distance from the base of the wall.

If any surface, surcharge loads are closer than one-half of the wall height (horizontal distance) to the edge of the below-grade and/or retaining wall, increase the design wall pressure by $q/2$ over the whole area of the retaining wall. In this expression, q is the surface surcharge load in psf. GNN should review anticipated surcharge loading to confirm that the appropriate design values are considered. The horizontal surcharge resultant force (pressure x H where H is height of buried wall) should be applied at an H/2 distance from the base of the wall.

7.14 Flexible Asphalt Concrete Pavement

Pavement subgrade soils are generally expected to consist of the native silt. A California Bearing Ratio (CBR) value of 4 has been estimated for the onsite silty soils for use in the pavement analysis. Using an empirical relationship, this CBR value corresponds to a resilient modulus value

of approximately 4,500 psi. Pavement analyses are based on *1993 AASHTO Guide for Design of Pavement Structures*. Table 4 presents recommended pavement sections for this project:

Table 4: Recommended Asphalt Concrete Paving Sections

Traffic	Asphalt Thickness (inches)	Crushed Aggregate Base Course (inches)	Subgrade
Heavy Duty†	4.0	10*	Scarified as needed, moisture conditioned and re-compacted to at least 95% of the maximum dry density as determined by ASTM D1557
Standard Duty††	2.5	8*	

†Heavy duty applies to pavements section for entrance drives, and trash enclosure drive lanes
††Standard duty applies to general parking areas
*The upper 2" of crushed rock should be top course rock placed over the base course layer

Pavement design recommendations assume proper and positive drainage and construction monitoring and are based on AASHTO Design parameters for a 20-year design period. Asphalt pavements tend to develop thermal and fatigue cracking over time from environmental factors and traffic loads. Asphalt, being a viscoelastic material, weakens from temperature influx. Timely preventative measures for continual flexible maintenance such as crack filling and seal coating at 8–10-year intervals to control the progression of surface cracking and distress to prevent water from infiltrating into the base course and subgrade shall be considered. Performing this intermediate level of maintenance will net at least a 20-year service life/performance life

Soils containing roots or organic materials shall be completely removed from the proposed paved areas prior to subgrade construction. The upper 12 inches of subgrade soils beneath the pavement section shall be scarified, moisture conditioned and re-compacted to at least 95% of the maximum dry density as determined by ASTM D1557. All fills used to raise low areas must be compacted onsite soils or structural gravel fill and shall be placed under engineering control conditions. The finished surface shall be smooth, uniform and free of localized weak/soft spots. All subgrade deficiency corrections and drainage provisions shall be made prior to placing the aggregate base course. All underground utilities shall be protected prior to grading.

Flexible AC should be 1/2-inch hot mix asphalt in conformance with the specifications provided in 2018 WSDOT Standards Specifications 5 04 –Hot Mix Asphalt and 9 03.8 – Aggregates for Hot Mix Asphalt. The asphalt cement binder should be PG 64-22 Performance Grade Asphalt Cement

according to WSDOT Standards Specification 9-02.1(4) – Performance Graded Asphalt Binder. The AC should be placed with a minimum lift thickness of 1.5 inches and be compacted to at least 91 percent of Rice Density of the mix, as determined in accordance with ASTM D 2041.

7.15 Surface Drainage

With respect to surface water drainage, we recommend that the ground surface be sloped to drain away from the proposed structures. Final exterior site grades shall promote free and positive drainage from the building areas at all times. Water shall not be allowed to pond or to collect adjacent to foundations or within the immediate building area. We recommend that a gradient of at least 5% for a minimum distance of 10 feet from the building perimeter be provided, except in paved locations. In paved areas, a minimum gradient of 1% should be provided unless provisions are included for collection and disposal of surface water adjacent to the structure. Catch basins, yard drains, drainage swales, ditches, or other drainage facilities should be aptly located as may be appropriate. We recommend that all surface water such as that coming from roof downspouts and catch basins be collected in tight drain lines and carried to a suitable discharge point, such as a storm drain system. Surface water and downspout water should not discharge into a perforated or slotted subdrain, nor should such water discharge onto the ground surface adjacent to the buildings. Cleanouts should be provided at convenient locations along all drain lines.

8.0 ADITIONAL SERVICES

The Client should maintain an adequate program of geotechnical consultation, construction monitoring, and soils testing during the final design and construction phases to ensure compliance with GNN's geotechnical recommendations. For this purpose, GNN, the Geotechnical Engineer-of-Record, shall be retained as the geotechnical consultant from beginning to end of the project to maintain continuity of services.

GNN can provide construction monitoring and testing as additional services. The costs of these services are not included in our present fee arrangement, but can be obtained from our office. The recommended construction monitoring and testing includes, but is not necessarily limited to, the following:

- Consultation during the design stages of the project.
- Review of the grading and drainage plans to monitor compliance and proper implementation of the recommendations in GNN's Report.
- Observation and quality control testing during site preparation, grading, and placement of engineered fill as required by the local building ordinances.
- Geotechnical engineering consultation as needed during construction.

9.0 LIMITATIONS OF THE GEOTECHNICAL SITE INVESTIGATION & CRITICAL AREAS REPORT

This GEOTECHNICAL SITE INVESTIGATION & CRITICAL AREAS REPORT ("Report") was prepared for the exclusive use of the Client. GN Northern, Inc.'s (GNN) findings, conclusions and recommendations in this Report are based on selected points of field exploration, laboratory testing, and GNN's understanding of the proposed project at the time the Report is prepared. Furthermore, GNN's findings and recommendations are based on the assumption that soil, rock and/or groundwater conditions do not vary significantly from those found at specific exploratory locations. Variations in soil, bedrock and/or groundwater conditions could exist between and beyond the exploration points. The nature and extent of these variations may not become evident until during or after construction. Variations in soil, bedrock and groundwater may require additional studies, consultation, and revisions to GNN's recommendations in the Report.

In many cases the scope of geotechnical exploration and the test locations are selected by others without consultation from the geotechnical engineer/consultant. GNN assumes no responsibility and, by preparing this Report, does not impliedly or expressly validate the scope of exploration and the test locations selected by others.

This Report's findings are valid as of the issued date of this Report. However, changes in conditions of the subject property or adjoining properties can occur due to passage of time, natural processes, or works of man. In addition, applicable building standards/codes may change over time. Accordingly, findings, conclusions, and recommendations of this Report may be invalidated, wholly or partially, by changes outside of GNN's control. Therefore, this Report is subject to review and shall not be relied upon after a period of **one (1) year** from the issued date of the Report.

In the event that any changes in the nature, design, or location of structures are planned, the findings, conclusions and recommendations contained in this Report shall not be considered valid unless the changes are reviewed by GNN and the findings, conclusions, and recommendations of this Report are modified or verified in writing.

This Report is issued with the understanding that the owner or the owner's representative has the responsibility to bring the findings, conclusions, and recommendations contained herein to the attention of the architect and design professional(s) for the project so that they are incorporated into the plans and construction specifications, and any follow-up addendum for the project. The owner or the owner's representative also has the responsibility to verify that the general contractor and all subcontractors follow such recommendations during construction. It is further understood that the owner or the owner's representative is responsible for submittal of this Report to the appropriate governing agencies. The foregoing notwithstanding, no party other than the Client shall have any right to rely on this Report and GNN shall have no liability to any third party who claims injury due to reliance upon this Report, which is prepared exclusively for Client's use and reliance.

GNN has provided geotechnical services in accordance with generally accepted geotechnical engineering practices in this locality at this time. GNN expressly disclaims all warranties and guarantees, express or implied.

Client shall provide GNN an opportunity to review the final design and specifications so that earthwork, drainage, and foundation recommendations may be properly interpreted and implemented in the design and specifications. If GNN is not accorded the review opportunity, GNN shall have no responsibility for misinterpretation of GNN's recommendations.

Although GNN can provide environmental assessment and investigation services for an additional cost, the current scope of GNN's services does not include an environmental assessment or an investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater, or air on, below, or adjacent to the subject property.

Northern, Inc.

APPENDICES

Northern, Inc.

Appendix I

Vicinity Map (Figure 1)

Site Exploration Map (Figure 2)

FIGURE 1: VICINITY MAP

PROJECT NO. 222-1508

FIGURE 2: SITE EXPLORATION MAP

PROJECT NO. 222-1508

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Appendix II
Exploratory Test-Pit Logs
Key Chart (for Soil Classification)

GN Northern, Inc
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Yakima, WA 99802
Telephone: (509) 248-9798

TEST PIT NUMBER TP-1

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.186861, -119.232583
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					SILT WITH SAND, (ML) tan, moist, appears dense
	GB	MC = 10% Fines = 78%			
5					
			ML		
10					
					14.0

- Groundwater not encountered at time of excavation
Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
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Telephone: (509) 248-9798

TEST PIT NUMBER TP-2

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.187556, -119.232167
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				SILT WITH SAND, (ML) tan, moist, appears very dense
5	GB	ML		
10	GB			
14.0				

- Groundwater not encountered at time of excavation

Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
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Yakima, WA 99802
Telephone: (509) 248-9798

TEST PIT NUMBER TP-3

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.188083, -119.232000
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				SILT WITH SAND, (ML) tan, moist, appears very dense
	GB			
5				
		ML		
10				
14.0				

- Groundwater not encountered at time of excavation

Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
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TEST PIT NUMBER TP-4

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.188583, -119.231750
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				SILT WITH SAND, (ML) tan, moist, appears very dense
	GB			
5				
		ML		
10				
14.0				

- Groundwater not encountered at time of excavation

Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
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TEST PIT NUMBER TP-5

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.188333, -119.231056
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				SILT WITH SAND, (ML) tan, moist, appears dense
	GB			
5				
		ML		
10				
14.0				

- Groundwater not encountered at time of excavation

Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARMONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

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TEST PIT NUMBER TP-6

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.187972, -119.230917
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				SILT, (ML) tan, moist, appears dense
5	GB	ML		
10				
14.0				

- Groundwater not encountered at time of excavation

Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
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Telephone: (509) 248-9798

TEST PIT NUMBER TP-7

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.187750, -119.231528
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					SANDY SILT, (ML) tan, damp, appears medium dense to dense
	GB	MC = 7% Fines = 61%			
					Poorly Graded Sand (SP) lense
5					
			ML		
10	GB				
					14.5

- Groundwater not encountered at time of excavation

Bottom of test pit at 14.5 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
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Telephone: (509) 248-9798

TEST PIT NUMBER TP-8

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.187278, -119.231500
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				SILT WITH SAND, (ML) tan, damp, appears medium dense to dense
				Poorly Graded Sand (SP) lenses
	GB			
5				
		ML		
10				
14.0				

- Groundwater not encountered at time of excavation

Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

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Yakima, WA 99802
Telephone: (509) 248-9798

TEST PIT NUMBER TP-9

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.186917, -119.231222
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					SILT, (ML) tan, moist, appears dense
	GB	MC = 19% Fines = 98%			
					Interbedded with Sandy Silt (ML)
5					
			ML		
	GB				
10					
					14.0

- Groundwater not encountered at time of excavation
Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARMONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
722 N. 16th Ave Suite 31
Yakima, WA 99802
Telephone: (509) 248-9798

TEST PIT NUMBER TP-10

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.187194, -119.230472
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				
		ML		SILT, (ML) tan, moist, appears dense
	GB			light tan, damp, appears medium dense
			4.0	
		SM	4.5	SILTY SAND WITH GRAVEL, (SM) tan, damp, appears medium dense
5				SILT WITH SAND, (ML) tan, damp, appears dense
		ML		
10	GB			
			14.0	

- Groundwater not encountered at time of excavation

Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARMONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
722 N. 16th Ave Suite 31
Yakima, WA 99802
Telephone: (509) 248-9798

TEST PIT NUMBER TP-11

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.187528, -119.230889
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					SILT, (ML) tan, moist, appears dense
			ML		light tan, damp, appears medium dense
				4.0	
			SM	4.5	SILTY SAND WITH GRAVEL, (SM) tan, damp, appears medium dense
5					SILT, (ML) tan, damp, appears dense
	GB	MC = 5% Fines = 94%	ML		
10					
				14.0	

- Groundwater not encountered at time of excavation
Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARMONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
722 N. 16th Ave Suite 31
Yakima, WA 99802
Telephone: (509) 248-9798

TEST PIT NUMBER TP-12

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.187756, -119.230332
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				SILT WITH SAND, (ML) tan, moist, appears dense
	GB			
5				
		ML		
10				
14.0				

- Groundwater not encountered at time of excavation

Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
722 N. 16th Ave Suite 31
Yakima, WA 99802
Telephone: (509) 248-9798

TEST PIT NUMBER TP-13

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.187417, -119.229750
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				SILT WITH SAND, (ML) light brown, moist, appears dense
5	GB	ML		
10				
14.0				

- Groundwater not encountered at time of excavation

Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
722 N. 16th Ave Suite 31
Yakima, WA 99802
Telephone: (509) 248-9798

TEST PIT NUMBER TP-14

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.187500, -119.229000
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				SILT WITH SAND, (ML) light brown, moist, appears dense
5		ML		
10				
10.5	GB	ML		SANDY SILT WITH GRAVEL, (ML) tan, moist, appears very dense, cemented (caliche)
13.0				

- Groundwater not encountered at time of excavation

Bottom of test pit at 13.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
722 N. 16th Ave Suite 31
Yakima, WA 99802
Telephone: (509) 248-9798

TEST PIT NUMBER TP-15

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.187139, -119.228583
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				SILT WITH SAND, (ML) light brown, moist, appears dense
	GB			
5				
		ML		
10				
14.0				

- Groundwater not encountered at time of excavation

Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

GN Northern, Inc
722 N. 16th Ave Suite 31
Yakima, WA 99802
Telephone: (509) 248-9798

TEST PIT NUMBER TP-16

CLIENT Red Tail Development LLC
PROJECT NAME Kennewick Multi-Family Apartments
PROJECT NUMBER 222-1508
PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA
DATE STARTED 3/8/22 **COMPLETED** 3/8/22
GROUND ELEVATION **TEST PIT SIZE** 30 x 72 inches
EXCAVATION CONTRACTOR Big D's Construction
GROUND WATER LEVELS:
EXCAVATION METHOD Case CX160 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY BWB **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46.187028, -119.229694
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					SILT WITH SAND, (ML) light brown, moist, appears dense
5	GB	MC = 7% Fines = 72%	ML		
10					
14.0					

- Groundwater not encountered at time of excavation
Bottom of test pit at 14.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 3/23/22 15:08 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\APPENDIX\222-1508 LOGS.GPJ

Northern, Inc.
Kennewick, Yakima, Spokane, Hermiston (OR)

KEY CHART

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE

COARSE-GRAINED SOILS			FINE-GRAINED SOILS		
DENSITY	N (BLOWS/FT)	FIELD TEST	CONSISTENCY	N (BLOWS/FT)	FIELD TEST
Very Loose	0 – 4	Easily penetrated with ½-inch reinforcing rod pushed by hand	Very Soft	0 – 2	Easily penetrated several inches by thumb
Loose	4 – 10	Difficult to penetrate with ½-inch reinforcing rod pushed by hand	Soft	2 – 4	Easily penetrated one inch by thumb
Medium -Dense	10 – 30	Easily penetrated with ½-inch rod driven with a 5-lb hammer	Medium-Stiff	4 – 8	Penetrated over ½-inch by thumb with moderate effort
Dense	30 – 50	Difficult to penetrate with ½-inch rod driven with a 5-lb hammer	Stiff	8 – 15	Indented about ½-inch by thumb but penetrated with great effort
Very Dense	> 50	penetrated only a few inches with ½-inch rod driven with a 5-lb hammer	Very Stiff	15 – 30	Readily indented by thumb
			Hard	> 30	Indented with difficulty by thumbnail

USCS SOIL CLASSIFICATION

MAJOR DIVISIONS			GROUP DESCRIPTION	
Coarse-Grained Soils <50% passes #200 sieve	**Gravel** and **Gravelly Soils** <50% coarse fraction passes #4 sieve	**Gravel** (with little or no fines)	GW	Well-graded **Gravel**
			GP	Poorly Graded **Gravel**
		Gravel (with >12% fines)	GM	Silty **Gravel**
			GC	Clayey **Gravel**
	Sand and **Sandy Soils** >50% coarse fraction passes #4 sieve	**Sand** (with little or no fines)	SW	Well-graded **Sand**
			SP	Poorly graded **Sand**
		Sand (with >12% fines)	SM	Silty **Sand**
			SC	Clayey **Sand**
Fine-Grained Soils >50% passes #200 sieve	**Silt** and **Clay** Liquid Limit < 50		ML	**Silt**
			CL	Lean **Clay**
			OL	Organic **Silt** and **Clay** (low plasticity)
	Silt and **Clay** Liquid Limit > 50		MH	Inorganic **Silt**
			CH	Inorganic **Clay**
			OH	Organic **Clay** and **Silt** (med. to high plasticity)
Highly Organic Soils			PT	**Peat**
				Top Soil

LOG SYMBOLS

	2S	2" OD Split Spoon (SPT)
	3S	3" OD Split Spoon
	NS	Non-Standard Split Spoon
	ST	Shelby Tube
	CR	Core Run
	BG	Bag Sample
	TV	Torvane Reading
	PP	Penetrometer Reading
	NR	No Recovery
	GW	Groundwater Table

MODIFIERS

DESCRIPTION	RANGE
Trace	<5%
Little	5% – 12%
Some	>12%

MOISTURE CONTENT

DESCRIPTION	FIELD OBSERVATION
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but not visible water
Wet	Visible free water

SOIL CLASSIFICATION INCLUDES

1. Group Name
2. Group Symbol
3. Color
4. Moisture content
5. Density / consistency
6. Cementation
7. Particle size (if applicable)
8. Odor (if present)
9. Comments

MAJOR DIVISIONS WITH GRAIN SIZE

SIEVE SIZE						
12"	3"	3/4"	4	10	40	200
GRAIN SIZE (INCHES)						
12	3	0.75	0.19	0.079	0.0171	0.0029

Boulders	Cobbles	Gravel		Sand			Silt and Clay
		Coarse	Fine	Coarse	Medium	Fine	

Conditions shown on boring and testpit logs represent our observations at the time and location of the fieldwork, modifications based on lab test, analysis, and geological and engineering judgment. These conditions may not exist at other times and locations, even in close proximity thereof. This information was gathered as part of our investigation, and we are not responsible for any use or interpretation of the information by others.

Northern, Inc.

Appendix III
Laboratory Testing Results

GRAIN SIZE DISTRIBUTION

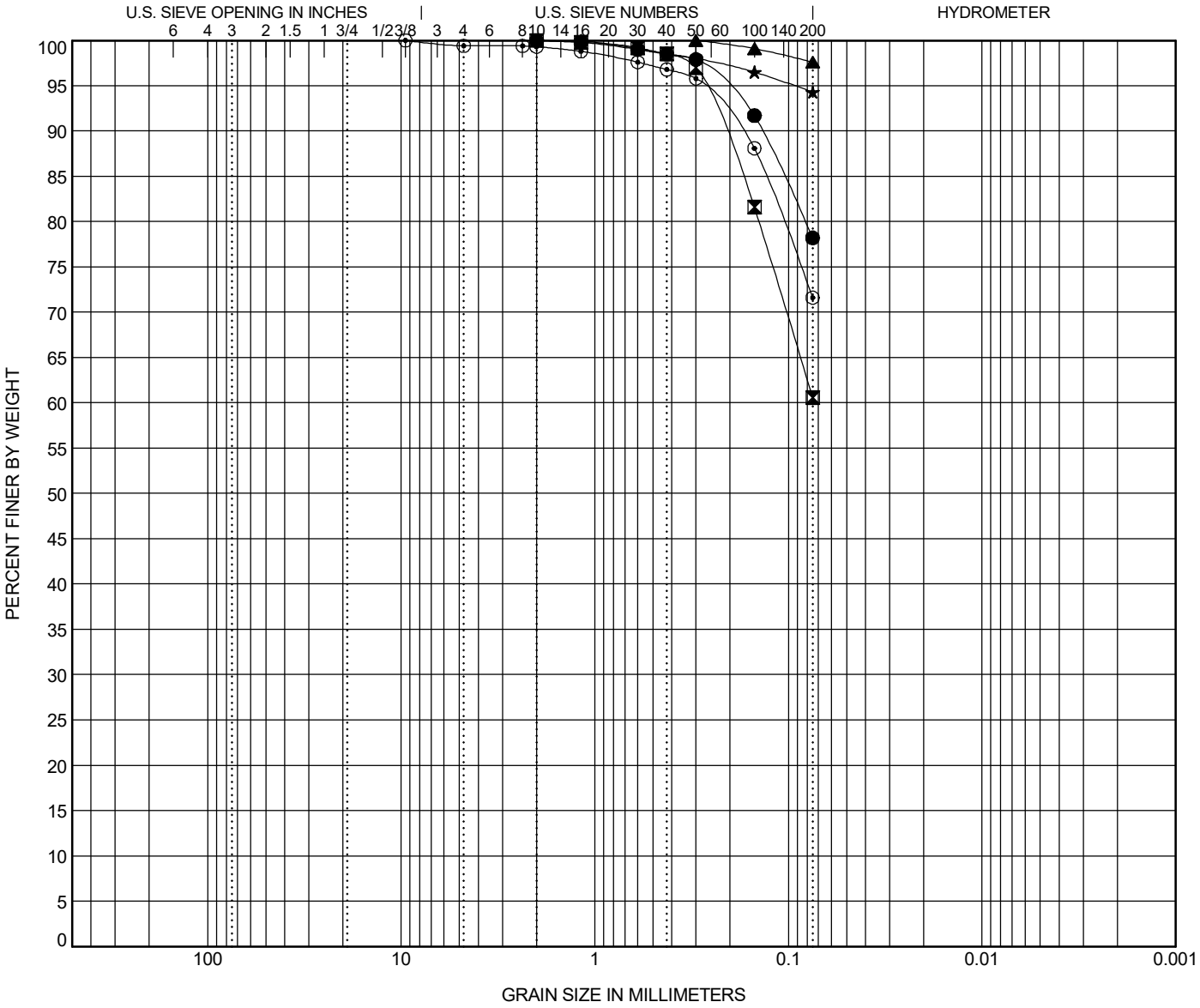
GN Northern, Inc
722 N. 16th Ave Suite 31
Yakima, WA 99802
Telephone: (509) 248-9798

CLIENT Red Tail Development LLC

PROJECT NAME Kennewick Multi-Family Apartments

PROJECT NUMBER 222-1508

PROJECT LOCATION 8224 Bob Olson Parkway, Kennewick, WA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	**TP-1**	**3.0**	**SILT WITH SAND (ML)**					
⊠	**TP-7**	**2.0**	**SANDY SILT (ML)**					
▲	**TP-9**	**1.0**	**SILT (ML)**					
★	**TP-11**	**8.5**	**SILT (ML)**					
⊙	**TP-16**	**5.0**	**SILT WITH SAND (ML)**					

	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP-1**	**3.0**	**2**				**0.0**	**21.8**	**78.2**	
⊠	**TP-7**	**2.0**	**2**				**0.0**	**39.4**	**60.6**	
▲	**TP-9**	**1.0**	**0.3**				**0.0**	**2.4**	**97.6**	
★	**TP-11**	**8.5**	**1.18**				**0.0**	**5.7**	**94.3**	
⊙	**TP-16**	**5.0**	**9.5**				**0.6**	**27.8**	**71.6**	

GRAIN SIZE - TEMPLATE JESSE.GDT - 3/17/22 08:15 - C:\USERS\KHARM\ONEDRIVE\PUBLIC\ACTIVE PROJECTS\222-1508 MULTI-FAMILY HOUSING, BOB OLSON PARKWAY, KENNEWICK WA\222-1508 LOGS.GPJ

Northern, Inc.

Appendix IV

Site & Exploration Photographs

Subsurface soil profile within test pit TP-1

Subsurface soil profile within test pit TP-5

Subsurface soil profile within test pit TP-11

Subsurface soil profile within test pit TP-7

View of site conditions looking SW from TP-14

View of site conditions looking NW from TP-14

PLATE 1: SITE & EXPLORATION PHOTOGRAPHS **PROJECT NO. 222-1508**

Northern, Inc.

Appendix V
NRCS Soil Survey

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Benton County Area, Washington

8224 Bob Olson Parkway, Kennewick, WA

March 7, 2022

Exhibit A-8

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,300 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

Benton County Area, Washington

EsA—Esquatzel fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2bc1
Elevation: 300 to 2,900 feet
Mean annual precipitation: 6 to 12 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 130 to 200 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Esquatzel and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Esquatzel

Setting

Landform: Flood plains
Parent material: Alluvium

Typical profile

H1 - 0 to 11 inches: fine sandy loam
H2 - 11 to 44 inches: silt loam
H3 - 44 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R007XY402WA - LOAMY BOTTOM 6-10 PZ
Hydric soil rating: No

FnB—Finley fine sandy loam, moderately deep, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2bcf

Elevation: 300 to 1,800 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 135 to 180 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Finley and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Finley

Setting

Landform: Terraces
Parent material: Alluvium

Typical profile

H1 - 0 to 3 inches: fine sandy loam
H2 - 3 to 13 inches: fine sandy loam
H3 - 13 to 28 inches: very gravelly loam
H4 - 28 to 60 inches: extremely gravelly sand

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R007XY501WA - SANDY 6-10 PZ
Hydric soil rating: No

WdC—Warden silt loam, 5 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2bfm
Elevation: 600 to 1,300 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Warden and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Warden

Setting

Landform: Terraces
Parent material: Loess over lacustrine deposits

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 19 inches: silt loam
H3 - 19 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

Slope: 5 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R007XY102WA - LOAMY 6-10 PZ
Hydric soil rating: No

WdE3—Warden silt loam, 15 to 30 percent slopes, severely eroded

Map Unit Setting

National map unit symbol: 2bfp
Elevation: 600 to 1,300 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 200 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Warden and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Warden

Setting

Landform: Terraces
Parent material: Loess over lacustrine deposits

Typical profile

H1 - 0 to 2 inches: silt loam
H2 - 2 to 12 inches: silt loam
H3 - 12 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R007XY102WA - LOAMY 6-10 PZ
Hydric soil rating: No

WfE2—Warden very fine sandy loam, 15 to 30 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2bfw
Elevation: 600 to 1,300 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 200 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Warden and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Warden

Setting

Landform: Terraces
Parent material: Loess over lacustrine deposits

Typical profile

H1 - 0 to 4 inches: very fine sandy loam
H2 - 4 to 14 inches: silt loam
H3 - 14 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.5 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R007XY102WA - LOAMY 6-10 PZ
Hydric soil rating: No

Northern, Inc.

Appendix VI
Washington Department of Ecology Well Logs

Exhibit A-8

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Frank Adams Address 1101 East 27th Kennewick Wash.

(2) LOCATION OF WELL: County Benton — SW ¼ SE ¼ Sec. 7 T. 8 N., R. 29 E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 40 ft. Depth of completed well 40 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ☒ " Diam. from 0 ft. to 36 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 15 ft. below top of well Date .....
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? .....
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 30 gal./min. with 5 ft. drawdown after 1 hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG: Q

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Topsoil	0	2
Sand + Gravel	2	10
2" minus Gravel	10	40

RECEIVED DEC 24 1981 DEPARTMENT OF EC CENTRAL REGION

Work started 12-7, 1981. Completed 12-8, 1981.

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Lindsay Water Systems (Person, firm, or corporation) (Type or print)

Address 4300 North 108 Pasco

[Signed] Jim Smith (Well Driller)

License No. 552 Date 12-9, 1981

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

RGF 12-31-81

Exhibit A-8

WL
E 103 Indiana
Spokane

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No.

Permit No.

(1) OWNER: Name Frank Adams Address 1101 East 27th Kennewick Wa

(2) LOCATION OF WELL: County Benton — SW¼ SE¼ Sec. 7 T. 8 N., R. 31E W.M.

ring and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 2

New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 40 ft. Depth of completed well 40 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from 0 ft. to 40 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level 15 ft. below top of well Date
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 50 gal./min. with 5 ft. drawdown after 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG: Q

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Topsoil	0	2
Sand & Gravel	2	10
2" Minus Gravel	10	40

Work started 1-19, 1982 Completed 1-19, 1982

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Lindsay Water Systems (Person, firm, or corporation) (Type or print)

Address 4300 North 108 Pasco

[Signed] Jim Smith (Well Driller)

License No. 552 Date 1-19, 1982

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

RJJ 1-25-82

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

Exhibit A-8

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

3601 W Lish
Yakima 98903

WATER WELL REPORT

STATE OF WASHINGTON

Application No.

Permit No.

(1) OWNER: Name Wade Finch Address 2614 So Gum Kennewick

(2) LOCATION OF WELL: County Benton — SE ¼ SW ¼ Sec. 7 T. 8 N., R. 29 E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)....

New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 43 ft. Depth of completed well 43 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from 0 ft. to 39 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name Aermotor
Type: Sub H.P. 1

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 23 ft. below top of well Date 4-11-82
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" 50 " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
TOPSOIL	0	3
BOULDERS	3	8
SAND & GRAVEL	8	10
BLACK SAND & GRAVEL	10	39
BLACK BASALT	39	43

MAY 17 1982

Work started 4-11, 1982 Completed 4-11, 1982

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Lindsay Water Systems (Person, firm, or corporation) (Type or print)

Address 4300 North 108 Pasco

[Signed] Jim Smith (Well Driller)

License No. 552 Date 4-12, 1982

(USE ADDITIONAL SHEETS IF NECESSARY)

RJJ 5-21-82

ECY 050-1-20

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

Exhibit A-8

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

3600 West Wash
Yakima 98903

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Frank Adams Address 1101 East 27th Kennewick

(2) LOCATION OF WELL: County Benton — SW ¼ SE ¼ Sec. 7 T. 8 N., R. 29E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....

New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 40 ft. Depth of completed well 40 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ..." Diam. from ... ft. to ... ft.
Threaded ☐ ..." Diam. from ... ft. to ... ft.
Welded ☒ 6" Diam. from 0 ft. to 40 ft.

Perforations: Yes ☐ No ☒
Type of perforator used ....
SIZE of perforations ... in. by ... in.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ....
Type .... Model No. ....
Diam. .... Slot size .... from .... ft. to .... ft.
Diam. .... Slot size .... from .... ft. to .... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ....
Gravel placed from .... ft. to .... ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? .... Depth of strata ....
Method of sealing strata off ....

(7) PUMP: Manufacturer's Name ....
Type: .... H.P. ....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 26 ft. below top of well Date ....
Artesian pressure .... lbs. per square inch Date ....
Artesian water is controlled by .... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☐ If yes, by whom? ....
Yield: gal./min. with ft. drawdown after hrs.
" 35 " Blown with Air "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ....
Bailer test .... gal./min. with .... ft. drawdown after .... hrs.
Artesian flow .... g.p.m. Date ....
Temperature of water .... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Topsoil	0	3
Sand + Gravel	3	40

RECEIVED AUG 16 1982

Work started 7-11, 1982 Completed 7-11, 1982

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Lindsay Water Systems (Person, firm, or corporation) (Type or print)

Address 4300 North 108 Pasco

[Signed] Jim Smith (Well Driller)

License No. 552 Date 7-15, 1982

(USE ADDITIONAL SHEETS IF NECESSARY) EP 8.20.82

ECY 050-1-20

CULTURAL RESOURCES REPORT COVER SHEET

DAHP Project Number: 2022-03-01778

Authors: Sydnee Soderberg, Elizabeth Wilmerding, Justin Fitzpatrick, and David A. Harder

Title of Report: Cultural Resource Survey for the Kennewick Multi-Family Apartments Project, Benton County, Washington

Date of Report: April 26, 2022

County(ies): Benton Section: 07 Township: 08 N Range: 29 E

Quad: Kennewick, 1992 Acres: 13.76

PDF of report submitted (REQUIRED) [X] Yes

Historic Property Inventory Forms to be Approved Online? [ ] Yes [X] No

Archaeological Site(s)/Isolate(s) Found or Amended? [ ] Yes [X] No

TCP(s) found? [ ] Yes [X] No

Replace a draft? [ ] Yes [X] No

Satisfy a DAHP Archaeological Excavation Permit requirement? [ ] Yes [X] No

Were Human Remains Found? [ ] Yes DAHP Case # [X] No

DAHP Archaeological Site #:

Exhibit A-9

Cultural Resource Survey for the Kennewick Multi-Family Apartments Project, Benton County, Washington

By: Sydnee Soderberg, Elizabeth Wilmerding, Justin Fitzpatrick, and David A. Harder

PLATEAU
ARCHAEOLOGICAL INVESTIGATIONS, LLC
P.O. Box 714, Pullman, Washington 99163
(509) 332-3830 VOICE/FAX

April 2022

ABSTRACT

Cultural Resource Survey for the Kennewick Multi-Family Apartments Project, Benton County, Washington

Red Tail Development, LLC, is preparing for the development of the Kennewick Multi-Family Apartment Project. The undertaking will include the development of the parcel into 300 multifamily units, and the development of associated access and utilities. The project area covers approximately 13.76 acres and lies in Section 07 of Township 08 North, Range 29 East, Willamette Meridian.

The project area lies within the traditional territory of peoples currently represented by the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs, and the Confederated Tribes and Bands of the Yakama Nation. The Department of Archaeology and Historic Preservation (DAHP) predictive model places portions of the project in areas of "High Risk" for encountering cultural resources. The cultural survey will be performed to support Benton County permitting requirements.

Pre-field research included the review of known archaeological resources within a 1.0-mile radius of the area of potential effect (APE) as inventoried at the Washington State Department of Archaeology and Historic Preservation (DAHP). This review was completed using DAHP's secure electronic database known as the Washington Information System for Architectural and Archaeological Data (WISAARD). This database includes recorded archaeological resources, historic property inventories (HPIs), National Register of Historic Properties (NRHP) and Washington Heritage Register (WHR) properties, identified cemeteries, and previously conducted cultural resource surveys found throughout the state.

The fieldwork was completed in a manner consistent with RCW 27.53.030, and included inspection techniques to identify both surface and subsurface archaeological resources. Plateau archaeologists conducted a pedestrian survey and excavated nine subsurface probes. The pedestrian survey covered the entire APE and subsurface probes were dispersed throughout. The pedestrian survey and subsurface probing revealed no new archaeological or historic material. Plateau recommends that the proposed undertaking will result in **No Historic Properties Affected**, and no further archaeological investigations are recommended prior to, or during, execution of this project.

KEY INFORMATION

PROJECT

Cultural Resource Survey for the Kennewick Multi-Family Apartments Project, Benton County, Washington

REPORT AUTHORS

Sydnee Soderberg, Elizabeth Wilmerding, Justin Fitzpatrick, and David A. Harder

COUNTY

Benton County

LEGAL LOCATION OF PROJECT

Section 07 of Township 08 North, Range 29 East, Willamette Meridian

USGS QUADS

Kennewick, Washington 7.5 minute, 1992

ACREAGE

13.76 acres

PROJECT DATA

No previously recorded historic properties
No new cultural resources located and/or recorded

DAHP PROJECT NUMBER

2022-03-01778

MANAGING AGENCY

Benton County

REPORT PREPARED FOR

Red Tail Development, LLC

FIELD NOTE DISPOSITION

Archived at the office of Plateau Archaeological Investigations, LLC, Pullman.

PRINCIPAL INVESTIGATOR

David A. Harder, M.A.

CERTIFICATION OF RESULTS

I certify that this investigation was conducted and documented according to Secretary of Interior's Standards and Guidelines and that the report is complete and accurate to the best of my knowledge.

Signature of Reporter

April 26, 2022

Date

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PROJECT DESCRIPTION

Red Tail Development, LLC, is preparing to develop 300 multi-family housing units, located in Benton County, Washington (Figure 1). The construction will measure 1,115.5 feet (ft) (340 meters [m]) in length, 865.4 ft (265 m) in width, and will include building several structures and the associated access and utilities. Anticipated impacts include excavations, compaction of sediments, and other ground-disturbing construction activities. The area of potential impact covers approximately 13.76 acres, and lies within Section 07 of Township 08 North, Range 29 East, Willamette Meridian (Figure 2). The area of potential impact hereafter will be referred to as the "Project Area."

The project area lies within the traditional territory of peoples currently represented by the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs, and the Confederated Tribes and Banks of the Yakama Nation. The Department of Archaeology and Historic Preservation (DAHP) predictive model places portions of the project in areas of "High Risk" for encountering cultural resources. The cultural survey will be performed to support Benton County permitting requirements.

STATEMENT OF OBJECTIVES FOR SURVEY

The cultural resource survey of the Kennewick Multi-Family Apartments Project is intended to identify potential historic properties, including archaeological and built environment cultural resources, within the Project Area prior to execution of the proposed project. The pre-field research is designed to identify any known historic properties, including archaeological sites and isolates; historic property inventories of buildings, structures, and historic districts; and cemeteries located in or near the Project Area. Fieldwork procedures are intended to identify areas of moderate to high probability for such cultural resources, previously recorded or otherwise. This report describes the pre-field research, methodology, results, and recommendations for the cultural resources aspect of the proposed project.

PRE-FIELD RESEARCH

Pre-field research included the review of known archaeological resources within a 1.0 mile (mi) (1.6 kilometer [km]) radius of the Project Area as inventoried at the Washington State Department of Archaeology and Historic Preservation (DAHP) in Olympia, Washington. This review was completed using DAHP's secure electronic database known as the Washington Information System for Architectural and Archaeological Data (WISAARD). This database includes recorded archaeological resources, historic property inventories (HPIs), properties and districts on the National Register of Historic Places (NRHP) and the Washington Heritage Register (WHR), identified cemeteries, and previously conducted cultural resource surveys found throughout the state.

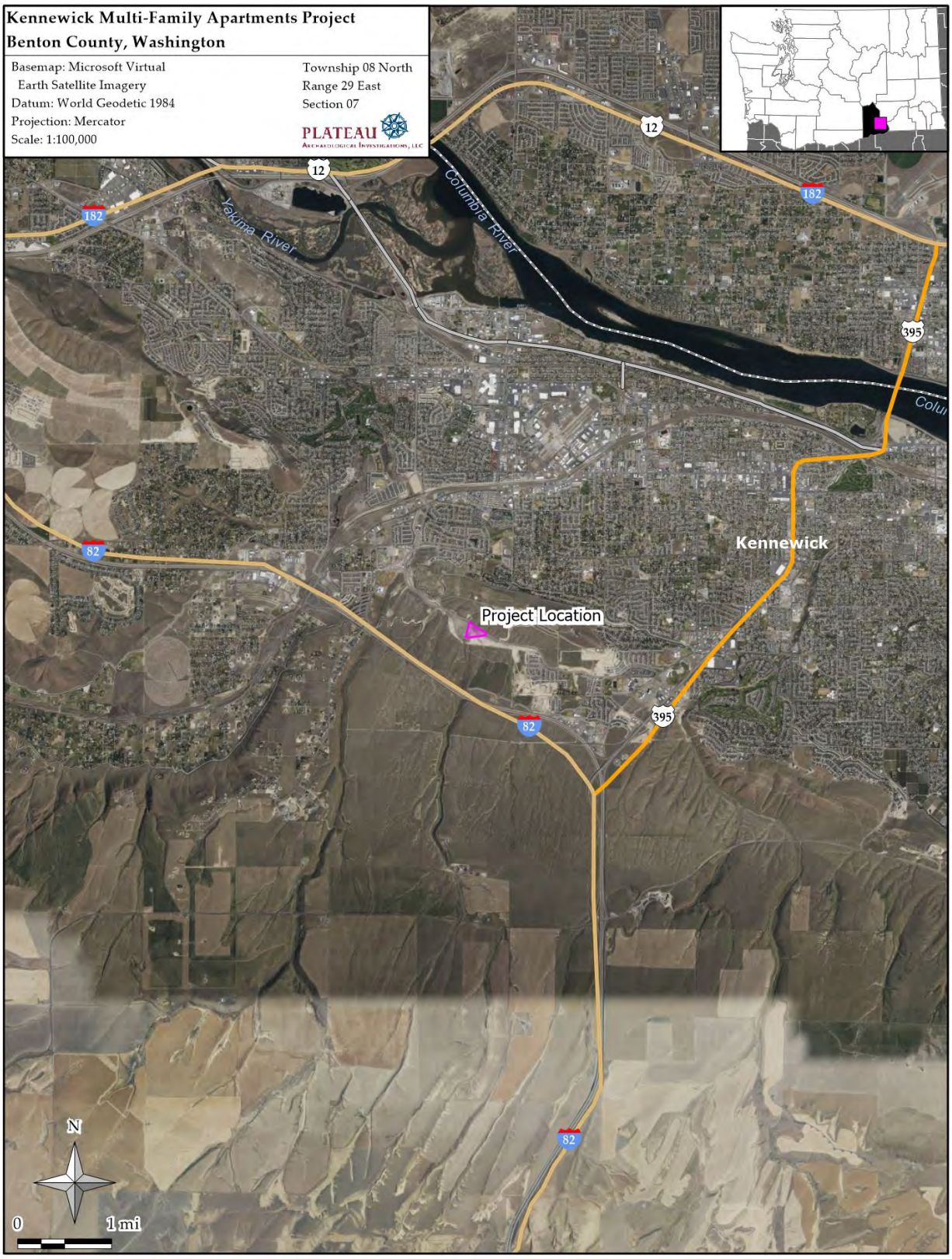

Figure 1. The location of the Project Area within Benton County.

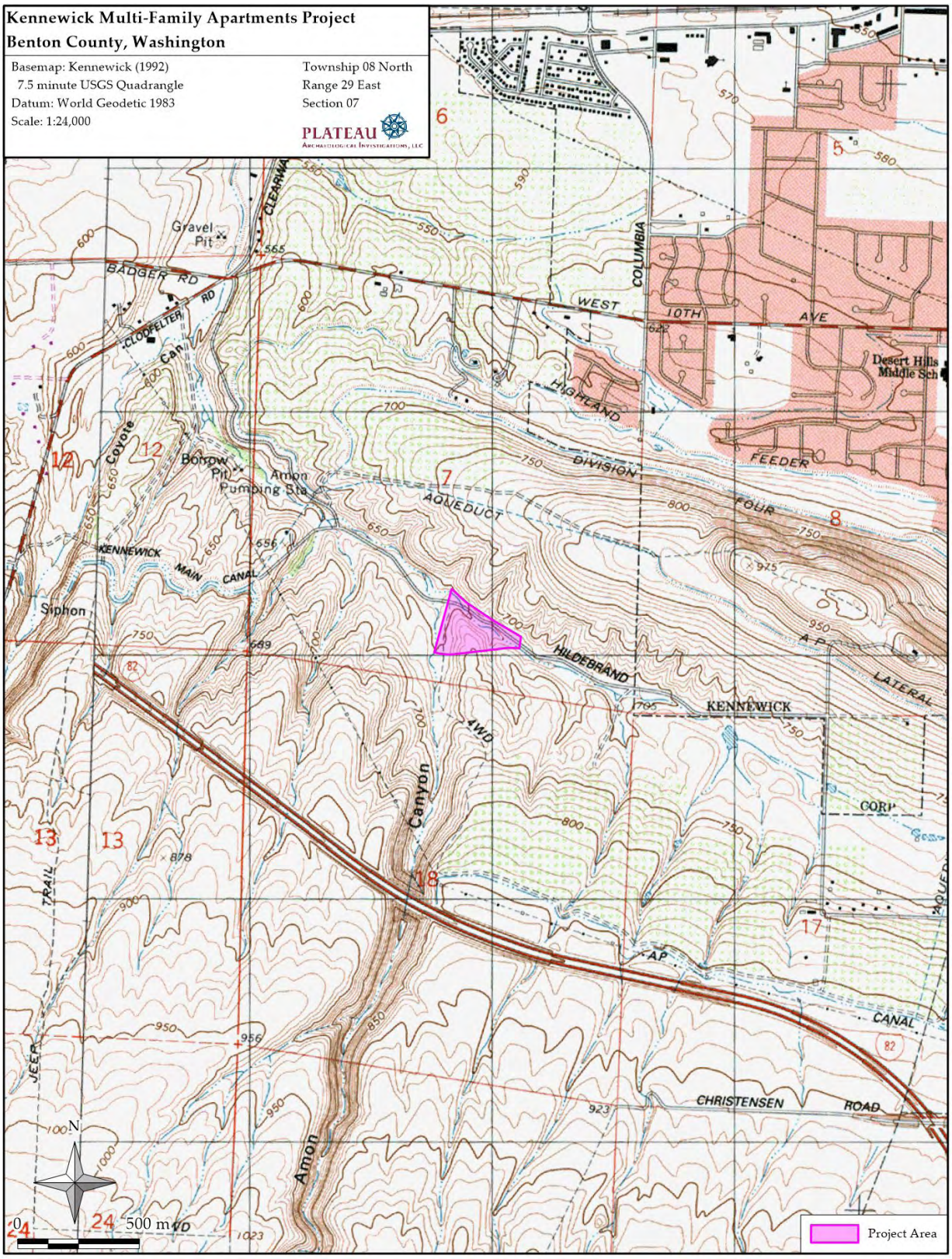

Figure 2. The Project Area shown on a portion of the Kennewick USGS map.

Plateau also conducted cartographic analysis of landform, topography, proximity to water using topographic maps, and the United States Department of Agriculture (USDA) online soil survey. Secondary historic resources, on file at the DAHP and the Plateau office in Pullman, were consulted to identify other potential historic resources. In addition, available survey and overview reports and ethnographic accounts of the region were consulted. This background review allows for the identification of previously recorded historic and archaeological resources within or near the Project Area.

ENVIRONMENTAL SETTING

The Project Area is within the Columbia Basin, situated between the Rocky Mountain and Cascade Mountain ranges. The region consists of gently rolling hills amidst the Channeled Scablands, which are features that resulted from Pleistocene-era mega-floods ranging in size from small stream-like trenches to large coulees measuring miles wide and hundreds of feet deep. Elevations in this region range between 200 ft (61 m) above mean sea level (AMSL) near the Columbia River to over 4,500 ft (1,372 m) AMSL in outlying ridges and low mountains (Fenneman 1946; Hunt 1967).

According to the Natural Resources Conservation Service (2022), the Project Area contains three soil types: Esquatzel fine sandy loam, Finley fine sandy loam, and Warden silt loam.

Table 1. NRCS Soil Descriptions within Project Area.

Soil Name	Parent Material	Horizons	% P/A
Esquatzel fine sandy loam	Alluvium	Horizon I (0–11 in): fine sandy loam Horizon II (11–44 in): silt loam Horizon III (44–60 in): stratified very fine sandy loam to silt loam	44%
Warden silt loam	Loess over lacustrine deposits	Horizon I (0–19 inches): silt loam Horizon II (19–60 in): stratified very fine sandy loam to silt loam	46%
Finley fine sandy loam	Alluvium	Horizon I (0–3 in): fine sandy loam Horizon II (3–13 in): fine sandy loam Horizon III (13–28 in): very gravelly loam Horizon IV (28–60 in): extremely gravelly sand	10%

The predominant draw for Native American and Euroamerican populations in this region was, and still is, the extensive river systems. The most significant environmental feature is the Columbia River, which flows for more than 1,200 mi (2,000 km) from the base of the Canadian Rockies in southeastern British Columbia to the Pacific Ocean at Astoria, Oregon. Ten major tributaries—the Cowlitz, Deschutes, Kootenay, Lewis, Okanogan, Spokane, Snake, Wenatchee, Willamette, and Yakima—complete the drainage system. The most prominent waterway is the Columbia River, which lies 3.5 mi (km) north of the Project Area. Another major waterway nearby is the Snake

River. The confluence of the Columbia River and the Snake River is 9.67 mi (15.6 km) east of the Project Area. Closer to the Project Area lie the A.P. Lateral at 0.5 mi (0.8 km) east, the Highland Feeder Canal, running 0.73 mi (1.2 km) northeast, and the Lateral Number 1.8 Historical Canal which is 0.83 mi (1.3 km) northeast.

The vegetation around the Project Area falls within the *Artemisia tridentata—Agropyron spicatum* habitat type, characterized by arid sagebrush steppe (Daubenmire 1970; Taylor 1992). Big sagebrush *(Artemisia tridentata)* and bluebunch wheatgrass *(Agropyron spicatum)* are dominant in this environment. The plant community includes threetip sagebrush (*Artemisia tripartita*), gray horsebrush (*Tetradymia canescens*), spiny hopsage (*Grayia spinosa*), green rabbitbrush (*Chrysothamnus viscidiflorus*), and gray rabbitbrush (*Chrysothamnus nauseosus*). Grasses and forbs include needle and thread (*Stipa comata*), *Stipa thurberana* (no common name known), bottlebrush squirreltail (*Sitanion hystrix*), Cusick's bluegrass (*Poa cusikii*), Indian paintbrush (*Castilleja* spp.), lupine (*Lupinus* spp.), plantain (*Plantago patagonica*), longleaf phlox (*Phlox longifolia*) and balsamroot (*Balsamorhiza sagittata*). Additional species of flora thrive along the shores of the Columbia River, including bitterbrush (*Purshia tridentata*), quaking aspen (*Populus tremuloides*), willow *(Salix* spp.) and currant (*Ribes* spp.) (Daubenmire 1970). Many of these plants have been incorporated in Native American use as medicinal plants, food sources, and other employment.

The Project Area lies within a region that historically contained an abundance of life. It is likely, though, that Native Americans had access to an even larger variety of resources during the past that played a role in aboriginal use, settlement, and travel patterns in relation to the Project Area. Mammals include sagebrush voles (*Lemmiscus curtatus*), Great Basin pocket mice (*Perognathus parvus*), deer mice (*Peromyscus maniculatus*), bushy-tailed wood rat (*Neotoma cinerea*), Washington ground squirrel (*Spermophilus washingtoni*), northern pocket gopher (*Thomomys talpoides*), yellow bellied marmot (*Marmota flaviventris*), white-tailed hare (*Lepus townsendii*), Nuttal cottontail (*Sylvilagus nuttallii*), porcupine (*Erethizon dorsatum*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethica*), Bighorn sheep (*Ovis canadensis*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), badger (*Taxidea taxus*), and long-tailed weasel (*Mustela frenata*). The occasional bison (*bison bison*) is also thought to be available prehistorically (Burt and Grossenheider 1961; Ingles 1965; Schroedl 1973).

Many types of fowl were also available in the past including Swarth blue grouse (*Dendragapus obscurus pallidus*), Columbian ruffed grouse (*Bonasa umbellus affinis*), Columbian sharp-tailed grouse (*Pedioecetes phasianellus*), western sage grouse *(Centrocercus urophasianus phaios*), mallard duck (*Anas platyrhynchos platyrhynchos*), western harlequin duck (*Histrionicus histrionicus pacificus*), American common merganser *(Mergus merganser americanus*), the lesser snow goose (*Chen hyperborea hyperborea*), and the Great Basin Canada goose (*Branta canadensis moffitti*). Seasonally available birds such as Gadwall (*Anas strepera*), wood duck (*Aix sponsa*), redhead (*Aythya americana*), and the northern ruddy duck (*Oxjura jamaicensis rubida*) resided in the region in the summer. Winter game birds of the region included canvasback (*Aythya valisineria*) and American greater scaup *(Aythya marila nearctica*) (Lothson 1977).

The climate in the Columbia Basin was cool and moist at the end of the last glacial period. Gradually, climatic conditions became markedly warmer and dryer by approximately 9,000 years before present (B.P.). The warm dry climatic trend reached its maximum around 6,500 B.P. and then conditions reverted to a cooler and moister regime (Fryxell and Daugherty 1962). Comparatively, the present climate is arid with mild moist winters and hot dry summers (Meinig 1968). The mean seasonal temperatures recorded at the Kennewick, Washington weather station (#454154) between 1894 and 2012 are 35.5° Fahrenheit (F) in winter and 72.6° F in the summer. Extreme temperatures of -29° F and 115° F have been recorded at the same station. Yearly precipitation averages 7.48 in (Western Regional Climate Center 2022).

REGIONAL PRECONTACT BACKGROUND

The Project Area is included in the Plateau culture area, which corresponds roughly to the geographic region drained by the Fraser, Columbia, and Snake rivers. The Plateau culture area is bordered on the west by the Cascade Mountains and on the east by the Rocky Mountains. The northern border of the culture area is in Canada where it gives way to Arctic culture patterns. The southern border of the Plateau culture area mixes gradually with the Great Basin culture area (Walker 1998:1-3).

A cultural chronology provides a time line describing the adaptations, material culture, subsistence, and sometimes settlement patterns of the people who inhabited a specific area. Based originally on archaeological investigations at 45KT28, the Sunset Creek Site, a chronological sequence identifying technological trends through time emerged for the middle Columbia River region (Nelson 1969). Over the succeeding years, this chronology changed as new archaeological discoveries added to the body of knowledge for the middle Columbia River area, resulting in the identification of five distinct cultural phases; the Paleoindian Phase (11,500 to 10,000 B.P.) (Meltzer 1993), the Windust Phase (10,000 to 8,000 B.P.) (Leonhardy and Rice 1970), the Vantage Phase (8,000 to 4,000 B.P.), the Frenchmen Springs Phase (4,000 to 2,5000 B.P.) (Galm et al. 1981:55), and the Sunset Creek Phase (2,500 to 250 B.P.) (Galm et al. 1981:82). The culture chronology of the middle Columbia River has been discussed at length in Nelson (1969), Rice (1969), Leohnhardy and Rice (1970), Galm et al. (1981), and Meltzer (1993), and, if pertinent, will be discussed further within the results of this report.

Ethnography

Ethnographic sources that depict the geographic distribution of Native American traditional territories provide a general guide for identifying the range of occupation for Indigenous groups in the precontact and historic eras. However, these boundaries are oversimplified and should not be viewed as rigid considering that they are arbitrarily defined, with sharp lines that neither depict joint or disputed occupations nor historical changes in range distributions prior to and after the early- to mid-19th century (Walker, ed. 1998:viii). While these ethnographic sources provide a baseline for recognizing the ancestral homes of the groups that originally occupied the Project Area,

it is important to recognize the variability in the geographic distribution of groups on the Plateau and the broader relationships between people and place that make these boundaries permeable (see Thom 2009:179).

Umatilla The Project Area lies within the traditional area of the Umatilla Tribe. The Umatilla tribe is part of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) which consists of Umatilla, Walla Walla, and Cayuse tribal groups. The Umatilla belong to the Sahaptan language group which extends from the central portion of the Columbia River to the lower Snake River. The Umatilla occupied both the Oregon and Washington sides of the Columbia river from Arlington, Oregon, to just west of the Walla Walla River, and south of the Yakima River (Shiner 1961). Areas along Willow Creek, the Umatilla River, and the primary stem of the Columbia were occupied by the Umatilla, while the Blue Mountains provided the Umatilla extensive hunting grounds (Karson 2006).

The Umatilla engaged in a hunting-fishing-gathering subsistence economy where deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), rabbit (*Sylvilagus spp.*), antelope (*Antilocapra americana*), and salmon (*Oncorhynchus spp.*) were highly important protein sources to the diet (Shiner 1961). Fish probably made up the bulk of the diet and were harvested using weir, net, and dip-pole methods (Osborne et al. 1961; Shiner 1961). Driftwood logs were often used to construct dugout canoes due to the lack of trees in the area (Stern 1984). Salmon were often caught in mass amounts sometimes consisting of up to 100 fish per fisherman. The salmon were processed in a variety of ways for storage. Air-drying, smoking, or sun-drying of fish was common practice and often done by women while men were in charge of procuring the catch (Stern 1998). Gathering of shellfish was also common along the Columbia River (Shiner 1961). Those who occupied the fisheries over the summer would supplement their diet with jackrabbits, sage hens, and prairie chickens (Stern 1984). Just as winter village sites were owned, resource patches, including fishing sites, root grounds, berry patches, and hunting tracts, were owned and shared with allied peoples (Stern 1984).

Gathering of plant foods was highly important to the carbohydrate-scarce diet; although, Osborne (et al. 1961) note that plant gathering in this region was not as important as it was in the Great Basin. Plant foods gathered included camas (*Camassia*), cous-root (*Lomatium cous*), berries, pine nuts, seeds, bark, and sap (Shiner 1961). February saw the return of wild celery, and in April cous-root was harvested in the Blue Mountains by women and children, while men tended to weirs on nearby streams (Stern 1984). Cooking was primarily done by roasting foods in earth ovens or by boiling food (Shiner 1961).

The Umatilla practiced a semi-sedentary seasonal round which included winter villages and summer camps along different areas of the Columbia River (Ozborne et al. 1961; Shiner 1961; Stern 1984, 1998). Winter villages were often lined with small hamlets located on the same rivers, streams, and adjacent islands and these sites were often owned and re-occupied each year (Stern 1984). Umatilla houses were long, multifamily homes that could reach up to 60 feet long and 16 feet wide (Shiner 1961). House floors were shallow excavated oval depressions, and poles and mats

were used to construct the walls and roof (Shiner 1961). Sites where house pits are located exhibit reoccurring use through time as evidenced through multiple floors (Shiner 1961, 183). Shiner (1961, 193) states that house pits were oriented with the long axis to run parallel with the Columbia River.

Winter villages were comprised of several mat lodge groups, with each lodge consisting of about 30 people from several nuclear family units linked through kinship or friendship (Stern 1998). Each family had a representative, or family head, who worked with the other family heads to organize and manage household functions and labor (Stern 1998). The most influential family head represented the lodge, or household, within the larger village community (Stern 1998).

The Umatilla, like many other cultural groups in the Columbia River system, had a decentralized political system (Osborne et al. 1961; Shiner 1961). The Umatilla practiced bilateral kinship and descent, where individuals can access resources, knowledge, and places through their mother and their father's family or their spouses family (Schneider and Homans 1955). Extended families were the foundation of kinship communities for the Umatilla (Karson 2006), which allowed for membership of winter villages and summer camps to be extremely flexible. Bilateral kinship offered kindred beyond the village, affording individuals the ability to move between villages each season (Stern 1998). This allowed for flexible household membership and relatively autonomous structure within winter and summer camps. Marriage between the Umatilla, Walla Walla, Cayuse, and Yakima was common and often promoted resource sharing between groups (Stern 1984).

Although Osborne (et al. 1961) and Shiner (1961) suggest a lack of developed social stratification in the region, archaeological indicators for exotic materials and wealth items, including marine shell beads, stone figures, and stone bowls, are reported by both authors. It is possible, given the archaeological material, that social stratification was present but not as dramatic as coastal models. Stern (1984, 1998) notes that a social scale reflecting wealth and respectability of individual families was recognized, but this may have developed after the introduction of the horse and was influenced by the Plains Indians. Lewis and Clark noted considerable changes in lifestyle for the Umatilla, possibly in regards to the adoption of buffalo hunting or the adoption of Plains wealth items, after the introduction of the horse (Stern 1984). After the introduction of the horse, a man's wealth and status was determined by the number of horses he had, with 100 or more being the acceptable amount for a wealthy man to own (Stern 1984).

Late in the nineteenth century, peoples from the Umatilla Reservation, recalled traveling south to trade for dentalia shell beads and clam-shell wampum with the Klamath (Stern 1984). Stern (1984, 24) states that this journey south for dentalia and clam-shell wampum was likely necessitated after the decimation of the Chinookans, who were their previous source. Dentalia and other trade beads were the medium for exchange throughout the region prior to Euroamerican contact; however, after Euroamerican contact, beaver pelts became the main currency in the region (Stern 1984).

Prior to Euroamerican contact, the Umatilla practiced a prophetic religion, similar to other Plateau groups, that relied on the use of a Shaman to cure illness and to ensure a successful hunt (Stern 1984). Catholicism and Presbyterianism reached the Umatilla, and other Plateau groups, through

the Iroquois, fur trappers, and missionaries throughout the nineteenth century (O'Hara 1917, Stern 1984). The North West Company erected Fort Walla Walla (or Nez Perces) near the mouth of the Walla Walla River and later the Hudson's Bay Company established a coalition with the north westerners of the area, thus causing the area to boom with an influx of trade between Plateau peoples and Euroamericans (Stern 1998). In 1860, after much fighting between several Plateau groups, Euroamericans settlers, and the United States Government, the Confederated Tribe of the Umatilla Indian Reservation, including the Cayuse, Walla Walla, and Umatilla, were brought to the Umatilla Reservation in the Cayuse portion of the Umatilla Valley (Stern 1998). Some Walla Walla refused to relocate to the reservation, and instead continued their seasonal movements along the Columbia and the Grande Ronde (Stern 1998).

Yakama The Project Area falls within the traditional territory of the Yakama. There remains confusion about the grouping and designation of the Yakama and surrounding bands and tribes. While some use "Yakama" to refer to constituent members of the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation), Hunn (2003:7) noted that the Yakama "proper" may be understood as the Native people who lived on the Yakima River at the time of the Walla Walla Treaty Council in 1855. In the mid-nineteenth century, Yakama territory was divided into the Upper Yakama and Lower Yakama, with Wenas Creek dividing the two closely connected bands (Schuster 1998:327). Some suggest that the Lower Yakama (*mámachatpam*) are the Yakama proper, and that the Upper Yakama are the same as, or nearly indiscernible from, the Kittitas (*pshwánwapam*) (Gibbs 1855; see also Hunn 2003:7, Schuster 1998:327). The Yakama and neighboring groups (Klikitat, Kittitas, and Taitnapam [Upper Cowlitz]) spoke dialects of the Northwest Sahaptin dialect cluster (Ray 1936:108; Schuster 1998:327), while the Wanapum, who were also closely related to the Yakama, spoke a dialect of the Northeast Sahaptin cluster (Kinkade et al. 1998:58).

The Yakama and neighboring groups are traditionally related through language, contiguous territories, reciprocal exchange systems, recurring social interactions, and similar lifeways, yet each consisted of independent, politically autonomous bands and villages prior to the treaty era (Schuster 1998:327). The geographic subsistence, political, social, and spiritual areas in which these related groups maintained their lifeways both then and now is often referred to as "Yakama country," perhaps as a legacy of the Treaty of 1855 and the U.S. Government's attempt to lump numerous discrete bands into a single representative tribe for exploitative and administrative purposes. Today, these groups and their sovereign rights and interests are represented within the Yakama Nation (Schuster 1998).

Traditionally, the primary political unit in the region occupied by the Yakama and other closely related tribes and bands was the village, while the basic residential unit was the bilateral (mother's and father's) extended family. The introduction of the horse, which came about through trading or raiding with the Western Shoshone during the 1730s, had a notable impact on the lives of Plateau Native Americans (Nelson 1973). Prior to the horse, winter villages were comprised of residential structures that were typically semi-subterranean, circular mat lodges measuring between 12 and 30 ft (3.7 and 9.1 m) in diameter and 6.0 to 7.0 ft (1.8 to 2.1 m) in total depth, with a ladder exit and

smoke hole at the apex of the conical roof (Schuster 1998:335). After the introduction of the horse, winter villages were typically comprised of 5 to 15 multi-family lodges, or longhouses, which accommodated extended affinal families. These lodges were rectangular mat structures measuring 40 to 60 ft (12.2 to 12.3 m) long, 12 to 15 ft (3.7 to 4.5 m) wide, approximately 10 ft (3.1 m) tall, and with entrances at each rounded end. Longhouses (*káatnam*) could be dismantled in the spring and moved if necessary, and were not only the primary winter living spaces of Yakama and Kittitas groups, but were also the centers of ceremonial and religious life in the winter village until the latter 18th century when community ceremonial longhouses began to appear (Schuster 1998:335).

In addition to the larger multifamily lodges, villages typically contained several smaller, conical lodges that housed nuclear families, as well as a few sweat lodges (Schuster 1998:335). Larger Kittitas and Yakama winter villages between the present-day unincorporated communities of Thorp and Parker were home to 500 to 2,000 people or more, respectively (Schuster 1998:327-329). Verne Ray identified 77 or more villages or camps in the surrounding areas (1936:143-151), and Schuster (1998:327) pointed to additional work done by Spier (1936) and others that depict dozens of discrete villages, camps, and bands. The Yakama and Kittitas winter villages described here were arranged in river valleys, which offered not only water transportation and access to salmon, eels, and other riverine resources, but also shelter from harsh elements and late-fall and winter pastures for grazing horses (Ray 1939:135; Schuster 1998:335).

Residential patterns and subsistence procurement followed seasonal changes and the accompanying annual round. Settlement and subsistence centered along the river courses, although the Yakama would extensively utilize the Cascades in the summer and fall as resources became available (Ray 1936). River valleys were occupied during the fall salmon runs in September and October, and winter villages were usually settled by November. During the coldest months of the year, the Yakama relied upon stored foods from their previous annual round and any game that could be taken. In early spring, winter supplies began to dwindle and people began making forays to gather emergent root crops (Nelson 1973). Snowmelt in February or March saw the "first foods feast," held in a community longhouse, which marked the first stalks of the earliest harvestable wild plant, celery (*Lomatium grayi*), as villagers eagerly awaited the opportunity to begin salmon fishing (Schuster 1998:331).

Mid-spring salmon fishing marked the departure of permanent and semi-permanent winter villages for fisheries along the Columbia, Yakima, Klikitat, White Salmon, and Cowlitz rivers, as well as several tributaries (Schuster 1998:331). Late spring and summer camps were situated in the uplands, where hunting, berry picking, and root digging occurred. Deer were particularly important game, as they provided venison and materials for much of the Yakama and Kittitas material culture. Individuals or small groups often went to specific areas to hunt a variety of game, quarry toolstone, collect camas and berries, or gather other resources such as tules to make mats (Aikens 1993:90). Some Yakama would occasionally travel to hunt buffalo on the Plains, east of the Rockies, in cooperative hunts with other eastern Plateau groups (Schuster 1998:333).

After another salmon run and multiple camp movements based on specific resources throughout the summer, people would return to the river valleys for massive gatherings, as discussed by Ray (1936, 1939). These gatherings involved thousands of people who engaged in trading, horse races, marriages and family visits, dispute settlements, oral narratives, and every other complexity of life on the Plateau. Such gatherings took place in late-May, early-June, and August near the present-day City of Kittitas and the community of Teanaway, and served as the social, economic, and political highlights of the year. Following the summer, families and village communities would make their ways back to the river valleys in time for fall salmon runs and elk hunting, before settling into their winter village sites by October or November when the heavy frost arrived (Schuster 1998:328).

The Yakama engaged in an expansive trade system that extended from the Plateau and Northwest Coast to the Plains and Great Basin. Access to complex trade networks was essential for maintaining the traditional economy and lifeways of the Yakama (Walker 1997:71). The adoption of the horse allowed the Yakama to greatly expand their range of travel and intensify their existing patterns of trade and exchange (Walker 1997:77). Horses allowed bulk packages of root cakes, dried berries, buffalo robes, and other goods to be transported with relative ease (Teit 1928). Allan Smith (1964) documented an expansive trans-Cascades trade network that was utilized by the Yakama and surrounding groups. The Yakama would frequently travel across the Cascades in order to obtain supplies of natural resources that were not available in the Plateau and to establish and maintain friendly relationships with their Northwest Coast neighbors (Smith 1964). These and other trade networks allowed the Yakama to obtain and exchange aquatic resources, game, decorative objects, desert products, and other materials, as well as slaves (Walker 1997:90).

The Yakama traditionally emphasized and continue to maintain the importance of intergenerational teaching and learning. One such example is found in dance, which is a key component of Yakama life. As noted by Yakama member Sue Rigdon, each dance has a "spirit and its own life;" thus, learning traditional dances is a spiritual act (Jacob 2013:22, 38). These lessons contain "important teachings about cultural pride, leadership, and responsibility to the future generations"(Jacob 2013:38). Dance is one of multiple pathways to cultural revitalization and healing the wounds of colonialism for Yakama people (Jacob 2013:4, 41).

While ethnographies such as those referenced above provide a useful means of understanding the traditional lifeways of Indigenous peoples, it is important to remember that Indigenous groups were, and continue to be, markedly complex and diverse. Uncritical applications of the ethnographic record to representations of past lifeways have the potential to produce reductionist views of tribes and bands that portray them as homogenous or static. The above depictions of the Yakama and their neighboring groups serve as generalized portrayals of the traditional lives of these groups, and should be viewed in light of these complexities.

The ethnographic records of the groups and areas surrounding the Project Area and the larger Plateau is much more complex, with a wider cultural diversity than can be summarized here. Ethnographic studies by Anastasio (1972), Boas and Teit (1996), Ray (1936, 1939, 1942), Relander (1986), Ruby and Brown (1981, 1989), Schuster (1998), Smith (1988), Spier (1936), and others offer the reader a more thorough examination of the represented Native culture groups.

Warm Springs The Confederated Tribes of the Warm Springs Reservation (CTWS) is comprised of three tribes, the Wasco, the Warm Springs, and the Paiute (CTWS 2021). The Wasco are the easternmost group of Chinookan-speaking Native Americans and have traditional territory along the Columbia River from the Dalles to the eastern foothills of the Oregon Cascades (CTWS 2021, Native-Land.ca 2021). The Warm Springs live along the Columbia tributaries in northeastern Oregon including the Deschutes River and the John Day River, and interacted heavily with the Wasco bands along the Columbia River (CTWS 2021). The Paiute lived in southeastern Oregon and expanding throughout the Great Basin region of eastern California and Western Nevada (CTWS 2021, Native-Land.ca 2021).

The three tribes of the CTWS engaged in a seasonal round of hunting, gathering, and fishing activities and often interacted with each other (Adams et al. 2019, CTWS 2021). The Wasco were primarily engaged in a fishing economics system with gathering and trading of fish products subsidizing the rest of their diet (CTWS 2021). Roots and beads were available as trade goods from the western Chinookan bands, while game, clothing, and horses came from trade with Sahaptin bands (CTWS 2021). The Wascoes produced root breads, salmon meal, and bear grass for trade amongst other tribes (CTWS 2021).

The Warm Springs were considered more mobile and inhabited both summer and winter villages throughout their territory (CTWS 2021, Murdock 1980). The Warm Springs engaged in a hunting, fishing, and gathering subsistence economy; however, Murdock (1980) notes that the Tenino (Warm Springs) also had domesticated dogs. Successful hunting and fishing expeditions were followed by mass processing efforts including smoking meat, smoking fish, and processing plant materials for storage or trade (Murdock 1980). Plant foods were comprised of berries, roots, acorns, and pine nuts (Murdock 1980). Large winter villages often disbanded in the summer, with some individuals staying on the Columbia River and its tributaries to engage in fishing expeditions while the other half ventured into the mountains to gather and hunt (Murdock 1980). While hunting and gathering provided a large portion of the diet, the subsistence economy of the Warm Springs was predominantly focused on salmon fishing (CTWS 2021). The Warm Springs, like the Wascoes, built scaffoldings along the waterfalls in order to more easily catch salmon with dip nets (CTWS 2021). The Warm Springs often interacted with the Wascoes despite their differences in language (CTWS 2021).

The Paiute reportedly did not interact often with the Warm Springs or the Wascoes according to the CTWS website; however, many of their people were removed to the Warm Springs reservation (CTWS 2021). The Paiute, in comparison to the Warm Springs and Wascoes, lived a highly

nomadic life on the high-plains of the Great Basin often chasing game (CTWS 2021). Although fish were likely consumed, it appears that the Paiute did not integrate fish into the subsistence economy as heavily as the Warm Springs and Wascoes (CTWS 2021).

The Confederated Tribes of the Warm Springs produced a variety of artifacts that speak to the variety of activities they engaged in. Animal horns, including deer, elk, mountain sheep, and goats, were often used for wedges, picks, chisels, net gauges, gaming pieces, and occasionally projectile points (Murdock 1980). Obsidian appears to be the predominant stone utilizing to manufacture projectile points and knives; however, chert and other stone materials were available and have been identified throughout Warm Springs territory (Murdock 1980, Fulgham 2019). Groundstone was also utilized throughout the Warm Springs region although no elaborate discussion is presented in Murdock (1980).

Wood was utilized for a variety of artifacts including cedar canoes and paddles; cottonwood house timbers and fish scaffolding; oak for bow staves, digging sticks, shovels, and war clubs; fir for dip-net handles, fish spears, fire drills, and war spears (Murdock 1980). Other wood species were used for a variety of artifacts including arrow shafts, netting needles, drum hoops, and wood utensils (Murdock 1980).

With the exception of the Paiute, the Confederated Tribes of the Warm Springs often lived in larger winter villages along the Columbia River and its main tributaries in joint households (Murdock 1980). The adult male who owned the house was often, but not always the head of the household (Murdock 1980). Married sons often remained in their fathers households but also created independent households when homes became too small (Murdock 1980). Leadership within villages often fell to one or several men depending upon the size of the village or village structure (Murdock 1980).

While ethnographies such as those referenced above provide a useful means of understanding the traditional lifeways of Indigenous peoples, it is important to remember that Indigenous groups were, and continue to be, markedly complex, dynamic, and diverse. Uncritical applications of the ethnographic record to representations of past lifeways have the potential to produce reductionist views of tribes and bands that portray them as homogenous or static. The above depictions of the Umatilla, Yakama, and Warm Springs peoples serve as generalized portrayals of the traditional lives of these groups, and should be viewed in light of these complexities.

Places of Cultural Significance

Traditional Cultural Places (TCPs) are important for the "role the property plays in a community's historically rooted beliefs, customs and practices" as stated in the *National Register Bulletin 38* (U.S. Department of the Interior 1990). Although these places can be difficult to identify and evaluate from an etic perspective, an initial search of pertinent publications can be helpful toward identifying the types of properties that may be expected. *National Register Bulletin 38* goes on to state that "examples of properties possessing such significance include:

- a location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world;
- a rural community whose organization, buildings and structures, or patterns of land use reflect the cultural traditions valued by its long-term residents;
- an urban neighborhood that is the traditional home of a particular cultural group, and that reflects its beliefs and practices;
- a location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice; and
- a location where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historic identity" (1990:1).

An ethnographic review of culturally significant properties was performed using publicly available resources, and should not be construed as an exhaustive identification of potential resources. The works of Angelo Anastasio (1972), Eugene Hunn, et al (2015), Jennifer Karson (2006), Verne Ray (1933, 1936, 1939, 1942), Robert H. Ruby and John A. Brown (1972), Helen H. Schuster (1998), Alan Smith (1988), Theodore Stern (1998), Leslie Spier (1936), and Robert Suphan (1974). Three ethnographic villages were identified within 10 mi (16 km) of the Project Area (Figure 3, Table 2).

Numerous collections of published legends were consulted to identify points of legendary significance within the Project Area. These include publications by Franz Boas (1917), Ella Clark (1969), Richard Erdoes and Alfonso Ortiz (1984), Eugene Hunn et al. (2015) and Verne Ray (1933). The Project Area intersects with the ethnographically known *Piyuušmaami Pùštáy*, "hills of the snakes." This is the Sahaptin name for a chain of hills beginning southwest of Richland, WA and extending southeast to the Columbia River. It refers to a mythical snake transformed into a mountain chain whose head has now been inundated by the river. This chain of mountains includes Red Mountain, Candy Mountain, and Badger Mountain (Hunn et al. 2015:99-100) (Table 2).

It should be noted that TCPs, place names, and landscape narratives are highly sensitive and often sacred. Native American traditional knowledge and landscape narratives are extensive within traditional territories, which extend well-beyond current Reservation boundaries and include the Project Area. Due to the significance of TCPs, as well as their esoteric and sacred importance, and out of genuine and reasonable concern for their safety, tribes often do not share information regarding TCPs, and published materials often do not reveal locations of sensitive properties or narratives. Given their access to qualitative data, narratives, and traditional knowledge, the Confederated Tribes of the Umatilla Indian Reservation, which represent the Walla Walla, Umatilla, and Cayuse, are uniquely qualified to do additional review. If further review of TCPs is required, it is recommended that one make arrangements with the Tribes directly.

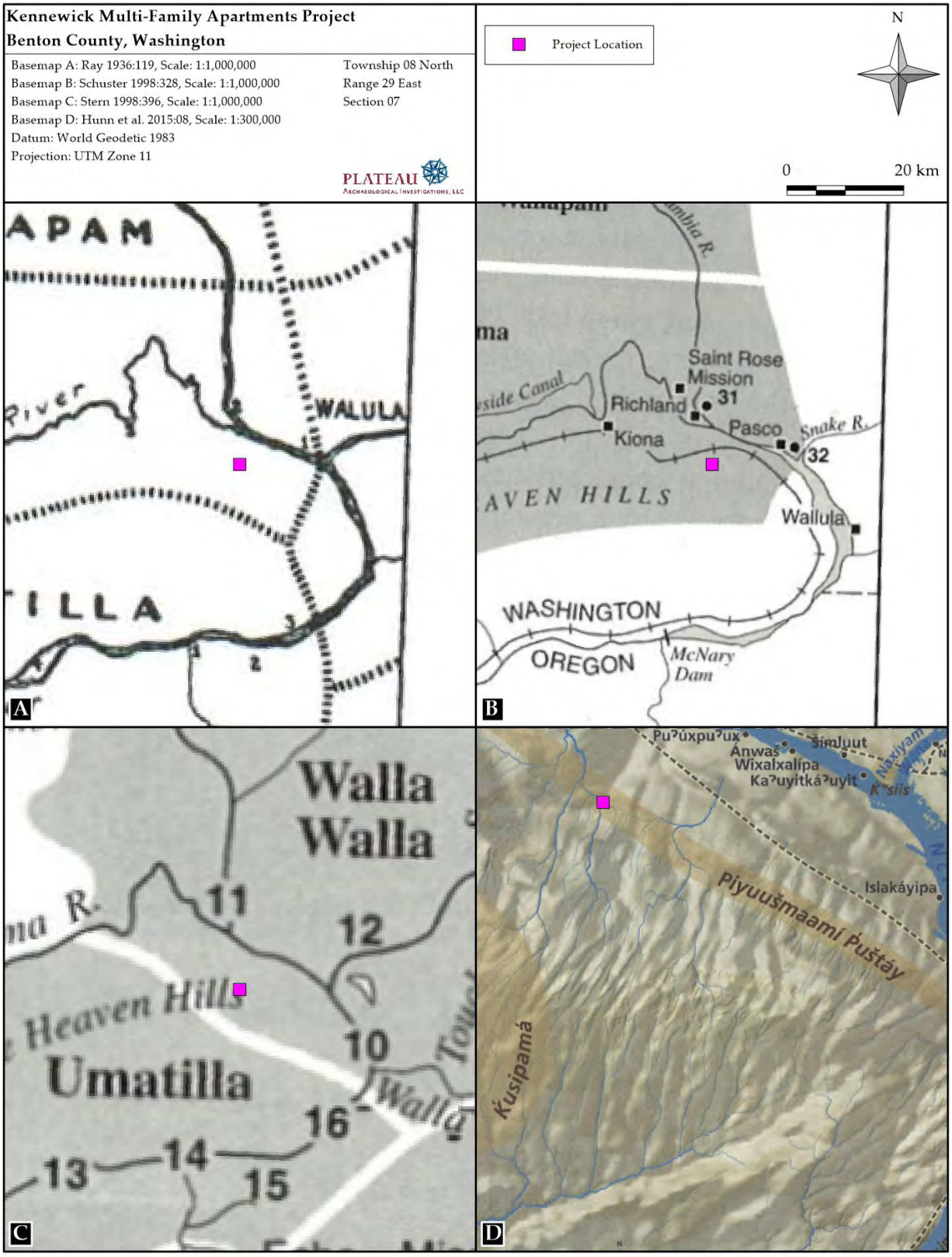

Figure 3. The Project Area shown in relation to ethnographic locations.

Table 2. Ethnographic Locations near the Project Area.

Traditional Name	Translation	Details
tanáẓalu	"throw rocks at fish"	This large village and fishing site is located east of the Columbia opposite the mouth of the Yakima River. It is located approximately 6 mi (9.7 km) north of the Project Area (Schuster 1998:328; Ray 1936:144).
ḱwsis	"at the point of land" (Hunn et al. 2015:94) or "two rivers meet" (Ray 1936:144)	At the convergence of the Columbia and Snake Rivers, it was a large, permanently occupied fishing settlement and an important trade center. It is located 9 miles (14.5 km) east of the Project Area (Schuster 1998:328; Hunn et al. 2015:94; Ray 1936:144).
čamná	No translation	This village is located 6 mi (9.7 km) north of the Project Area (Stern 1998:396).
Piyuušmaami P̀uštáy	"Hills of the snakes"	Intersects with Project Area (Hunn et al. 2015:94).

REGIONAL HISTORIC BACKGROUND

Contact with peoples on the west coast of the continent was well established by the end of the eighteenth century by British, Spanish, and Russian trading vessels that made regular visits to the coastline. These trading expeditions began the first contact between aboriginal groups and outside cultures. Written historic accounts of the area, though, really begin when Lewis and Clark journeyed through the region in 1805.

On August 12, 1805, the Corps of Discovery (Corps) expedition led by Meriwether Lewis and William Clark traversed Lemhi Pass, crossing the Continental Divide into north Idaho and becoming the first European Americans to explore the region. The Corps met Chief Yelleppit of the Wallulapum tribe while traveling along the Walla Walla River towards the Pacific Ocean, but the encounter was brief. However, on their return in April of 1806, the Corps spent several days at Chief Yelleppit's village, trading and learning of an overland route towards their next destination before departing (National Parks Service 2020). Speaking specifically of the Walla Walla region, Lewis wrote:

> ...the country along the rocky mountains for several hundred miles in length and about 50 in width is level extreemly [sic] fertile and in many parts covered with a tall and open growth of the longleafed pine, near the watercourses the hills are steep and lofty tho' [they] are covered with a good soil not remarkably stony and possess more timber than the level country. the bottom lands on the watercou[r]ses are reather [sic] narrow and confined tho' fertile & seldom inundated. this country would form an extensive settlement; the climate appears quite as mild as that of similar latitude on the Atlantic coast if not more so and it cannot be otherwise than healthy; it possesses a fine dry pure air. the grass and many plants are now

> upwards to knee high. I have no doubt but this tract of country if cultivated would produce in great abundance every article essentially necessary to the comfort and subsistence of civillized man (quoted in Meinig 1968:31).

And with this seal of approval, the region was soon traversed and explored by trappers, fur traders, and missionaries.

Fort Walla Walla (Nez Perce) was constructed in 1818 by the Hudson's Bay Company. The fort was strategically built at the confluence of the Columbia and Walla Walla rivers, virtually guaranteeing the business of trading parties departing for and arriving from peripheral districts who used the Columbia as a trunk line to the sea. This was also an important area to the Native Americans, which served as a major meeting and trading ground for themselves. With the establishment of the fort came increasing hostilities, leading this informal rendevous into a permanent post.

To that end, a formidable fort was built. Dwellings and storehouses were enclosed inside a twelve-foot wall. Surrounding the inner cluster was a palisade reaching twenty feet tall topped by a range of balustrades four feet high, which served as an encircling gallery (Meinig 1968:62-63). At each corner stood wooden fortified water towers and 200-gallon water reservoirs to combat fire. Cannons, muskets, and pikes added additional protection. Indians were not allowed inside the inner circle; rather, trade was conducted through a small opening in the inner wall. This double-wall design was unique among the company's posts at that time. Fort Walla Walla was the strongest and most complete fort west of the Rocky Mountains and earned the title the "Gibralter of the Columbia" (Meinig 1968:63). It not only was an important fur trading depot, but it also provided grain to the other forts in the northwest (Bennett 1980; Brosch 1951).

Following in the footsteps of the fur trapping era, and before the massive influx of immigrants, came the missionaries. First to the region were Dr. Marcus Whitman and his wife, Narcissa, together serving the American Board of Commissioners for Foreign Missions (ABCFM), a group that governed the activities of Presbyterian and Congregational missions to various Native American tribes. In the spring of 1836, Marcus (then age 34) and Narcissa (then age 32), along with another missionary couple, Henry and Eliza Spalding, traveled west reaching the Walla Walla Valley in September of that same year. The Spaldings continued westward while the Whitmans remained in the valley to establish their mission at Waiilatpu on the Walla Walla River (Bennett 1980).

For all their good intentions, it appears that the Whitmans struggled at their missionary duties – mainly attracting converts. The Cayuse seemed impervious to the Euroamericans religion, perhaps having heard tales of it in their ever-expanding travels. The ABCFM threatened to close the mission in 1842. A trip east to plea his case led the council to reconsider their decision and the Whitmans were able to keep the Walla Walla mission open. Marcus traveled back west in 1843 in the company of approximately 1,000 settlers, a movement known as The Great Migration along the Oregon Trail. Throughout the next four years, the Walla Walla mission became a way-station for exhausted settlers arriving from the east.

Although interaction between the Whitmans and the Cayuse had been cordial from initial contact, Native American alarm rose at the massive influx of Europeans into their homeland. Not only were these new people claiming prime land but they were introducing new diseases to which the Native Americans had no immunity. Tensions reached a violent climax when an epidemic of the measles hit the valley in 1847. The Whitmans administered medical attention (inoculations) to all; however, without immunity, the Native Americans did not recover as well as the settlers. Suspecting they were receiving inadequate treatment, a small group attacked the mission on November 29, 1847, killing the Whitmans and twelve others. Dubbed the Whitman Massacre, five members of the Cayuse tribe, including their chief, Tiloukaikt, were later tried for the murders and subsequently hung in Oregon City (Bennett 1980; Gray 1953).

The Oregon Territory (later Washington and Idaho) was established in 1848 following the Whitman Massacre. Efforts were made to limit the incursion of emigrants and others into Indian territories but by 1850, nearly 12,000 immigrants had passed through the Plateau region along the Oregon Trail (Beckham 1998; Walker and Sprague 1998). Prohibition of settlement was strictly maintained, and as General Wool pointed out, "the army cannot furnish guards to farm houses dotted among hostile tribes" (Meinig 1968:165). The settlement prohibition was only a temporary solution to an inevitability. People settled and volunteer militias attacked indiscriminately, fueling the fire under uncertain relations.

In an attempt to quell this unrest, treaties between Native tribes and the new state and federal governments were soon underway. Washington Governor Isaac Stevens, also appointed as Superintendent of Indian Affairs by President Pierce, worked jointly with Joel Palmer, Superintendent of Indian Affairs in Oregon, to negotiate a series of treaties between 1854 and 1855. The Walla Walla Treaty Council of 1855 was created to establish land cessions and reservations among Native American tribes of the Southern Plateau in Washington and Oregon Territories. The first of these treaties focused on the Walla Walla, Cayuse, and Umatilla tribes. A total of 6.4 million acres of land was ceded with 512,000 acres originally designated for the Umatilla Indian Reservation near modern day Pendleton, Oregon. A series of surveys and executive acts reduced this land to its current size of 172,000 acres, with tribes reserving their right to fish, hunt, and gather traditional foods and medicines throughout the ceded lands (Lahren 1998:484-487). These treaties were difficult to maintain in light of the Chinook jargon used in negotiations, rapid influx of miners following the several "rushes," and settlers who were eager for property. Almost immediately after signing the Walla Walla Council Treaty of 1855, gold was discovered on several promised reservations in the Plateau, and miners began to mine the mineral-rich lands. The introduction of disease, treaty violations, and other stresses introduced by the new settlers caused mistrust and eventually, warfare.

The unrest culminated with George Wright's ruthless campaign in 1858 that resulted in the executions and murders of 16 Indians including a Yakama chief named Owhi and his son, Qualchan (Beckham 1998). While Lieutenant Colonel Steptoe's campaign was underway north, near present-day Spokane, Major R.S. Garnett led approximately 300 soldiers on a sweep from Fort Simcoe up through the Yakama country, through Wenatchee, and as far as the Similkameen River.

Garnett's sweep resulted in the summary executions of 10 Indians suspected of attacking miners, and the loss of one private who was lagging behind the company and presumed shot by Natives (Wilson 1990:62). Meanwhile, the settlers had sought retribution on the Cayuse for the Whitman Massacre. Rather than bring to trial those that committed the murders, the settlers attacked the entire Cayuse.

These conflicts were settled in 1860 with the creation of the Confederated Tribes of the Umatilla, which resulted in the removal of Walla Walla, Cayuse, and Umatilla peoples to the Umatilla Indian Reservation. However, this did not solve unrest between Native Americans and Euroamericans settlers, eventually culminating in clashes with bordering towns over land (Stern 1998: 415).

Benton County

Benton County, named after Missouri Senator Thomas Hart Benton, is located in south-central Washington at the confluence of the Columbia, Snake, and Yakima rivers. The county was created out of portions of Klickitat and Yakima counties in 1905.The Columbia River forms the north, south, and east boundaries of the county. The largest city in Benton County is Kennewick, while the county seat is the city of Prosser.

The area that would become Benton County was first settled by euroamericans in the mid-nineteenth century by farmers and ranchers. Early settlers had practiced dryland farming until the 1890s, when extensive irrigation networks were introduced to the region. This brought about many changes and greatly varied the crops grown by these early settlers. In 1943 the towns of Hanford and White Bluffs, in northern Benton County, were evacuated by the Federal Government. Subsequently, the U.S. Army Corps of Engineers began construction on a top secret project that would later be revealed to be the Manhattan Project. Following World War II, the county would continue to experience growth as nuclear research and development at the Hanford location continued to develop throughout the Cold War. In recent decades the county's rich agricultural lands have found increasing success and notariety within the viticulture industry (Gibson 2004).

Cartographic Analysis of the Project Area

The Project Area is located in the S½ of Section 07 of Township 08 North, Range 29 East. The 1871 cadastral map (Garfield 1871) shows no development near the Project Area (Figure 4A).

The 1917 Pasco 15 minute USGS topographic map shows elevation in relation to the Project Area. An undeveloped road is shown passing from the southwest corner of the Project Area through the eastern side and eventually connects to a developed road northeast corner of the Project Area. In the center of the Project Area, another undeveloped road branches off the first undeveloped road and runs west following an intermittent drainage (Figure 4B).

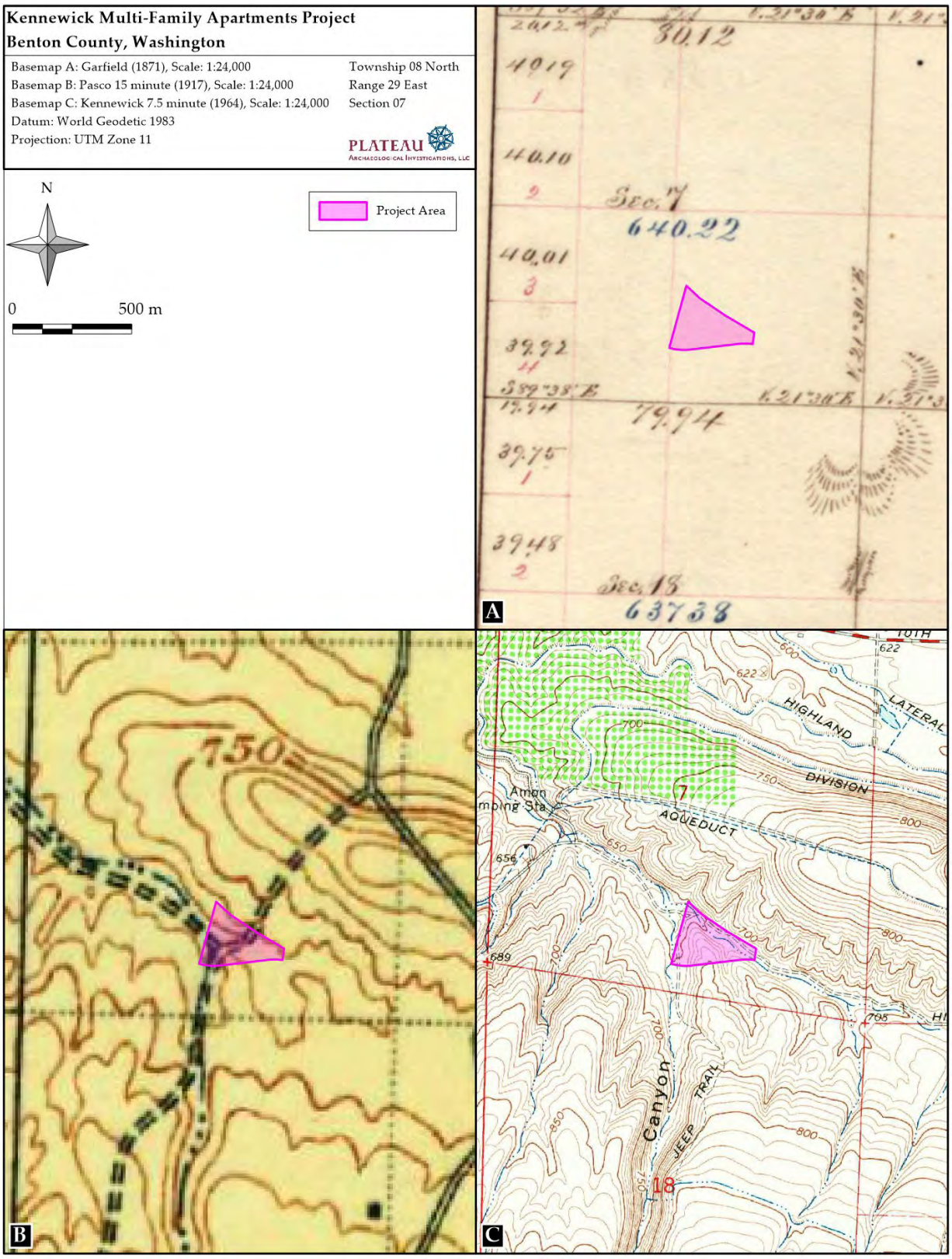

Figure 4. The Project Area shown on selected historic maps.

The 1964 Kennewick 7.5 minute USGS topographic map shows elevation in relation to the Project Area. There are two undeveloped roads intersecting the Project Area on the northeast edge and western edge parallel to an intermittent drainage system. A jeep trail continues into the Canyon south of the Project area. An aqueduct connects with several intermittant drainages meeting at Amon Station north and west of the Project Area. Orchards are present north of the Project Area (Figure C).

PREVIOUS ARCHAEOLOGY

A review of previously recorded cultural resources and archaeological surveys was completed through the WISAARD on March 3, 2022. The review covered areas within Sections 05, 06, 07, 08, 17 and 18 of Township 08 North, Range 29 East; and Sections 12 and 13 of Township 08 North, Range 28 East.

There have been nine previously conducted cultural resource surveys within 1.0 mi (1.6 km) of the Project Area (Table 3). One survey intersects with the Project Area and it yielded no cultural resources (Landreau and Pitts 2019). Three surveys yielded newly recorded cultural resources within a 1.0 mi (1.6 km) of the Project Area (Doncaster 2008a, Sexton 2021a, and Trost 2012).

Table 3. Previously Conducted Cultural Resource Surveys within 1.0 mi of the Project Area.

Author	Project	Distance from P/A	Results
Carmack 2001	Kennewick Pump Exchange Feasibility Report	0.5–0.75 mi W	Negative
Costigan and O'Brien 2018	W 10th Avenue Widening	0.75–1.0 mi N	Negative
Dickson 2006	Steptoe Street Extension	0.75–1.0 mi NW	None that are within 1.0 mile of the Project Area
Doncaster 2008a	Amon Pump Plant Operator's Residence Disposal	0.5–0.75 mi W	Amon Pump Plant Operator's Residence
Landreau and Pitts 2019	City of Kennewick Storm-water Masterplan Geotechnical Survey	Intersecting	Negative
Landreau et al. 2021	Proposed Phase 2 Hansen Park Mixed Use Development Project	0.75–1.0 mi N	Negative
Sexton 2021	Construction of a Housing Development	Adjacent	45BN2137
Steinmetz and Dickson 2003	City of Kennewick's Zone 3, Zone 4, and Zone 5 Reservoirs	0.25–0.5 mi N	Negative
Trost 2012	Kennewick Irrigation District	0.25–0.5 mi NW	Kennewick Main canal division IV

In 2019, Reiss-Landreau Research completed an archaeological review and iventory of the City of Kennewick's storm-water masterplan geotechnical survey (Landreau and Pitts 2019). No cultural or archaeological resources were found. This survey intersects the Project Area.

In 2021, GRAM Northwest, LLC completed a cultural resource survey for World Builder, LLC for the construction of a housing development (Sexton 2021a) to support the Washington State Environmental Policy (SEPA) permit filing for the project. Site 45BN2137 was recorded. It consisted of coiled wire, two sanitary cans, and one "Aunt Sue's French Dry Cleaner" can. This survey area is adjacent to the Project Area.

In 2008, the U.S. Department of the Interior completed a historic resources survey of the Amon Pumping Plant operator's residence disposal (Doncaster 2008a). The U.S. Department of Interior, Bureau of Reclamation, and Upper Columbia Area Office proposed the demolition of this residence (Building No. 85) when it is potentially eligible for inclusion on the NRHP. This survey states that Building No. 85 satisfies Criterion A and C of the NRHP. It is located 0.5–0.75 mi west of the Project Area.

In 2012, the United States Bureau of Reclamation completed a cultural resource assessment of the Kennewick Irrigation District (KID) (Landreau and Pitts 2019). The KID Capital Improvement Plan (CIP) included irrigation rehabilitation and betterment projects on the infrastructure of the Kennewick Division. In order to complete the CIP, KID had to complete a cultural resources assessment to comply with the parameters set by Section 106 of the National Historic Preservation Act of 1966. The Yakima Project (1906-1958) included the construction of the Badger East Lateral and the Highland Feeder. This survey recommended that both structures are potentially eligible for inclusion on the NRHP. It is located 0.25–0.5 mi northwest of the Project Area.

The review revealed one cultural resource within 1.0 mi (1.6 km) of the Project Area (Table 4). Site 45BN02137 was originally recorded in 2021 (Sexton 2021b). It consisted of coiled wire, two sanitary cans, and one "Aunt Sue's French Dry Cleaner" can. It is located 0.5–0.75 mi east of the Project Area. The site was evaluated and determined Not Eligible for inclusion on the NRHP (Sexton 2021b).

A total of eight HPIs have been inventoried, or derived from the Benton County Assessor's records within 1.0 mi (1.6 km) of the Project Area. None are located within 0–0.25 mi of the Project Area. Five of them are eligible for inclusion on the NRHP (Table 4).

All eligible HPIs are associated with irrigation features, including Amon Pump Plant Residence (Doncaster 2008b), Amon Relift Pumping Plant (Harvey 2019a), Kennewick Main Canal Division IV (Harvey 2020b), Kennewick Division Highland Feeder (Harvey 2020c), and Kennewick Division Main Canal (Harvey 2020d). All of them are greater than 0.5 mi (0.8 km) from the Project Area.

Table 4. NRHP Eligible Historic Properties Inventoried within 1.0 mi of the Project Area.

Property	Resource Name	Recorder(s)	Distance from P/A	Eligibility
52917	Amon Pump Plant Residence	Doncaster 2008b	0.5–0.75 mi NW	Eligible
720684 and 98580	Amon Relift Pumping Plant	Harvey 2019a	0.5–0.75 mi NW	Eligible
667226	Kennewick Main Canal Division IV	Harvey 2020b	0.75–1.0 mi N	Eligible
667239	Kennewick Division Highland Feeder	Harvey 2020c	0.75–1.0 mi N	Eligible
537371	Kennewick Division Main Canal	Harvey 2020d	0.5–0.75 mi W	Eligible

FIELD METHODS AND SURVEY RESULTS

Survey work was completed in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716, September 29, 1983) and under the supervision of Principal Investigator, David Harder. Plateau archaeologists Justin Fitzpatrick, Michaelle Machuca, David Harder, and Samantha Fulgham conducted the cultural resource survey on March 2 and March 9, 2022. The limits of the Project Area were identified by using maps provided by the client. The survey conditions were fair with temperatures in the 40s to 50s, intermittent overcast skies, no wind, or precipitation.

The Project Area is a roughly triangular lot located east of West Hildebrand Road. Bob Olson Parkway borders the south side and a hill with a newly graded road forms the north boundary. The environment is open and hilly, covered with scrub grasses and low shrubs associated with disturbed ground, and there is no development in the immediate area aside from the roads. Prior to the field visit, a utility locate was requested under ticket #22089500. This locate identified one gas subsurface utility line.

On March 2, 2022, Plateau archaeologists Fitzpatrick and Machuca conducted pedestrian survey consisting of 17 north/south transects, spaced no more than 20 m (66 ft) apart (Figure 5). The ground visibility was 70% throughout the Project Area (Figure 6 and Figure 7). Plant debris and vegetation impeded ground visibility.

On March 9, 2022, Plateau Archaeologists Harder and Fulgham dug nine subsurface probes as 40 cm holes (Table 5). The archaeologists removed sediment in arbitrary 10 cm levels, screened spoils through ¼-inch wire mesh, and recorded sediment characteristics on standardized forms with the color, composition, and degree of compaction noted. The archaeologists took representative photographs of the Project Area (Figures), and all subsurface probes and other relevant geospatial data were recorded using a handheld GPS unit. The soil revealed by the SSPs roughly matched the soils predicted by the NRCS Soil Survey.

Figure 5. The Project Area and field investigation inventoried on an aerial photograph.

Figure 6. Overview of the Project Area. View to the northeast.

Figure 7. Overview of the Project Area. View to the east.

Table 5. Shovel Probe Results.

SSP#	NAD83 UTM Zone 11	Depth	Strats and Description	Results
13	327748.2 E, 5117247 N	100 cm	0–100 cmbs: Strat I: 10 YR 4/4, dark yellowish brown, clay loam	Negative
14	327748.9 E, 5117269 N	77 cm	0–77 cmbs: Strat I	Negative
15	327749.5 E, 5117291 N	74 cm	0–74 cmbs: Strat I	Negative
16	327751.4 E, 5117358 N	45 cm	0–45 cmbs: Strat I: highly compacted sediment	Negative
17	327752.0 E, 5117380 N	49 cm	0–49 cmbs: Strat I	Negative
18	327752.6 E, 5117402 N	63 cm	0–63 cmbs: Strat I	Negative
19	327858.2 E, 5117310 N	55 cm	0–55 cmbs: Strat I	Negative
20	327857.8 E, 5117299 N	102 cm	0–85 cmbs: Strat I: highly compacted sediment 85–102 cmbs: Strat II: 10YR 5/3, brown, silt	Negative
21	327857.2 E, 5117277 N	100 cm	0–88 cmbs: Strat I 88–100 cmbs: Strat I, sandy clay loam	Negative

No Native American or historic-era cultural materials or features were observed during the pedestrian survey or excavations.

CONCLUSIONS AND RECOMMENDATIONS

Plateau archaeologists conducted a pedestrian survey over the entire Project Area, and excavated nine subsurface probes distributed in clusters of three across a representative sample of the Project Area. The eastern portion of the site was not probed because visual inspection indicated that the area had been significantly filled and graded and no in situ sediment would be present. Subsurface probes ranged in depth from 45–102 cm(17.2–40.12 in). The pedestrian survey and subsurface investigations for the project resulted in no newly recorded archaeological resources. The soil was highly compacted and there was evidence of significant soil excavation and grading done prior to survey. Otherwise, the sandy silt loam was as expected from the NRCS Survey. Plateau recommends that the proposed undertaking will result in **No Historic Properties Affected**, and no further archaeological investigations are recommended prior to, or during, execution of this project. An Unintentional Discovery Plan (UDP) has been prepared and included in this report for use during all ground-disturbing work on the project. It is suggested that the UDP be included with the contract documents. The UDP is included in Appendix A.

Should ground-disturbing activities reveal any cultural materials (e.g., structural remains, European American artifacts, or Native American artifacts), activity will cease and the Washington State Historic Preservation Officer should be notified immediately. The results and recommendations in this document concern the specified APE. The proponent is advised that the

results and recommendations reported herein do not apply to areas of potential effect altered or expanded after the cultural resource survey. A supplementary cultural resource review will be necessary should the APE be altered or changed, as per 36 CFR 800.4.

If ground-disturbing activities encounter human skeletal remains during the course of construction, then all activity ***will*** cease that may cause further disturbance to those remains. The area of the find will be secured and protected from further disturbance to those remains. The area of the find will be secured and protected from further disturbance until the State provides notice to proceed. The finding of human skeletal remains ***will*** be reported to the county medical examiner/coroner ***and*** local law enforcement in the most expeditious manner possible. The remains will not be touched, moved, or further disturbed. The county medical examiner/coroner will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or non-forensic. If the county medical examiner/coroner determines the remains are non-forensic, then they will report that finding to the DAHP who will then take jurisdiction over the remains. The DAHP will notify any appropriate cemeteries and all affected tribes of the find. The State Physical Anthropologist will make a determination of whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and affected tribes. The DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.

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APPENDIX A:

Unintentional Discovery Plan (UDP)

Exhibit A-9

Kennewick Multi-Family Apartments, Benton County, Washington

Unintentional Discovery Plan

Treatment of Archaeological Materials Discovered During Project Implementation

By:
Emily L. Whistler

PLATEAU
ARCHAEOLOGICAL INVESTIGATIONS, LLC
P.O. Box 714, Pullman, Washington 99163
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April 2022

Murow Development Consultants assisting a client with the development of the Kennewick Multi-Family Apartment project. The undertaking will include the development of the parcel into 300 multifamily units, and the development of associated access roads and utilities.

Red Tail Development, LLC retained Plateau Archaeological Investigations, LLC (Plateau) to complete the cultural resource survey and identify potential impacts to cultural and historical resources. The area of potential effect, referred to as the Project Area, covers approximately 13.76 acres and lies in Section(s) 07 of Township 08 North, Range 29 East, Willamette Meridian. (Figure 2). The survey was subsequently reported in *Cultural Resource Survey for the Kennewick Multi-Family Apartments, Benton County, Washington* (Soderberg et al.2022), and recorded with the Washington State Department of Archaeology and Historic Preservation (DAHP) under Project Number 2022-03-01778.

Pre-field research consisted of a file review completed through the Washington Information System for Architectural and Archaeological Records Data (WISAARD) on March 3, 2022. The review covered areas within Sections 05, 06, 07, 08, 17 and 18 of Township 08 North, Range 29 East; and Sections 12 and 13 of Township 08 North, Range 28 East. This review revealed nine cultural resources and nine previously conducted cultural resource surveys within 1.0 mile (mi) (1.6 kilometer [km]) of the Project Area. This database includes recorded archaeological resources, historic property inventories (HPIs), National Register of Historic Properties (NRHP) and Washington Heritage Register (WHR) properties, identified cemeteries, and previously conducted cultural resource surveys found throughout the state of Washington. Additionally, a review of Bureau of Land Management (BLM) records, both General Land Office (GLO) online records and land patent information, was completed. Topographic maps and aerial photos were reviewed to identify additional indicators of past land use.

Plateau archaeologists conducted a pedestrian survey and excavated nine subsurface probes. The pedestrian survey covered the entire APE and subsurface probes were dispersed throughout. The pedestrian survey and subsurface probing revealed no new archaeological or historic material. Plateau recommends that the proposed undertaking will result in **No Historic Properties Affected**, and no further archaeological investigations are recommended prior to, or during, execution of this project.

Laws and Regulations Regarding Archaeological and Cultural Resources
Several laws and regulations, set forth on both federal and state levels, address concerns for burials, rock cairns, archaeological sites, historic structures, and other cultural resources. Those pertinent to this project are several Chapters of Revised Code of Washington and the Washington State Governor's Executive Order 21-02.

Chapter 27.44 of the Revised Code of Washington offers protection for Indian burials, cairns, glyptic markings, and historic graves on private and public property. This regulation provides civil and criminal penalties for the intentional disturbance or removal of these types of properties.

Chapter 27.53 of the Revised Code of Washington requires that a permit be acquired through the Washington State Department of Archaeology and Historic Preservation (DAHP) prior to the intentional disturbance, excavation, removal, or alteration of any known historic or archaeological resource through any means.

Chapter 68.50 of the Revised Code of Washington describes the investigations, treatment, scientific study, and final disposition of human remains. This chapter includes very little information that pertains to the inadvertent discovery of archaeological materials.

Chapter 68.60 of the Revised Code of Washington outlines protections for cemeteries, historic graves, and other human remains. This chapter further outlines procedures pertaining to the inadvertent discovery of human remains.

Washington State Governor's Executive Order 21-02 requires all state agencies implementing or assisting with construction or land acquisition projects that receive state funding to consider how the proposed projects may affect cultural resources. Prior to the expenditure of state funds, Executive Order 21-02 requires the lead state agency of a given project to consult with the Department of Archaeology and Historic Preservation (i.e. Washington State's SHPO), and all affected Tribes of a proposed project, "to take all reasonable action to avoid, minimize, or mitigate adverse effects to archaeological and historic archaeological sites, historic buildings/structures, traditional cultural places, sacred sites or other cultural resources.."

Unintentional Discovery Plan

Proper application and management of this UDP requires that a professional archaeologist be contacted if ground-disturbing activities reveal potential Native American or historic-era cultural materials or features (Figure 3, Figure 4, and Figure 5). The archaeologist shall meet the Secretary of the Interior's standards for a professional archaeologist as defined at 36CFR61 Appendix A. Construction within 200 ft (60 m) of the discovery will stop, and the area will be secured to protect the find from additional damage. The archaeologist will document the find, prepare a brief written statement, and take photographs of the find for submission to the lead agency and the SHPO at the DAHP. The find will also be reported to the THPOs of the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes and Bands of the Yakama Nation, and the Confederated Tribes of the Warm Springs Reservation. It is the responsibility of the lead agency, Benton County, to contact the affected Tribes. This consultation process will take place even if the pre-contact or historic-era cultural materials appear to have lost their depositional integrity. Work within 200 ft (60 m) of the find will not resume until a plan for management or preservation of the materials has been approved. Following the project, the archaeologist will provide a report detailing the procedures and results of the investigation.

During the investigation, the archaeologist will observe rules of safety and will comply with any safety requirements of the excavation contractor and project engineers. Entry into any excavation will only be done under the direct supervision and approval of the construction foreman (or his or her agent) and verification that entry and exit is safe.

Inadvertent Discovery of Human Remains

If ground-disturbing activities encounter human skeletal remains during the course of construction, then all activity ***will*** cease that may cause further disturbance to those remains. The area of the find will be secured and protected from further disturbance to those remains. The area of the find will be secured and protected from further disturbance until the State provides notice to proceed. The finding of human skeletal remains ***will*** be reported to the county medical examiner/coroner ***and*** local law enforcement in the most expeditious manner possible. The remains will not be touched, moved, or further disturbed. The county medical examiner/coroner will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or non-forensic. If the county medical examiner/coroner determines the remains are non-forensic, then they will report that finding to the Department of Archaeology and Historic Preservation (DAHP) who will then take jurisdiction over the remains. The DAHP will notify any appropriate cemeteries and all affected tribes of the find. The State Physical Anthropologist will make a determination of whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and affected tribes. The DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.

Protocol to Follow When No Archaeologist is Present
If an archaeologist is not on-site when cultural materials (e.g., pre-contact artifacts and/or features, historic-era artifacts and/or features) are uncovered, the following steps shall be followed:

Suspend work within 200 ft (60 m) of the find.
Take a photo of the artifact(s) or feature(s). Include a common object such as a quarter, a tape measure, a person, or a pickup as a scale to show the size of the find.
Take photos of the location of the find from several angles and distances.
Record a GPS point if possible.
Contact Plateau by telephone to notify us of the find.
Provide an email with photos and any additional information you are able to gather.

Precontact Artifacts Precontact artifacts can include stone, wood, or bone tools. Stone tools are the most common artifact encountered since they do not deteriorate over time.

Precontact Features Precontact features can include fire pits, hearths, burn deposits, ash, rock alignments, rock mounds, and midden deposits.

Historic-Era Artifacts Historic-era artifacts may include various items manufactured from metal, glass, or wood. If an individual identifiable historic artifact is encountered, the above protocol should be followed. "Historic-era artifacts" does not include "recent" items such as chip bags, styrofoam, modern beverage cans and bottles, or other typical roadside debris.

Historic-Era Features Any identifiable remains of buildings, foundations, rock alignments, or rock mounds might be historic-era features.

Human Remains Human remains, suspected human remains, burials, funerary objects, sacred objects, or items of cultural patrimony are to be treated in the manner outlined above. **Additionally, Plateau is to be notified by phone immediately**.

Emergency Dispatch in Benton County

Emergency Dispatch	911
Kennewick Police Department	509-628-0333
Sheriff, non-emergency	509-735-6555
Benton County Coroner	509-222-3720
	509-736-2708 (fax)

Confederated Tribes and Bands of the Yakama Nation

Casey Barney, Cultural Resources Program Manager	
	509-865-5121, ext. 4378
	casey@yakama.com

Confederated Tribes of the Umatilla Indian Reservations

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Confederated Tribes of Warm Springs

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2022 *Cultural Resource Survey for the Kennewick Multi-Family Apartments, Benton Washington*. Plateau Archaeological Investigations, Pullman, Washington.

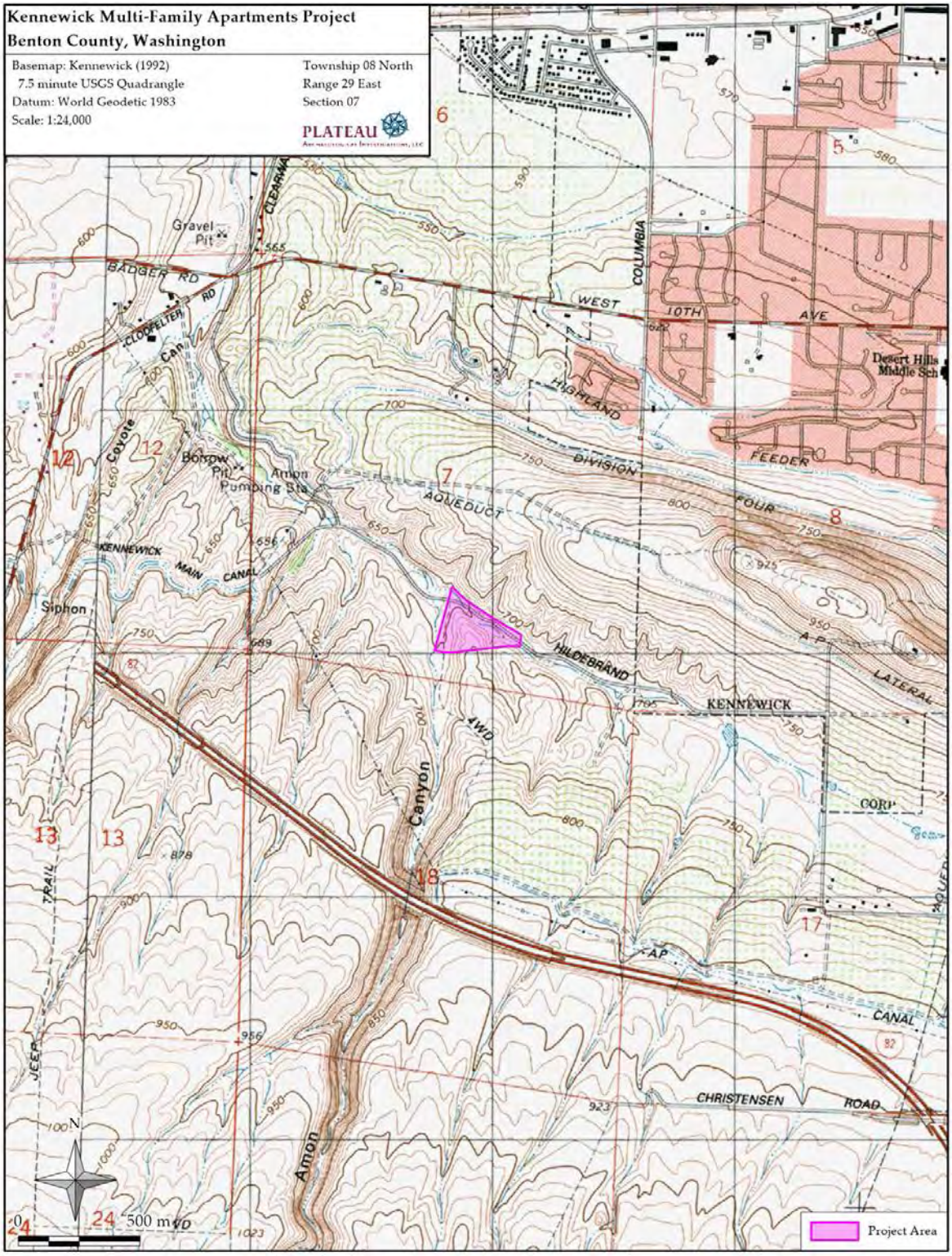

Figure 1. The Project Area on a portion of the Kennewick USGS topographic map.

Figure 2. The Project Area on an aerial photograph.

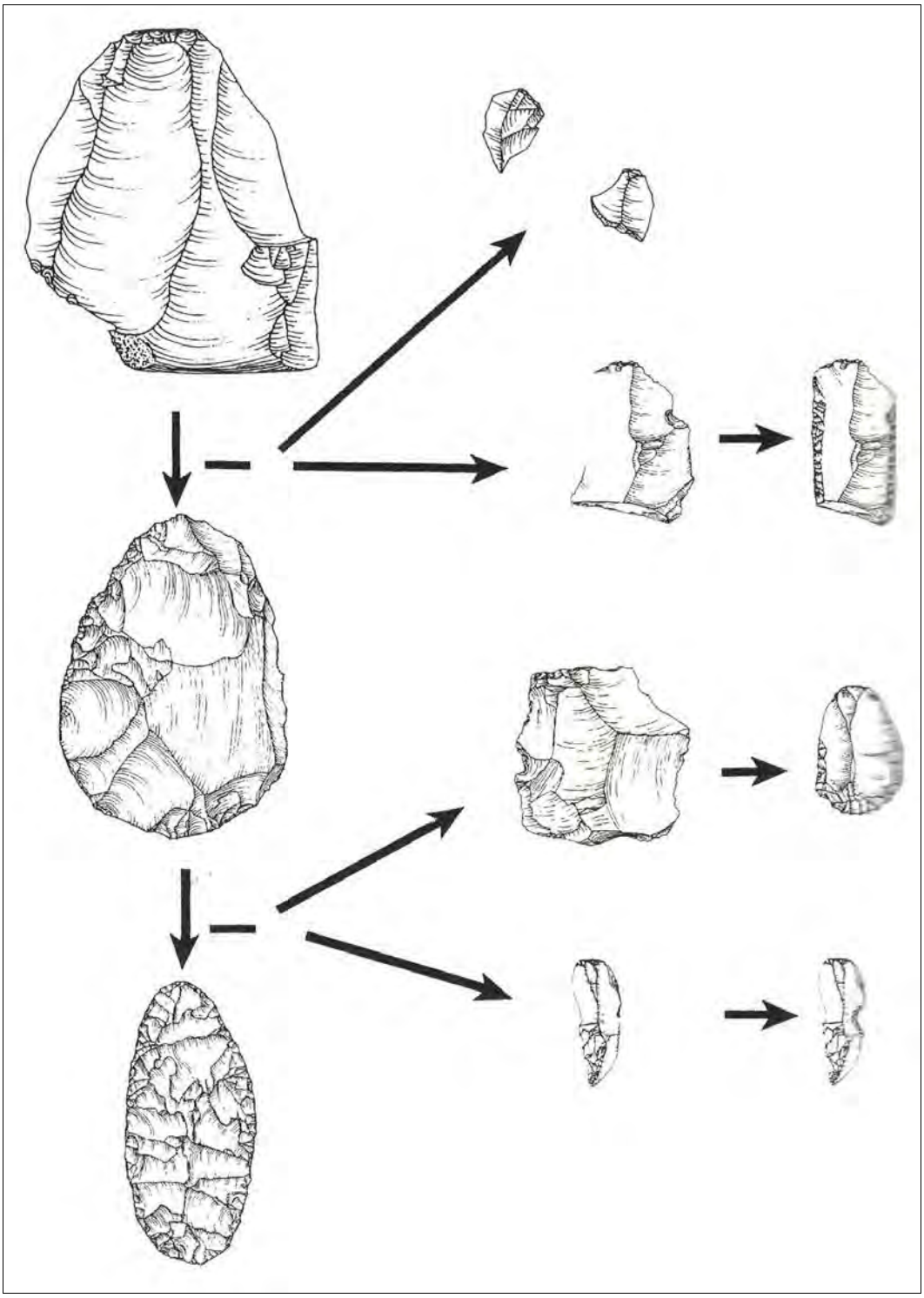

Figure 3. Reduction of a lithic blank to a tool (Andrefsky 1998:158)

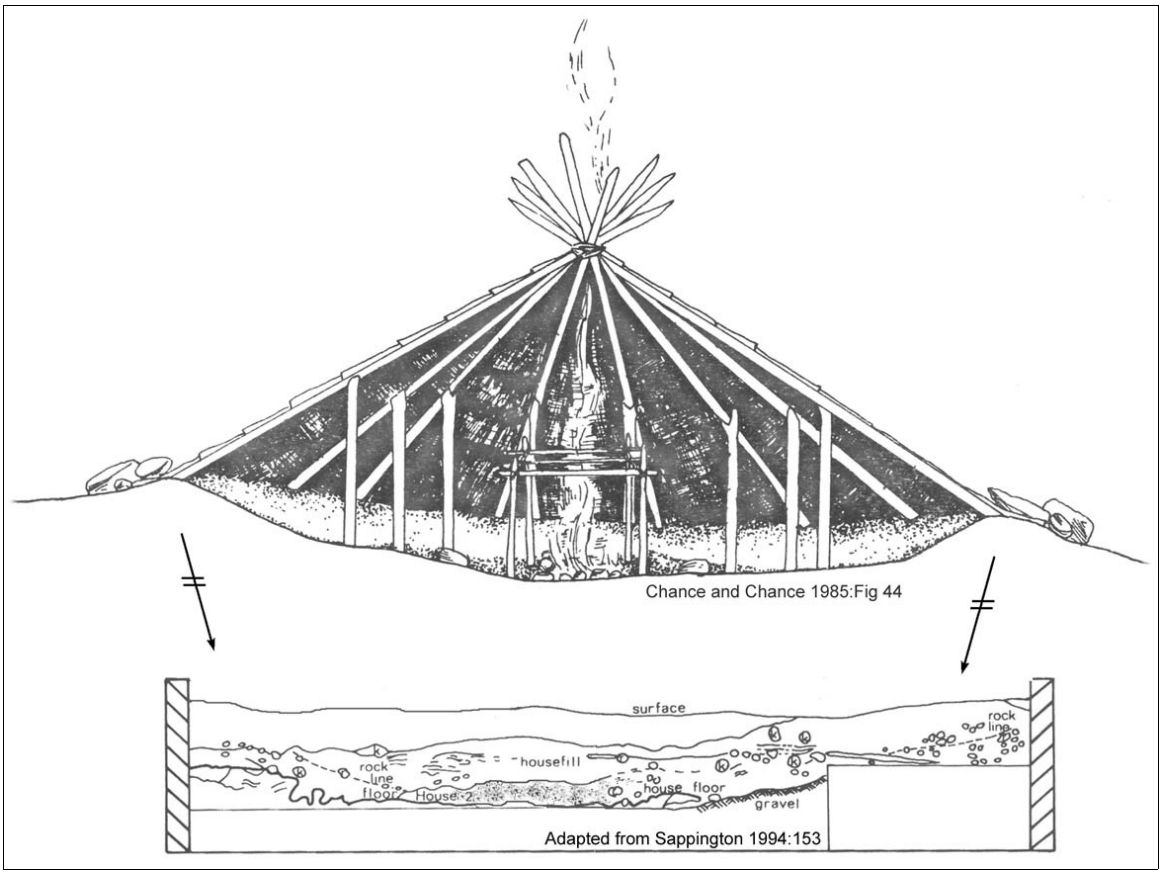

Figure 4. An illustration of a housepit and the resulting archaeological feature (Sappington 1994: 153).

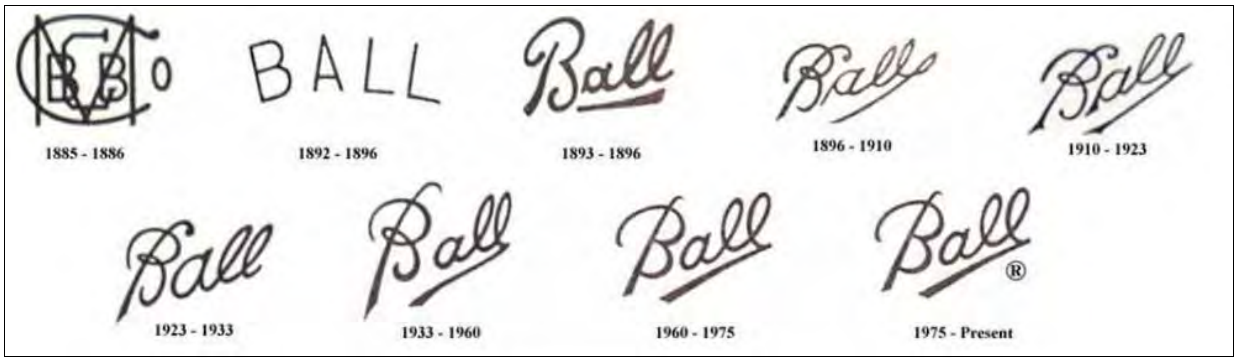

Figure 5. An example of logo changes over time, which can aid in determining the date of historic artifacts.

5261 West Imperial Highway
Los Angeles, California 90045
Telephone: 310-854-6300
Toll-free: 888-705-6300
Fax: 310-854-0199

Exhibit A-10

Phase I Environmental Site Assessment Update Report

EFI Global Project No.: 045.08298

8224 Bob Olson Parkway
Kennewick, Washington 99336

Date of Issuance: June 9, 2022

Prepared For:

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Irvine, California 92612

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EXECUTIVE SUMMARY

EFI Global, Inc. has performed a Phase I Environmental Site Assessment (Phase I) for Red Tail Development LLC (Client) for an undeveloped property located at 8224 Bob Olson Parkway, in Benton County, and the City of Kennewick, Washington, Assessor's Parcel Number (APN): 107894000001003. The research conducted for this study and the report prepared are in conformance with the United States Environmental Protection Agency (USEPA) All Appropriate Inquiry (AAI) standard and the ASTM International E1527-13 and E1527-21 scope of work.

SITE DESCRIPTION

According to our research and information provided by the Client, the following addresses have been found to be associated with the subject property: 8224 Bob Olson Parkway and 7641 West Hildebrand Boulevard, Kennewick, Washington. The subject property is located on the north side of Bob Olson Parkway, approximately 1 mile to the west of West 31st Place, in the City of Kennewick. The subject property is approximately 13.76 acres in size and consists of graded land proposed for residential development. The surrounding area consists of undeveloped land. Groundwater is estimated to be approximately 15 feet below ground surface (ft bgs) in the area of the site and is assumed to flow towards the north.

- No significant limitations were encountered during our reconnaissance of the subject property.
- No significant hazardous material storage or recognized environmental conditions were observed at the site. Those interviewed, as persons familiar with the site were not aware of any negative environmental conditions associated with the property.

HISTORICAL LAND USE

According to EFI Global, Inc.'s interpretation of the historical research data, the subject property was undeveloped land from sometime 1917 through at least 2013. The subject property was graded land since 2017 and currently proposed to be developed for residential purposes.

- No significant data gaps were identified in the research.

ENVIRONMENTAL DATA SEARCH

- **Southcliffe Commercial (Kennewick, WA 99338)** - The subject property is listed on the Facility/Site Identification System Listing (ALLSITES) database with the Facility identification number (ID) 116621 and the Construction Stormwater General Permit (CSWGP) Environmental Program ID WAR303725. No further information was provided. It is likely that the permit was required in preparation of development activities on this vacant lot. Therefore, based on the nature of the permit (storm water discharge management), lack of violations and documented release, this permit is not expected to represent a significant environmental concern for the subject property.
- There are no properties within 100-feet of the subject property where a release is considered likely or a known release has occurred.

- In our opinion, none of the other sites listed on the regulatory database report pose a significant threat to the subject property as there is no indication of a release at the respective sites, a release has occurred but groundwater has not been impacted, a release has occurred but the case is closed, or the sites are located cross or down gradient of the subject property and in excess of 1/10 mile from the subject property.

The State Washington Department of Ecology (SWDE), Benton County Clean Air Agency (BCCAA), Benton County Clerks (BCC), and City of Kennewick City Clerk (CKCC) were contacted regarding permits, investigation files, hazardous materials, underground storage tank records, air emission permits, and industrial waste discharge records for the subject property. Additionally, the SWDE's Water Quality Permitting and Reporting Information System (PARIS) and Cleanup Tank Search, City of Kennewick Site Plan Search, Approved Plan Search, and Certificate of Occupancy Search online databases were reviewed for information on the subject property to identify any evidence of previous or current hazardous material usage.

- According to responses to our requests from the BCC, and a review of the City of Kennewick Approved Plan Search and Certificate of Occupancy Search online databases, there are no files for the subject property.

- According to the response to our request from the SWDE, the subject property was listed with the Water Quality Program files from March 2016 for the proposed residential development known as Westcliffe Phase 14 & 15 (WAR303676), Southcliffe Commercial (WAE 303725), Greyhawk Phase 1 (WAR 303649). These records correspond with the database listing discussed further in Section 5.1 of this report, and based on the nature of the permit (storm water discharge management), lack of violations and documented release, these records are not expected to represent a significant environmental concern.

- According to a review of City of Kennewick Site Plan Search, the subject property has been approved for grading beginning in November 2015. Grading permits indicate, that approximately 660,000 cubic yards of soil were excavated to prepare the subject property for a proposed development. The grading work was reported to be in accordance with the local and state requirements. The remaining permits were for the road development and traffic regulation and did not contain pertinent information. Based on the nature of the permits, these records are not expected to represent a significant environmental concern.

- Due to the time constraints associated with this report, EFI Global, Inc. was not able to obtain records from the CKCC and BCCAA. However, based on the quality of information obtained from other sources and the undeveloped nature of the subject property, this limitation is not expected to significantly alter the findings of this investigation. Should relevant information be obtained from this agency subsequent to issuing this report, EFI Global will prepare and issue an addendum to the User.

The Washington Geologic Information Portal online mapping application Well Finder was reviewed for information pertaining to oil and gas exploration on or nearby the subject property.

- No oil wells were identified within 500 feet of the subject property.

- The User did not provide EFI Global any information either verbally or in writing (i.e. Title Report) regarding environmental cleanup liens or activity and use limitations encumbering the subject property. An environmental lien search was not requested by the User.

Additional Issues

- Based on the absence on any on-site structure, the potential for asbestos-containing building materials, lead-based paints and mold is considered to be low.

- Based on our research at the USEPA, the average radon concentrations for Benton County are between 2.0 and 4.0 picocuries per liter (pCi/L), which is below the 4.0 pCi/L action level set by the USEPA. Further, the *Washington Tracking Network (WTN)* online mapping system, shows medium potential for concentrations of radon in the vicinity of the subject property to be above the 4.0 pCi/L action level. Site specific radon levels vary greatly within the USEPA radon zones and on-site radon measurements would need to be collected in order to determine the radon levels at the subject property.

- Based on our research, the property is not known to be located in proximity (within 1,000 feet) to any active or abandoned oil wells or landfills. Therefore, the potential for methane risk at the subject property is considered low.

CONCLUSIONS

EFI Global, Inc. has performed a Phase I in conformance with the scope and limitations of ASTM International E1527-13 and E1527-21, at 8224 Bob Olson Parkway, Kennewick, Washington, the subject property. Any exceptions to or deletions from this practice are described in the individual sections of this report. This assessment has revealed no evidence of recognized environmental conditions or *de minimis* conditions in connection with the subject property.

Recognized Environmental Conditions (REC)

In our opinion, no RECs were identified during the course of this assessment.

Historical Recognized Environmental Conditions (HREC)

In our opinion, no HRECs were identified during the course of this assessment.

Controlled Recognized Environmental Conditions (CREC)

In our opinion, no CRECs were identified during the course of this assessment.

De Minimis Conditions

In our opinion, no *de minimis* conditions were identified during the course of this assessment.

Significant Data Gaps

In our opinion, no significant data gaps were identified during the course of this assessment.

RECOMMENDATIONS

Based on the foregoing, no additional investigation is recommended at this time.

1.0 INTRODUCTION

EFI Global, Inc. has performed a Phase I Environmental Site Assessment (Phase I) for the property located at 8224 Bob Olson Parkway, in Benton County, and the City of Kennewick, Washington (Subject Property). This report has been prepared for the sole use of Red Tail Development LLC (Client).

The research conducted for this study and the report prepared are in general conformance with the United States Environmental Protection Agency (USEPA) All Appropriate Inquiry (AAI) standard and the ASTM International E1527-13 and E1527-21 "Standard Practices for Environmental Site Assessments: Phase I Environmental Site Assessment Process". The primary purpose for performing a Phase I ESA is to "...permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability" (ASTM, 2021). An environmental site assessment meeting or exceeding this practice and completed less than 180 days prior to the date of acquisition is presumed to be valid under this standard. In order to maintain landowner liability protections, the User also has the following continuing obligations: "(1) No disposal of hazardous substances can occur after the person acquires the property; (2) Provide all legally required notices with respect to the discovery or release of any hazardous substances at the facility; (3) Exercise appropriate care with respect to hazardous substances by taking reasonable steps to stop any continuing release; prevent any threatened future releases; and prevent or limit human, environmental, or natural resource exposure to any previously released hazardous substance; (4) Provide full cooperation, assistance, and access to persons who are authorized to conduct response actions or natural resource restoration (including the cooperation and access necessary for the installation, integrity, and maintenance of any complete or partial response actions or natural resource restoration; (5) Comply with any land use restrictions established or relied on in connection with the response action, and not impede the effectiveness or integrity of any institutional control employed at the vessel or facility in connection with a response action; and (6) Comply with any request for information or administrative subpoena issued under CERCLA" (ASTM, 2021). Further, it is the goal of this study to identify business risks related to the property associated with environmental conditions. This investigation is not an environmental compliance audit and is not designed to determine if the operations of an existing facility are in compliance with applicable environmental laws and regulations.

The goal of this process is to identify any (1) recognized environmental conditions (RECs), (2) historical recognized environmental conditions (HRECs), (3) controlled recognized environmental conditions (CRECs), and/or (4) *de minimis* conditions associated with the subject property.

- A **recognized environmental condition** is defined as "...(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment" (ASTM, 2021).

- A **historical recognized environmental condition** is defined as "a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and

meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations). A historical recognized environmental condition is not a
recognized environmental condition" (ASTM, 2021). The HREC designation requires the comparison of residual contamination concentrations, if any, to current regulatory standards.

- A **controlled recognized environmental condition** is defined as a "recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations)" (ASTM, 2021).

- A ***de minimis condition*** is defined as "a condition related to a
release that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. A condition determined to be a de minimis condition is not a recognized environmental condition nor a controlled recognized environmental condition" (ASTM, 2021).

In order to identify environmental conditions at the site, the Phase I ESA includes a site inspection, interviews with parties familiar with the property, historical research into the past uses of the property, and an environmental records search with regard to the subject property, adjoining and immediately surrounding properties, and the surrounding area. In addition, EFI Global, Inc. provides an opinion regarding the potential for asbestos containing materials, lead-based paints, mold, radon, oil and gas exploration, and methane as they relate to the subject property. Reviewing those documents that are publicly available, reasonably ascertainable, and practically reviewable controls the completeness of this assessment. The inability to review documents which do not exist or are not publicly available, reasonably ascertainable, or practically reviewable may result in a data gap.

1.1 Significant Assumptions

While this report provides an overview of potential environmental concerns, both past and present, the environmental assessment is limited by the availability of information at the time of the assessment. It is possible that unreported disposal of waste or illegal activities impairing the environmental status of the property may have occurred which could not be identified. The conclusions and recommendations regarding environmental conditions that are presented in this report are based on a scope of work authorized by the Client. Note, however, that virtually no scope of work, no matter how exhaustive, can identify all contaminants or all conditions above and below ground.

1.2 Limitations and Exceptions

This report has been prepared in accordance with generally accepted environmental methodologies referred to in ASTM E1527-13 and E1527-21, and contains all of the limitations inherent in these methodologies. No other warranties, expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report. The conclusions of this report

are based in part, on the information provided by others. The possibility remains that unexpected environmental conditions may be encountered at the site in locations not specifically investigated. The services performed and outlined in this report were based, in part, upon visual observations of the site and attendant structures. Our opinion cannot be extended to portions of the site that were unavailable for direct observation, reasonably beyond the control of EFI Global, Inc. The objective of this report was to assess environmental conditions at the site, within the context of our contract and existing environmental regulations within the applicable jurisdiction. Evaluating compliance of past or future owners with applicable local, provincial, and federal government laws and regulations was not included in our contract for services. Our observations relating to the condition of environmental media at the site are described in this report. It should be noted that compounds or materials other than those described could be present in the site environment.

1.3 Reliance

This report has been prepared for the sole use of Red Tail Development LLC. The contents should not be relied upon by any other parties without the express written consent of Red Tail Development LLC and EFI Global, Inc.

1.4 User Responsibilities

The USEPA AAI and ASTM International E1527-13 and E1527-21 Phase I Standards require that the User conduct independent research and consider certain information before purchasing a property. The User is defined as the party seeking to use Practice E1527 to complete an environmental site assessment of the property. A user may include, without limitation, a potential purchaser of property, a potential tenant of property, an owner of property, a lender, or a property manager. These considerations include the following:

- Obtain and review Land Title Records and Judicial Records for Environmental Liens and Activity and Use Limitations by relying on Transaction-Related Title Insurance Documentation Such as Preliminary Title Reports and Title Commitments or Title Search Information Reports Such as Condition of Title, Title Abstracts, and AUL/Environmental Lien Reports. If environmental cleanup liens or AULs encumbering the subject property or in connection with the subject property are identified, the User should provide that information to the Environmental Professional (EFI Global, Inc.). If the User has actual knowledge of environmental cleanup liens or AULs encumbering the subject property or in connection with the subject property, the User should provide that information to the Environmental Professional (EFI Global, Inc.).

- The User should provide the Environmental Professional (EFI Global, Inc.) with any specialized knowledge the User has with regard to recognized environmental conditions in connection with the property.

- If the User is aware of any commonly known information in the community about the subject property with respect to recognized environmental conditions, the User should provide the information to the Environmental Professional (EFI Global, Inc.).

- If this Phase I ESA was prepared as due diligence for a property transaction, it is the responsibility of the User to consider the relationship of the purchase price to the fair market value of the property. If the purchase price is significantly lower than the fair market

value, the User should identify the alternate reason for the low purchase price if the lower purchase price is not related to the property being affected by hazardous substances or petroleum products.

2.0 SITE DESCRIPTION

EFI Global, Inc. has performed a Phase I for a undeveloped property located at 8224 Bob Olson Parkway, in Benton County, and the City of Kennewick, Washington. The subject property is located on the north side of Bob Olson Parkway, approximately 1 mile to the west of W 31st Place, in the City of Kennewick. The subject property is approximately 13.76 acres in size and consists of graded land proposed for residential development. The surrounding area consists of undeveloped land.

The subject property is located within the jurisdiction of Cascade Natural Gas and Benton PUD for natural gas and electrical services, and the City of Kennewick for potable water and sewer services. However, as of the date of completion of this report, no utility connections have been provided to the subject property.

2.1 Current and Historical Addresses

According to our research and information provided by the Client, the following addresses have been found to be associated with the subject property: 8224 Bob Olson Parkway and 7641 West Hildebrand Boulevard, Kennewick, Washington.

2.2 Legal Description

According to the Benton County Assessor's Office, the subject property is located in the City of Kennewick, and is described by the Assessor's Parcel Number: 107894000001003.

2.3 Physical Setting

The elevation of the subject property is approximately 678 feet above mean sea level (United States Geological Survey [USGS] *Kennewick, Washington* 7.5 minute topographic quadrangle). Based on our review of the GeoCheck Section of the Environmental Data Resources, Inc. (EDR) Radius Report, the subject property is not situated within a 100-year Federal Environmental Management Agency (FEMA) Flood Zone.

According to the EDR Radius Report, no wetlands were identified at the property or adjoining/ immediately surrounding properties. Based on our review of groundwater data presented in the State Washington Department of Ecology, Well Construction & Licensing website, groundwater was measured at a groundwater monitoring well (Well Report identification number [ID] 296382) located on the east portion of the subject property or the east adjoining property on the depth of approximately 15 feet below ground surface on January 19, 1982. Based on topographic map interpretation, regional groundwater flow direction is estimated to be towards the north. However, local groundwater flow direction may vary.

3.0 SITE RECONNAISSANCE/INTERVIEWS

3.1 Site Reconnaissance

On February 25, 2022, Mr. Aaron Hill with AHill & Associates LLC conducted a site reconnaissance of the subject property. The site inspection was conducted to attempt to identify current site use(s), current hazardous materials storage, and evidence of past site uses and hazardous material storage and to identify evidence of other recognized environmental conditions. The following table summarizes our Site Reconnaissance observations:

Yes	No	Observed Feature(s)
	✔	Hazardous Substances and Petroleum Products Containers
	✔	Underground and/or Aboveground Storage Tanks
	✔	Drains/Sumps/Clarifiers/Sewer Interceptors/Septic Systems
	✔	Stained or Corroded Surfaces/Stained Soil or Stressed Vegetation
	✔	Pits/Ponds/Lagoons/Wetlands
✔		Electrical Equipment with the Potential to contain Fluids
	✔	Production or Monitoring Wells
	✔	Evidence of Solid Waste Disposal/Dumping/Fill Areas

3.1.1 Exterior Observations

The exterior portions of the site consist of vacant graded land. On the western boundary of the property is a drainage ditch that runs the length of the property from south to north discharging into the municipal storm sewer. Construction equipment was observed on the northwestern portion of the property.

Additionally, a stockpile of soil that appeared to be native was observed on the western end of the property. The stockpile appears to have originated from onsite grading operations. One-pad mounted transformer was observed on the southern boundary of the property adjacent to Bob Olson Parkway. Based on the assumed age of the transformer it is assumed that the transformer does not contain poly-chlorinated biphenyls (PCB) containing equipment were observed on-site.

No recognized environmental conditions were observed in the exterior portions of the subject property.

3.1.2 Interior Observations

The subject property did not contain any onsite structures.

No significant hazardous material storage or recognized environmental conditions were observed in the interior portions of the subject property.

3.1.3 Reconnaissance Limitations

No significant limitations were encountered during our reconnaissance of the subject property.

3.2 Adjoining and Immediately Surrounding Properties

The adjoining and immediately surrounding properties (within 100-feet of the subject property boundary) were visually and physically observed from public right-of ways and the subject property in an attempt to identify recognized environmental conditions. Our observations are summarized in the following table:

Location	Address(es)	Uses/Observations
North	7640 West Hidebrand Avenue	Vacant undeveloped land
East	7640 West Hidebrand Avenue	Vacant undeveloped land
South	8541 Bob Olsen Parkway	Vacant undeveloped land
West	7641 West Hildebrand Boulevard	Vacant undeveloped land

- No recognized environmental conditions were readily observable at the adjoining/ immediately surrounding properties.

3.3 Surrounding Area Observations

3.3.1 Surrounding Property Uses

The surrounding area consists of vacant undeveloped land with residences beyond to the north.

3.3.2 Surrounding Geography

The surrounding area is mostly flat with a slight topographic slope to the north and west. No nearby hills or bedrock outcroppings were observed in the area of the site. No lakes, ponds, rivers or streams were observed in the surrounding area.

3.4 Interviews

3.4.1 Property Owner

Mr. Nick Wright, the Property Owner's representative, completed the Survey Questionnaire (SQ) for the purposes of this report dated February 14, 2022. The completed questionnaire is attached to the Appendices section of this report. According to Mr. Wright, the subject property is currently vacant land. Mr. Wright was not aware of any recognized environmental conditions, such as underground storage tanks or any generated hazardous materials associated with the property.

3.4.2 Key Site Manager

Since the property is currently undeveloped graded land, no Key Site Manager was available.

3.4.3 Property Occupants

No occupants were available for interview during the completion of this report.

3.4.4 Past Owners, Operators and Occupants

Past owners, operators and occupants were not able to be identified for an interview for this report.

3.4.5 Prospective Purchaser

Mr. Ron Wu, the Prospective Purchaser, completed a User Questionnaire for the purpose of this report, dated February 14, 2022. Mr. Wu was unaware of any recognized environmental conditions such as underground storage tanks or any generated hazardous materials associated with the property.

3.4.6 Neighboring Property Owners/Tenants

Per ASTM, an attempt to interview neighboring property owners/tenants should be conducted when the subject property is vacant and unsecured land.

- No owners/tenants of adjoining properties were available for interview during the site reconnaissance as the properties are also undeveloped land.

3.5 User Provided Information

The USEPA AAI and ASTM International E1527-13 and E1527-21 Phase I Standards require that the User conduct independent research and consider certain information before purchasing a property. EFI Global, Inc. recommends that the User documents completion of the following items:

3.5.1 Lien Search

The User is required to obtain a recent (less than 180 days old) title report prepared for the subject property. The report should be reviewed to obtain information regarding environmental clean-up liens or activity and use limitations with regard to the subject property. If environmental cleanup liens or activity and use limitations encumbering the subject property or in connection with the subject property are identified, the User should provide that information to the Environmental Professional (EFI Global, Inc.). If the User has actual knowledge of environmental cleanup liens or activity and use limitations encumbering the subject property or in connection with the subject property, the User should provide that information to the Environmental Professional (EFI Global, Inc.).

- The User did not provide EFI Global any information either verbally or in writing (i.e. Title Report) regarding environmental cleanup liens or activity and use limitations encumbering the subject property. An environmental lien search was not requested by the User.

3.5.2 Specialized Knowledge

The User should provide the Environmental Professional (EFI Global, Inc.) with any specialized knowledge the User has with regard to recognized environmental conditions in connection with the property.

- The User has no specialized knowledge with respect to recognized environmental conditions in connection with the property.

3.5.3 Commonly Known or Reasonably Ascertainable Information

If the User is aware of any commonly known information in the community about the subject property with respect to recognized environmental conditions, the User should provide the information to the Environmental Professional (EFI Global, Inc.).

- The User is not aware of any commonly known information in the community about the subject property with respect to recognized environmental conditions.

3.5.4 Property Valuation

If this Phase I ESA was prepared as due diligence for a property transaction, it is the responsibility of the User to consider the relationship of the purchase price to the fair market value of the property. If the purchase price is significantly lower than the fair market value, the User should identify the alternate reason for the low purchase price if the lower purchase price is not related to the property being affected by hazardous substances or petroleum products.

- According to the User, the purchase price generally reflects the fair market value of the property.

3.5.5 Purpose of Performing Phase I ESA

According to the User, the User is a prospective purchaser of the subject property and the Phase I is being performed to qualify for landowner liability protections under CERCLA as well as identify business risks related to the property associated with environmental conditions.

3.6 User Provided Documents

No documents were provided to EFI Global, Inc. by the User.

4.0 HISTORICAL LAND USE

A review of historical data derived from standard historical resources is provided in this section. The objective of consulting historical sources is to develop a history of the previous uses of the property and surrounding area, in order to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the property. During our historical review, acute attention is paid to the subject property. Data relating to the adjoining and immediately surrounding properties (within 100-feet of the subject property boundary) and the surrounding area is reviewed to the extent that it is revealed in the course of researching the property itself.

4.1 Aerial Photography Review

Aerial Photography of many portions of the United States dates back to the 1920's. Items searched for in each photograph included, but were not limited to: evidence of tanks, gas stations, industrial site usage, water drainage pathways, areas which show evidence of drums or excessive debris, discolored or stained soils, areas of distressed vegetation, et cetera.

Aerial Photograph Coverage was available from EDR for the years: 1952, 1963, 1976, 1982, 1991, 1996, 2006, 2009, 2013, and 2017. A summary of our observations is presented in the following table.

Year	Subject Property	Notable Adjoining Property Observations	Notable Observations of the Surrounding Area
1952, 1963, 1976, 1982, 1991, 1996, 2006, 2009, and 2013	Undeveloped land. An unimproved road appears to be running on the north portion.	**All**: Undeveloped	Undeveloped land and light-duty road development. A creek appears to the west. Agricultural land appears to be developed to the far north and south by 1963.
2017	Graded land with a drainage ditch replacing a creek appears to be developed along the west portion.	**North**: An empty detention basin **East**: Undeveloped land and Bob Olson Parkway **South**: Bob Olson Parkway with graded land beyond **West**: A drainage ditch with graded land beyond	Primarily undeveloped land with a creek to the south running towards the north. Agricultural land appears to the north.

4.2 Topographic Map Review

Topographic Maps of many portions of the United States dates back to the 1879 and the series of 7.5-minute quadrangles was officially completed in 1992. More than 55,000 7.5-minute maps were made to cover the 48 conterminous States. This is the only uniform map series that covers the entire area of the United States in considerable detail. Traditionally topographic maps show both natural

and man-made features. Items searched for in each topographic map included, but were not limited to: evidence of tanks, landfills, water drainage pathways, or areas which show significant evidence of fill, et cetera.

Topographic Map Coverage was available from Environmental Data Resources (EDR) for the years: 1917, 1964, 1973, 1992, 2013, 2017, and 2020. A summary of our observations for the remaining maps are presented in the following table.

Year	Subject Property	Notable Adjoining Property Observations	Notable Observations of the Surrounding Area
1917	No structures depicted. Topographic slope appears to be towards the northeast.	**North**: No structures **East**: No structures **South**: No structures **West**: A light-duty road and a creek	A few structures and sparse road development depicted within the surrounding area. The township of Vista with roads and a railroad is depicted to the north.
1964, 1973, 1992, 2013, and 2017	No structures depicted. A light-duty road (Hildebrand Road) and a creek appears to be running along the north portion.	**North**: No structures **East**: No structures **South**: No structures **West**: A light-duty road (no longer depicted by 2013) and a creek	A few structures, road development, creeks, and agricultural land to the north. A freeway is depicted to the south and the township of Kennewick to the northwest by 1992.
2020	No structures depicted. A creek is depicted along the north portion	**North**: No structures **East**: No structures and a road **South**: A road with no structures beyond **West**: A creek with no structures beyond	No structures within the surrounding area. Creeks and canals are depicted throughout. Road development is depicted to the north.

Topographic Maps that were created in 2013, 2017, and 2020 do not depict any structures and only indicate street development and street names. This does not mean that structures were not present at that time.

4.3 Building Department Records Review

The subject property addresses were researched at the City of Kennewick Building Safety Division (KBSD). Items considered in the course of the building permit review are previous site usage, previous ownership, and the construction or demolition of any structures that may have had a negative environmental impact on the property.

- Due to the time constraints associated with this report, EFI Global, Inc. was not able to obtain records from the KBSD. However, based on the quality of information obtained from other sources and undeveloped nature of the subject property, this limitation not expected to significantly alter the findings of this investigation.

4.4 City Directory Review

City directories have been published since the 1800's and provide detailed occupant information for the property and its surrounding area at five-year intervals. The purpose of the City Directory research is to attempt to determine the businesses that historically occupied the subject property.

- As the subject property and the surrounding properties include undeveloped land, a review of City Directory information was not conducted as part of this assessment. The remaining Historical Land Use data in our opinion is sufficient to accurately ascertain the historical site use.

4.5 Sanborn Map Review

Originally compiled by the Sanborn Map Company of Pelham, New York for fire insurance companies to assess fire risks related to building materials and hazardous materials storage, today Sanborn Maps are an invaluable tool for Environmental Professionals in determining historical site use and the potential for environmental conditions. Sanborn Map Coverage is available from as early as 1867 in some cities. Although Sanborn maps were created for approximately twelve thousand cities and towns in the United States, Canada, and Mexico, Sanborn Map Coverage is not available in newer and more rural communities.

Sanborn Map Coverage was not available for the subject property. The remaining Historical Land Use data in our opinion is sufficient to accurately ascertain the historical site use.

4.6 Historical Summary

4.6.1 Subject Property

According to EFI Global, Inc.'s interpretation of the historical research data, the subject property was undeveloped land from sometime 1917 through at least 2013. The subject property was graded land since 2017 and currently proposed to be developed for residential purposes.

4.7 Historical Data Gaps

Based on our review of the historical data, no significant data gaps were encountered during our research.

5.0 REGULATORY DATABASE REPORT

A radial database search was conducted in accordance with the specifications defined in ASTM International E1527-13 and E1527-21 which sets the radial search distances for each regulatory database. The radial database search was conducted by EDR on May 23, 2022. A copy of the database report is presented in Appendix III of this report. The following table summarizes required databases reviewed, the approximate search distances, and indicates if the subject site, adjoining/immediately surrounding properties or surrounding sites are listed on the respective database.

Following the table are summaries of the information found in the relevant database listings and our opinion regarding the potential for the subject property to be impacted. Our opinion is based on the information found in the database listings, through other historical and regulatory resources, "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions" (ASTM International E2600-15), and assumed groundwater flow direction. As discussed in Section 2.3, groundwater is estimated to be approximately 15 ft bgs in the area of the site and is assumed to flow towards the north.

DATABASE	Search Distance (Miles)	Subject Site (Yes/No)	Adjacent Site (Yes/No)	Total Listings (#)
Federal National Priorities List (NPL)	1.0	No	No	0
Federal De-listed NPL	1.0	No	No	0
Federal CERCLIS	0.5	No	No	0
Federal CERCLIS NFRAP	0.5	No	No	0
Federal RCRA CORRACTS	1.0	No	No	0
Federal RCRA non-CORRACTS TSD	0.5	No	No	0
Federal RCRA Generators	0.25	No	No	0
Federal Institutional/Engineering Controls	0.5	No	No	0
Federal ERNS	Property	No	No	0
State/Tribal Equivalent NPL	1.0	No	No	0
State/Tribal Equivalent CERCLIS	1.0	No	No	0
State/Tribal Landfill	0.5	No	No	0
State/Tribal Underground Storage Tank (UST)	0.25	No	No	0
State/Tribal Leaking Underground Storage Tank (LUST/ CPS-SLIC)	0.5	No	No	0
State/Tribal Institutional/Engineering Controls	0.5	No	No	0
State/Tribal Voluntary Clean-up Sites	0.5	No	No	0
State/Tribal Brownfield Sites	0.5	No	No	0

5.1 Subject Property

Southcliffe Commercial (Kennewick, WA 99338) - The subject property is listed on the Facility/Site Identification System Listing (ALLSITES) database with the Facility identification number (ID) 116621 and the Construction Stormwater General Permit (CSWGP) Environmental Program ID WAR303725. No further information was provided. It is likely that the permit was required in preparation of

development activities on this vacant lot. Therefore, based on the nature of the permit (storm water discharge management), lack of violations and documented release, this permit is not expected to represent a significant environmental concern for the subject property.

5.2 Adjoining and Immediately Surrounding Properties

No adjoining/immediately surrounding properties (within 100-feet) were listed on any of the regulatory databases researched.

5.3 Surrounding Area

In our opinion, none of the other sites listed on the regulatory database report pose a significant threat to the subject property as there is no indication of a release at the respective sites, a release has occurred but groundwater has not been impacted, a release has occurred but the case is closed, or the sites are located cross or down gradient of the subject property and in excess of 1/10 mile from the subject property.

5.4 Orphan Sites

Orphan sites are unmappable sites which appear in a list form in the Radius Map Report rather than on the standard Radius Map. No orphan sites were identified in the Radius Map Report prepared for this site.

6.0 AGENCY FILE REVIEWS

6.1 State Agencies

The State Washington Department of Ecology (SWDE) was contacted regarding permits, investigation files, hazardous materials, and underground storage tank records for the subject property. Additionally, the SWDE's Water Quality Permitting and Reporting Information System (PARIS) and Cleanup Tank Search online databases were reviewed for information on the subject property to identify any evidence of previous or current hazardous material usage.

- According to the response to our request from the SWDE, the subject property was listed with the Water Quality Program files from March 2016 for the proposed residential development known as Westcliffe Phase 14 & 15 (WAR303676), Southcliffe Commercial (WAE 303725), Greyhawk Phase 1 (WAR 303649). These records correspond with the database listing discussed further in Section 5.1 of this report, and based on the nature of the permit (storm water discharge management), lack of violations and documented release, these records are not expected to represent a significant environmental concern.

The Washington Geologic Information Portal online mapping application Well Finder was reviewed for information pertaining to oil and gas exploration on or nearby the subject property.

- No oil wells were identified within 500 feet of the subject property.

6.2 City/County Agencies

The City of Kennewick City Clerk (CKCC), Benton County Clean Air Agency (BCCAA) and Benton County Clerks (BCC) were contacted regarding air emission permits and industrial waste discharge records for the subject property. Additionally, the City of Kennewick Site Plan Search, Approved Plan Search, and Certificate of Occupancy Search online databases were reviewed for the planning information for the subject property.

- According to responses to our requests from the BCC, and a review of City of Kennewick Approved Plan Search and Certificate of Occupancy Search online databases, there are no files for the subject property.

- According to a review of City of Kennewick Site Plan Search, the subject property has been approved for grading beginning November 2015. Grading permits indicate, that approximately 660,000 cubic yards of soil were excavated to prepare the subject property for a proposed development. The grading work was reported to be in accordance with the local and state requirements. The remaining permits were for the road development and traffic regulation and did not contain pertinent information. Based on the nature of the permits, these records are not expected to represent a significant environmental concern.

6.3 Agency File Review Limitations

Due to the time constraints associated with this report, EFI Global, Inc. was not able to obtain records from the CKCC and BCCAA. However, based on the quality of information obtained from other sources and undeveloped nature of the subject property, this limitation not expected to significantly alter the findings of this investigation. Should relevant information be obtained from this agency subsequent to issuing this report, EFI Global will prepare and issue an addendum to the User.

7.0 NON-SCOPE ENVIRONMENTAL RISKS

ASTM International E1527-13 and E1527-21 identifies additional conditions which, should they exist at the subject property, may create a human health risk to the occupants of the site. These risks may also create additional costs to the property owner in the form of identification, operations & maintenance, and cleanup or remediation.

7.1 Asbestos Containing Building Materials (ACMs)

Asbestos is a group of naturally occurring minerals used in many products, including building materials vehicle brakes, insulation and other products that require resistance to heat and corrosion. Asbestos includes: chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these materials that have been chemically treated and/or altered.

The inhalation of asbestos fibers by workers can cause cancer and other serious diseases of the lungs and other organs that may not appear until years after the exposure has occurred. For instance, asbestos can cause a buildup of scar-like tissue in the lungs and result in loss of lung function. Asbestos fibers associated with these health risks are too small to be seen with the naked eye, and smokers are at higher risk of developing some asbestos-related diseases.

ACMs do not always pose a hazard to occupants and workers in buildings that contain these materials. Intact, undisturbed ACMs generally do not pose a health risk. ACMs may become hazardous and pose an inhalation risk when they are damaged, disturbed in some manner, or deteriorate over time and asbestos fibers are released into building air.

ACMs can be found in a multitude of building products which include decorative and acoustical plaster texture, fire-proofing (Monokote), joint compound, attic and wall insulation, resilient floor covering, mastic, recessed lighting fixtures, wiring, elevator brakes, fire doors, pipe insulation, pipe gaskets, duct insulation, duct tape, siding and roofing materials (tar/shingles), textured paint, stucco, concrete, asphalt underlayment (Petromat) and plaster.

Local jurisdictions have specific laws and regulations regarding asbestos and actions including building renovations and building demolition.

- Based on the lack of permanent structures currently on the subject property, the potential for ACMs is considered to be low.

7.2 Lead-Based Paint (LBP)

Although the use of LBP in residential structures has been prohibited since 1978, it may still be used in commercial and industrial buildings. It is approximated that 80 percent of buildings built prior to 1978 contain LBP. Even at low levels, lead poisoning can cause IQ deficiencies, reading and learning disabilities, impaired hearing, reduced attention spans, hyperactivity and other behavior problems with children under 6 years old being most at risk.

Lead is a highly toxic metal that was used for many years in products found in and around our homes and commercial buildings. Lead can be found in dust from friction surfaces of windows and doors that are painted with LBP and from building components coated with LBP that has begun peeling, flaking and chalking. There is also the potential for soil to have elevated lead levels due to leaching from LBP on nearby structures and deposition of airborne lead when leaded fuel was in use prior to the 1976 ban and phase out.

Since the 1980's, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and banned or has been limited in use in consumer products.

Between the local, State and Federal agencies, including the Environmental Protection Agency (EPA), Department of Housing and Urban Development (HUD), Occupational Safety & Health Administration (OSHA) and the California Department of Public Health (CDPH), each state has various action limits that have been enacted with the intent to prevent human exposure and contamination of the surrounding environment.

- Based on the lack of permanent structures currently on the subject property, the potential for LBP at the site is considered to be low.

7.3 Radon

Radon is a radioactive gas that has been found in structures all over the United States. Radon is produced from the natural breakdown of uranium in soil, rock, and water. Radon typically moves up through the ground and into structures through cracks and other holes in the foundation. Movement of radon through the earth is strongly influenced by moisture content and permeability of soil, porosity, and degree of fracturing in rocks, as well as surface meteorological conditions. High levels of radon have been discovered in every state.

Radon cannot be seen, smelled, or tasted. Breathing air-containing radon may increase the risk of getting lung cancer. The Surgeon General of the United States has warned that radon is the second leading cause of lung cancer in the United States today after smoking.

Testing for the presence of radon is fairly inexpensive, simple and is the only way to be certain of the on-site concentrations. Various types of sampling methods exist to determine the concentration. On-site radon sampling was not performed during the completion of this assessment.

- Based on our research at the USEPA, the average radon concentrations for Benton County are between 2.0 and 4.0 picocuries per liter (pCi/L), which is below the 4.0 pCi/L action level set by the USEPA. Further, the *Washington Tracking Network (WTN)* online mapping system, shows medium potential for concentrations of radon in the vicinity of the subject property to be above the 4.0 pCi/L action level. Site specific radon levels vary greatly within the USEPA radon zones and on-site radon measurements would need to be collected in order to determine the radon levels at the subject property.

7.4 Wetlands

According to the Clean Water Act, a wetland is “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Wetland areas have been identified as ecologically diverse and sensitive areas and are generally subject to more stringent development, re-development, and building regulations.

- The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory was reviewed to determine if the subject property is situated within an identified wetland. According to the USFWS, the freshwater forested/shrub wetland and riverine habitat intersect the subject property.

7.5 Mold

Mold and mildew are simple, microscopic organisms in the Fungi kingdom that can grow virtually anywhere if they have adequate moisture, nutrients, air and appropriate temperatures. Depending on the particular mold or fungus, growing colonies can be almost any color. Most household molds and fungi (mildews) are white, black, grey, or brown colored. Spores of dozens of kinds of mold and fungus (mildew) are present at all times in indoor and outdoor air. These spores can settle, germinate and grow wherever good growth conditions are found. They can grow on soil, plants, dead plant materials, foods, fabrics, paper, wood and many other materials found within buildings. Many molds are not harmful and actually have a beneficial role in the environment and in living systems. In soil, molds play a crucial part in decomposition of organic matter and in making nutrients available to plants.

When mold and fungi (mildews) growth occurs in buildings, it can be very destructive to the materials on which they grow and cause high levels of airborne mold spores and volatile organic compounds associated with the characteristic musty / moldy odor. They cause staining, decomposition (rotting of materials) and objectionable, musty odors. Where colonies are extensive they can also produce enough spores, and by-products to be harmful to health. Many of the by-products of mold and fungus (mildew) are irritating to skin, eyes and respiratory tracts. Some molds produce true allergic sensitization and allergic reactions in susceptible people. Some molds produce toxic by-products that could be harmful to skin, and poisonous if ingested or inhaled in quantity. Persons with compromised immune systems may even experience systemic fungal infections of the respiratory tract.

- Based on the lack of permanent structures currently on the subject property, no mold observations were made during this assessment.

7.6 Methane Gas

In response to growing concern regarding methane intrusion into buildings and to the potential for methane build-up underneath buildings, certain municipalities have established methane requirements for structures based on the proximity to oil wells and landfills. If a subject property is located in the proximity of active or abandoned oil wells or landfills, methane mitigation devices installed prior to construction activities at a subject property may be necessary.

- Based on our research, the property is not known to be located in proximity (within 1,000 feet) to any active or abandoned oil wells or landfills. Therefore, the potential for methane risk at the subject property is considered low.

8.0 FINDINGS

EFI Global, Inc. has performed a Phase I for Red Tail Development LLC (Client) for a undeveloped property located at 8224 Bob Olson Parkway, in Benton County, and the City of Kennewick, Washington, Assessor's Parcel Number: 107894000001003. The research conducted for this study and the report prepared are in conformance with the USEPA AAI standard and the ASTM International E1527-13 and E1527-21 scope of work.

8.1 CONCLUSIONS

EFI Global, Inc. has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM International E1527-13 and E1527-21, at 8224 Bob Olson Parkway, Kennewick, Washington, the subject property. Any exceptions to or deletions from this practice are described in the individual sections of this report. This assessment has revealed no evidence of recognized environmental conditions or *de minimis* conditions in connection with the subject property.

Recognized Environmental Condition (REC)

In our opinion, no RECs were identified during the course of this assessment.

Historical Recognized Environmental Condition (HREC)

In our opinion, no HRECs were identified during the course of this assessment.

Controlled Recognized Environmental Condition (CREC)

In our opinion, no CRECs were identified during the course of this assessment.

De Minimis Condition

In our opinion, no *de minimis* conditions were identified during the course of this assessment.

Significant Data Gaps

In our opinion, no significant data gaps were identified during the course of this assessment.

8.2 RECOMMENDATIONS

Based on the foregoing, no additional investigation is recommended at this time.

9.0 SIGNATURES

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared By: Date: June 9, 2022

Galina Gamzyakova
Project Manager

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in § 312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Reviewed By: Date: June 9, 2022

Brian Brennan
Senior Project Manager

10.0 REFERENCES

ASTM International, 2013. Subcommittee E50.2 Commercial Real Estate Transactions, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process", Designation E1527-13, West Conshohocken, PA 35 pp.

ASTM International, 2021. Subcommittee E50.2 Commercial Real Estate Transactions, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process", Designation E1527-13, West Conshohocken, PA 59 pp.

ASTM International, 2015. Subcommittee E50.2 on Real Estate Assessment and Management, "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions", Designation E2600-15, West Conshohocken, PA 34 pp.

Benton County Property Search - https://propertysearch.co.benton.wa.us/propertyaccess/PropertySearch.aspx?cid=0

Environmental Data Resources, Inc., 2022. The EDR – Radius Map with GeoCheck®, Inquiry No. 6863743.2s, Shelton CT, 87 pp.

Environmental Data Resources, Inc., 2022. The EDR – City Directory Abstract, Inquiry No. 6863743.5, Shelton CT, 15 pp.

Environmental Data Resources, Inc., 2022. The EDR – Certified Sanborn® Map Report, Inquiry No. 6863743.3, Shelton CT, 2 pp.

Environmental Data Resources, Inc., 2022. The EDR – Aerial Photo Decade Package, Inquiry No. 6863743.8, Shelton CT, 12 pp.

Environmental Data Resources, Inc., 2022. The EDR – Historical Topographic Map Report (USGS *Kennewick, Washington* 7.5 minute), Inquiry No. 6863743.4, Shelton CT, 11 pp.

Google Earth - http://earth.google.com/

State Washington Department of Ecology, Cleanup Tank Search - https://apps.ecology.wa.gov/cleanupsearch/

State Washington Department of Ecology, Well Construction & Licensing - https://appswr.ecology.wa.gov/wellconstruction/map/WCLSWebMap/WellConstructionMapSearch.aspx

State Washington - EPA Map of Radon Zones - https://www.epa.gov/sites/default/files/2014-08/documents/washington.pdf

Water Quality Permitting and Reporting Information System (PARIS) - https://apps.ecology.wa.gov/paris/PermitLookup.aspx

Washington Geologic Information Portal - https://geologyportal.dnr.wa.gov/2d-view#erpl?-14056695,-12882622,5755014,6293130?Surface_Geology,500k_Surface_Geology,Map_Units

Washington State Department of Health, Radon - Washington Tracking Network (WTN) - https://fortress.wa.gov/doh/wtnmobile/wtnmobile/#!/

Wetlands Mapper - https://www.fws.gov/wetlands/Data/Mapper.htm

APPENDIX I

ILLUSTRATIONS

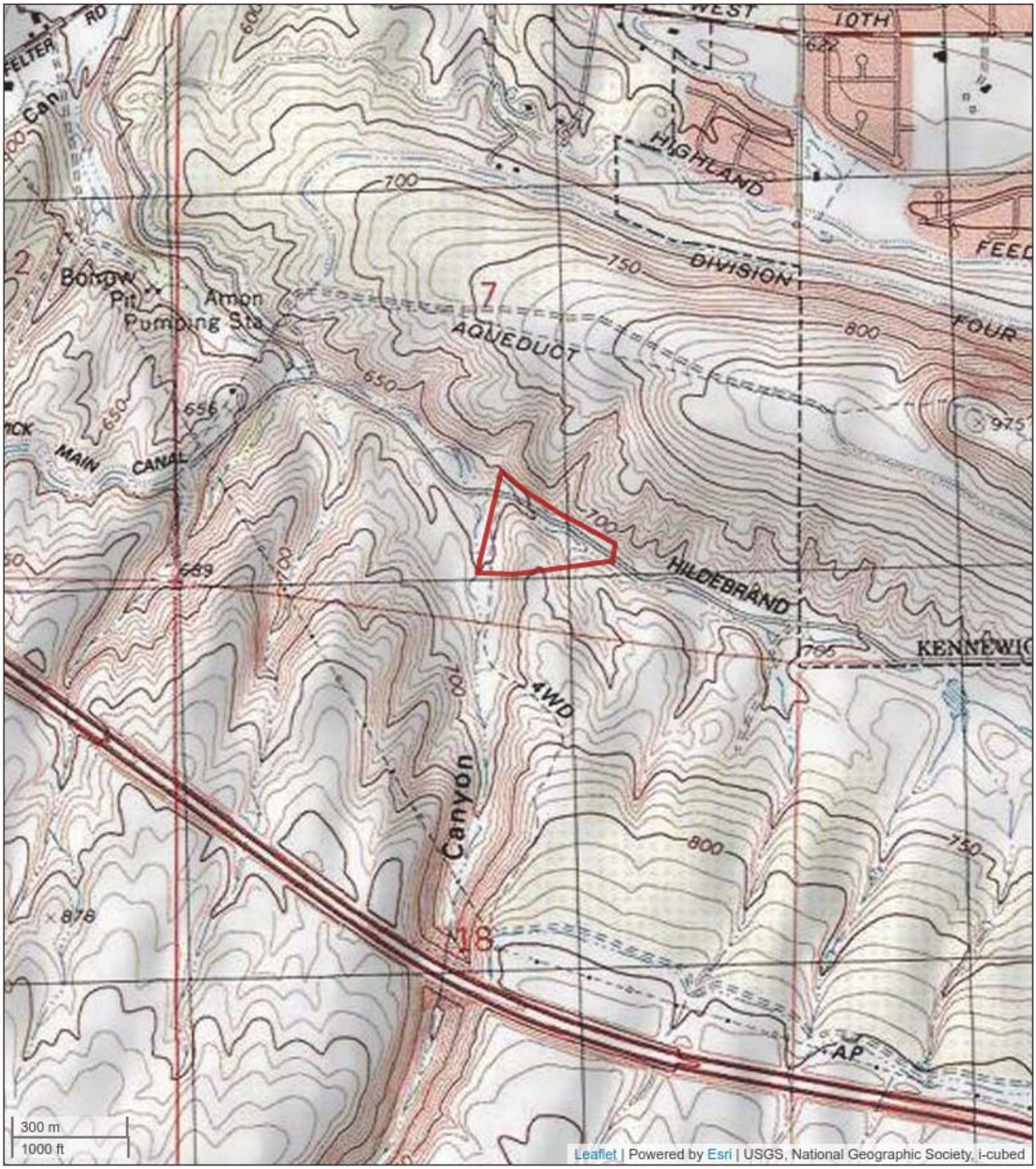


Figure 1: TOPOGRAPHIC MAP

8428 Bob Olson Parkway, Kennewick, Washington 99336

Red Tail Development LLC

EFI Project Number: 045.08298

efi global

Figure 2: SITE LOCATION MAP

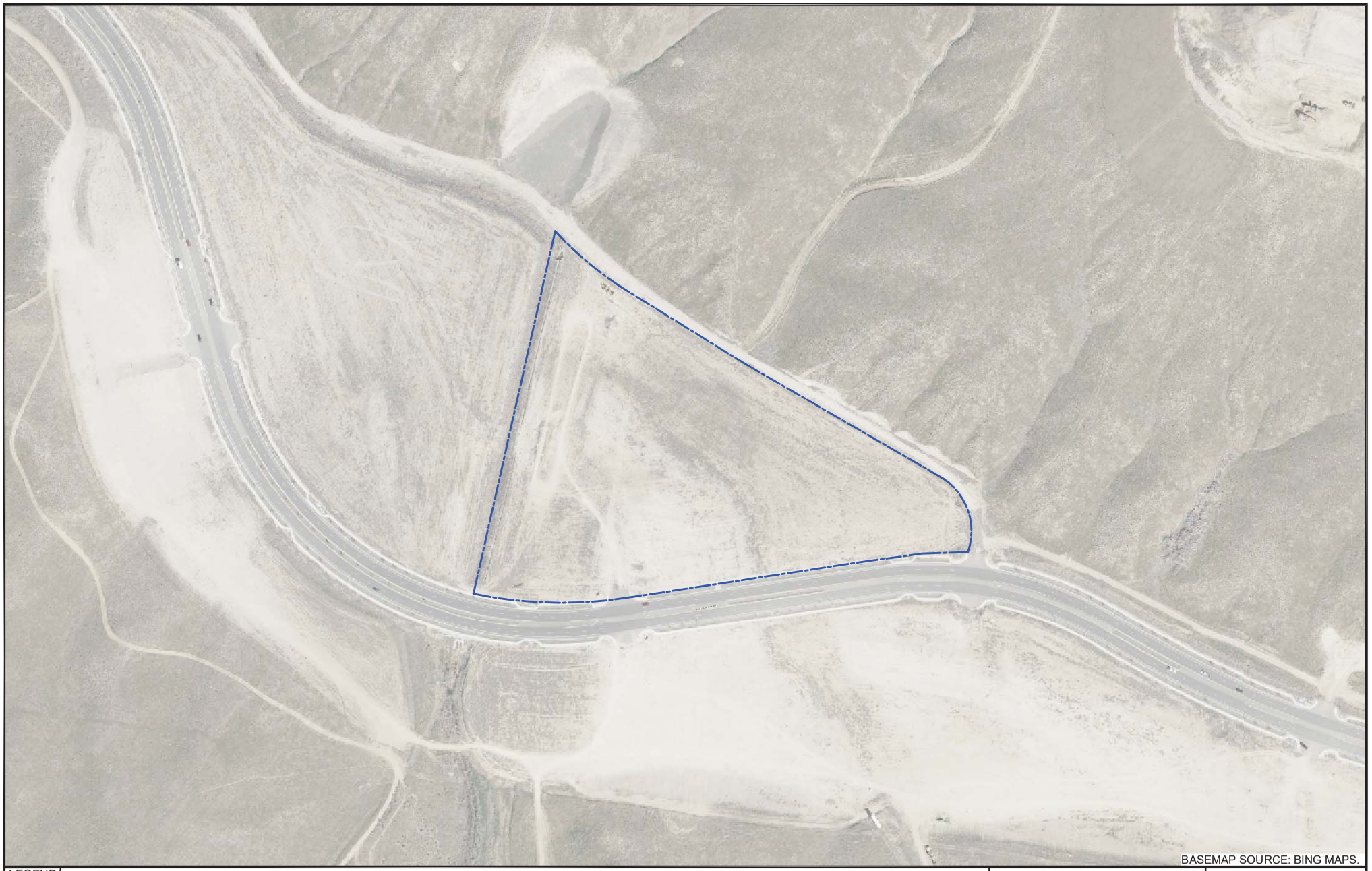
8428 Bob Olson Parkway, Kennewick, Washington 99336

Red Tail Development LLC

EFI Project Number: 045.08298

efi global

Exhibit A-10



LEGEND

PROPERTY LINE

SUBJECT STRUCTURE

N

APPROX. SCALE: 1"=150'

0 150' 300'

SITE PLAN

8428 BOB OLSON PARKWAY AND 7641 WEST HILDEBRAND BOULEVARD, KENNEWICK, WA 99336

efi global

PN: 045.08298	FIGURE
DT: 02/23/2022	3
DB: ID CB: GG	

C:\Users\yedek2\Desktop\ENVE\Projects\045.08298_Site Plan\045.08298_SITE_PLAN

APPENDIX II

PHOTOS

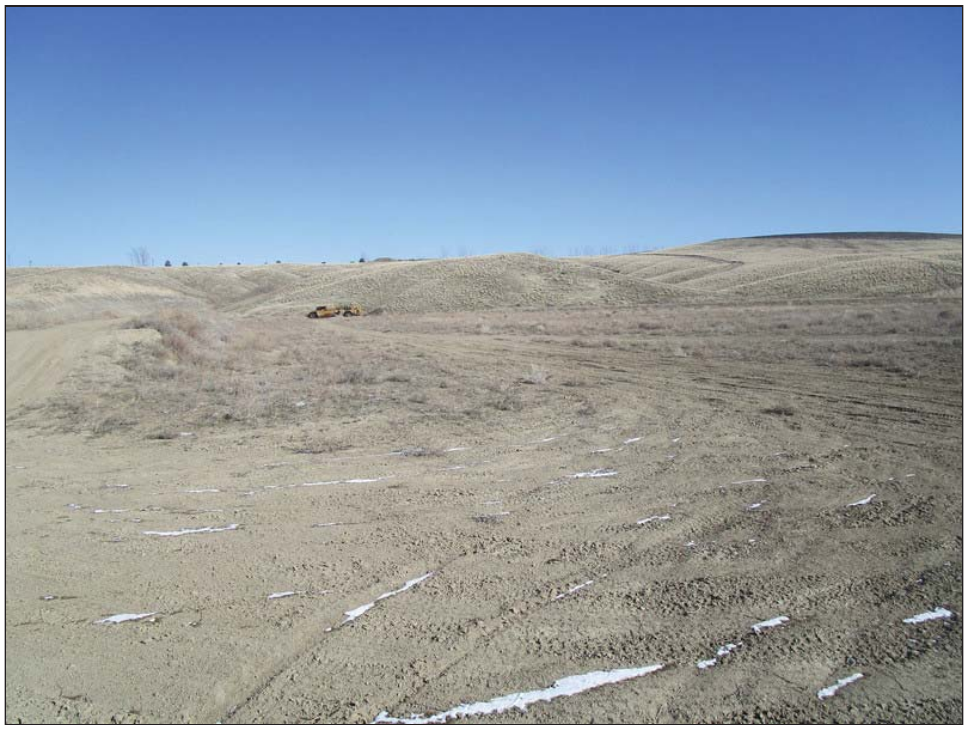


Photo 1: Subject property facing north

Photo 2: Subject property facing north

Photo 3: Subject property facing north

Photo 4: Subject property facing east

Photo 5: Subject property facing east

Photo 6: Southern boundary of the subject property

Photo 7: Subject property facing west

Photo 8: Western boundary of subject property

Photo 9: Imported soil

Photo 10: Pad mounted transformer

Photo 11: Adjacent property to the north

Photo 12: Adjacent property to the east

Photo 13: Adjacent property to the south

Photo 14: Adjacent property to the west

APPENDIX III

RADIUS MAP REPORT

Exhibit A-10

045.08298_8224 Bob Olson Pkwy
8224 Bob Olson Pkwy
Kennewick, WA 99338

Inquiry Number: 6989875.2s
May 23, 2022

The EDR Radius Map™ Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	8
Orphan Summary	9
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

8224 BOB OLSON PKWY
KENNEWICK, WA 99338

COORDINATES

Latitude (North):	46.1875590 - 46ˆ 11' 15.21''
Longitude (West):	119.2309360 - 119ˆ 13' 51.36''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	327834.6
UTM Y (Meters):	5117088.0
Elevation:	679 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	6003911 KENNEWICK, WA
Version Date:	2013
West Map:	6003885 BADGER MOUNTAIN, WA
Version Date:	2013

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20150625
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
8224 BOB OLSON PKWY
KENNEWICK, WA 99338

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	SOUTHCLIFFE COMMERCI		ALLSITES		TP

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
SOUTHCLIFFE COMMERCI	ALLSITES	N/A
KENNEWICK, WA 99338		

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL..... National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY..... Federal Facility Site Information listing
SEMS..... Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS..... Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG..... RCRA - Large Quantity Generators

EXECUTIVE SUMMARY

RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-VSQG ..... RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ..... Land Use Control Information System
US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROLS ..... Institutional Controls Sites List

Federal ERNS list

ERNS ..... Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

HSL ..... Hazardous Sites List

Lists of state- and tribal hazardous waste facilities

CSCSL ..... Confirmed and Suspected Contaminated Sites List

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF ..... Solid Waste Facility Database

Lists of state and tribal leaking storage tanks

LUST ..... Leaking Underground Storage Tanks Site List
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

Lists of state and tribal registered storage tanks

FEMA UST ..... Underground Storage Tank Listing
UST ..... Underground Storage Tank Database
AST ..... Aboveground Storage Tank Locations
INDIAN UST ..... Underground Storage Tanks on Indian Land

State and tribal institutional control / engineering control registries

INST CONTROL ..... Institutional Control Site List

Lists of state and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Cleanup Program Sites
ICR ..... Independent Cleanup Reports
PTAP ..... PTAP Site Listing

Lists of state and tribal brownfield sites

BROWNFIELDS ..... Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

EXECUTIVE SUMMARY

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY	Recycling Facility List
SWTIRE	Solid Waste Tire Facilities
INDIAN ODI	Report on the Status of Open Dumps on Indian Lands
ODI	Open Dump Inventory
DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS	Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL	Delisted National Clandestine Laboratory Register
CDL	Clandestine Drug Lab Contaminated Site List
HIST CDL	List of Sites Contaminated by Clandestine Drug Labs
CSCSL NFA	Confirmed & Contaminated Sites - No Further Action
US CDL	National Clandestine Laboratory Register
AQUEOUS FOAM	Firefighting Foam Incidents
PFAS	PFAS Contamination Site Location Listing

Local Land Records

LIENS 2	CERCLA Lien Information

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
SPILLS	Reported Spills
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database

EXECUTIVE SUMMARY

HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
UXO	Unexploded Ordnance Sites
DOCKET HWC	Hazardous Waste Compliance Docket Listing
ECHO	Enforcement & Compliance History Information
FUELS PROGRAM	EPA Fuels Program Registered Listing
AIRS	Washington Emissions Data System
ASBESTOS	ASBESTOS
COAL ASH	Coal Ash Disposal Site Listing
DRYCLEANERS	Drycleaner List
Financial Assurance	Financial Assurance Information Listing
Inactive Drycleaners	Inactive Drycleaners
MANIFEST	Hazardous Waste Manifest Data
NPDES	Water Quality Permit System Data
UIC	Underground Injection Wells Listing
MINES MRDS	Mineral Resources Data System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto	EDR Exclusive Historical Auto Stations
EDR Hist Cleaner	EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS	Recovered Government Archive State Hazardous Waste Facilities List
RGA LF	Recovered Government Archive Solid Waste Facilities List
RGA LUST	Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

Exhibit A-10

OVERVIEW MAP - 6989875.2S

Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	045.08298_8224 Bob Olson Pkwy	CLIENT:	EFI Global Inc.
ADDRESS:	8224 Bob Olson Pkwy Kennewick WA 99338	CONTACT:	Galina Gamzyakova
		INQUIRY #:	6989875.2s
LAT/LONG:	46.187559 / 119.230936	DATE:	May 23, 2022 1:00 pm

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DETAIL MAP - 6989875.2S

Exhibit A-10

Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 045.08298_8224 Bob Olson Pkwy	CLIENT: EFI Global Inc.
ADDRESS: 8224 Bob Olson Pkwy Kennewick WA 99338	CONTACT: Galina Gamzyakova INQUIRY #: 6989875.2s
LAT/LONG: 46.187559 / 119.230936	DATE: May 23, 2022 1:01 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
HSL	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
CSCSL	1.000		0	0	0	0	NR	0
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL	0.500		0	0	0	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
ICR	0.500		0	0	0	NR	NR	0
PTAP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
SWRCY	0.500		0	0	0	NR	NR	0
SWTIRE	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
ALLSITES	0.500	1	0	0	0	NR	NR	1
CDL	TP		NR	NR	NR	NR	NR	0
HIST CDL	TP		NR	NR	NR	NR	NR	0
CSCSL NFA	0.500		0	0	0	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
AQUEOUS FOAM	0.500		0	0	0	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
ASBESTOS	TP		NR	NR	NR	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
Inactive Drycleaners	0.250		0	0	NR	NR	NR	0
MANIFEST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
MINES MRDS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA HWS	TP		NR	NR	NR	NR	NR	0
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		1	0	0	0	0	0	1

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
1 **Target** **Property** **Actual:** **657 ft.**	**SOUTHCLIFFE COMMERCIAL** **KENNEWICK, WA 99338** ALLSITES: No Details: No Details	**ALLSITES**	**S118494044** **N/A**

Exhibit A-10

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 19

Source: EPA
Telephone: N/A
Last EDR Contact: 05/05/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 19

Source: EPA
Telephone: N/A
Last EDR Contact: 05/05/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 19

Source: EPA
Telephone: N/A
Last EDR Contact: 05/05/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/25/2021
Date Data Arrived at EDR: 06/24/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/01/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 19

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/05/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

Exhibit A-10

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 19

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/05/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Exhibit A-10

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 88

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/05/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 11/19/2021
Date Data Arrived at EDR: 11/19/2021
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/23/2022
Next Scheduled EDR Contact: 06/06/2022
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 11/19/2021
Date Data Arrived at EDR: 11/19/2021
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/23/2022
Next Scheduled EDR Contact: 06/06/2022
Data Release Frequency: Varies

Exhibit A-10

Federal ERNS list

ERNS: Emergency Response Notification System
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 03/01/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 9

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/22/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

HSL: Hazardous Sites List
The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

Date of Government Version: 08/25/2021
Date Data Arrived at EDR: 09/02/2021
Date Made Active in Reports: 11/23/2021
Number of Days to Update: 82

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 02/28/2022
Next Scheduled EDR Contact: 06/13/2022
Data Release Frequency: Semi-Annually

Lists of state- and tribal hazardous waste facilities

CSCSL: Confirmed and Suspected Contaminated Sites List
State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 01/11/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 04/13/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF: Solid Waste Facility Database
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 12/15/2021
Date Data Arrived at EDR: 01/13/2022
Date Made Active in Reports: 04/06/2022
Number of Days to Update: 83

Source: Department of Ecology
Telephone: 360-407-6132
Last EDR Contact: 02/25/2022
Next Scheduled EDR Contact: 06/13/2022
Data Release Frequency: Annually

Lists of state and tribal leaking storage tanks

LUST: Leaking Underground Storage Tanks Site List
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/09/2022
Date Made Active in Reports: 05/03/2022
Number of Days to Update: 83

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 05/11/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Quarterly

Exhibit A-10

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

Exhibit A-10

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 05/28/2021
Date Data Arrived at EDR: 06/22/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/04/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/09/2022
Date Made Active in Reports: 05/03/2022
Number of Days to Update: 83

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 05/11/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank Locations
A listing of aboveground storage tank locations regulated by the Department of Ecology's Spill Prevention, Preparedness and Response Program.

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 02/02/2016
Date Made Active in Reports: 05/03/2016
Number of Days to Update: 91

Source: Department of Ecology
Telephone: 360-407-7562
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/28/2021
Date Data Arrived at EDR: 06/22/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

Exhibit A-10

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/06/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

Exhibit A-10

State and tribal institutional control / engineering control registries

INST CONTROL: Institutional Control Site List

The Environmental Covenants Registry is a list of sites that have implemented institutional controls as part of the remedy. Institutional controls are administrative or legal measures used to prevent activities that may compromise the integrity of a cleanup action. They are meant to prevent exposure to contamination remaining on site. Institutional controls may include environmental covenants (also known as "deed restrictions"), zoning restrictions, public health advisories, or other administrative tools. The most common institutional control is an environmental covenant. Environmental covenants are legal recorded documents that typically limit certain uses of the property, such as: Drilling a water supply well on the property. Disturbing pavement covering contaminated areas. Residential use of the property.

Date of Government Version: 01/11/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 04/13/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Quarterly

Lists of state and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Sites

Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

Date of Government Version: 01/11/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 04/13/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

ICR: Independent Cleanup Reports

These are remedial action reports Ecology has received from either the owner or operator of the sites. These actions have been conducted without department oversight or approval and are not under an order or decree. This database is no longer updated by the Department of Ecology.

Date of Government Version: 12/01/2002
Date Data Arrived at EDR: 01/03/2003
Date Made Active in Reports: 01/22/2003
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 08/10/2009
Next Scheduled EDR Contact: 11/09/2009
Data Release Frequency: No Update Planned

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/16/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Varies

PTAP: PTAP Site Listing

A list of sites accepted into the Petroleum Technical Assistance Program. The Petroleum Technical Assistance Program (PTAP) expands the state's ability to respond to the high customer demand to clean up petroleum contaminated sites. Under the PTAP, the Pollution Liability Insurance Agency (PLIA) may provide informal site-specific technical consultations and issue written opinion letters to persons conducting independent remedial actions at qualifying petroleum cleanup sites. PLIA may provide these services under the authority of RCW 70.149.040(9) and the Model Toxics Control Act (MTCA), Chapter 70.149 RCW and Chapter 173-340 WAC.

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/09/2022
Date Made Active in Reports: 05/03/2022
Number of Days to Update: 83

Source: Department of Ecology
Telephone: 360-407-0515
Last EDR Contact: 05/11/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Brownfields Sites Listing

A listing of brownfields sites included in the Confirmed & Suspected Sites Listing. Brownfields are abandoned, idle or underused commercial or industrial properties, where the expansion or redevelopment is hindered by real or perceived contamination. Brownfields vary in size, location, age, and past use -- they can be anything from a five-hundred acre automobile assembly plant to a small, abandoned corner gas station.

Date of Government Version: 01/11/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Department of Ecology
Telephone: 360-725-4030
Last EDR Contact: 04/13/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/15/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: Recycling Facility List

A llisting of recycling center locations.

Date of Government Version: 02/25/2022
Date Data Arrived at EDR: 03/01/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 9

Source: Department of Ecology
Telephone: 360-407-6105
Last EDR Contact: 04/22/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

SWTIRE 2: Solid Waste Tire Facilities 2

solid waste tire piles

Date of Government Version: 09/08/2021
Date Data Arrived at EDR: 09/09/2021
Date Made Active in Reports: 12/01/2021
Number of Days to Update: 83

Source: Department of Ecology
Telephone: 425-649-7104
Last EDR Contact: 02/18/2022
Next Scheduled EDR Contact: 06/13/2022
Data Release Frequency: Varies

Exhibit A-10

SWTIRE: Solid Waste Tire Facilities
This study identified sites statewide with unauthorized accumulations of scrap tires.

Date of Government Version: 11/01/2005
Date Data Arrived at EDR: 03/16/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 28

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 09/08/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 04/21/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 02/22/2022
Date Data Arrived at EDR: 02/23/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 76

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/23/2022
Next Scheduled EDR Contact: 06/06/2022
Data Release Frequency: No Update Planned

Exhibit A-10

ALLSITES: Facility/Site Identification System Listing
Information on facilities and sites of interest to the Department of Ecology.

Date of Government Version: 04/29/2022
Date Data Arrived at EDR: 04/29/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 5

Source: Department of Ecology
Telephone: 360-407-6423
Last EDR Contact: 04/25/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

CDL: Clandestine Drug Lab Contaminated Site List
Illegal methamphetamine labs use hazardous chemicals that create public health hazards. Chemicals and residues can cause burns, respiratory and neurological damage, and death. Biological hazards associated with intravenous needles, feces, and blood also pose health risks.

Date of Government Version: 12/09/2021
Date Data Arrived at EDR: 02/02/2022
Date Made Active in Reports: 05/02/2022
Number of Days to Update: 89

Source: Department of Health
Telephone: 360-236-3380
Last EDR Contact: 05/02/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

HIST CDL: List of Sites Contaminated by Clandestine Drug Labs
This listing of contaminated sites by Clandestine Drug Labs includes non-remediated properties. The current CDL listing does not. This listing is no longer updated by the state agency.

Date of Government Version: 02/08/2007
Date Data Arrived at EDR: 06/26/2007
Date Made Active in Reports: 07/19/2007
Number of Days to Update: 23

Source: Department of Health
Telephone: 360-236-3381
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

CSCSL NFA: Confirmed and Contaminated Sites - No Further Action
This report contains information about sites that are undergoing cleanup and sites that are awaiting further investigation and/or cleanup. Sites on the Hazardous Sites List (see above) are included in this data set.

Date of Government Version: 01/11/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 04/13/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/22/2022
Date Data Arrived at EDR: 02/23/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 76

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/23/2022
Next Scheduled EDR Contact: 06/06/2022
Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing
PFOS and PFOA stand for perfluorooctane sulfonate and perfluorooctanoic acid, respectively. Both are fluorinated organic chemicals, part of a larger family of compounds referred to as perfluoroalkyl substances (PFASs).

Date of Government Version: 01/11/2022
Date Data Arrived at EDR: 01/13/2022
Date Made Active in Reports: 04/06/2022
Number of Days to Update: 83

Source: Department of Ecology
Telephone: 360-407-6116
Last EDR Contact: 04/04/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

Exhibit A-10

AQUEOUS FOAM: Firefighting Foam Incidents

Aqueous film-forming foam-laced water running off from fuel spills, firefighting events and routine training sessions has put those chemicals in ground water, surface water, sediments, biota, and other natural resources of the state.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 01/06/2022
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 7

Source: Department of Ecology
Telephone: 360-407-6116
Last EDR Contact: 04/04/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 19

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 05/05/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/15/2021
Date Data Arrived at EDR: 12/16/2021
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 84

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

SPILLS: Reported Spills

Spills reported to the Spill Prevention, Preparedness and Response Division.

Date of Government Version: 11/29/2021
Date Data Arrived at EDR: 12/02/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 78

Source: Department of Ecology
Telephone: 360-407-6950
Last EDR Contact: 02/24/2022
Next Scheduled EDR Contact: 06/13/2022
Data Release Frequency: Semi-Annually

SPILLS ERTS: Environmental Report Tracking System Listing

All programs in Ecology use the ERTS System for any Incidents regardless of the ?type? of incident. The programs include; Spills, Hazardous Waste, Water Quality, Air Quality, Toxics Cleanup, Water Resources, etc.

Date of Government Version: 11/08/2021
Date Data Arrived at EDR: 12/08/2021
Date Made Active in Reports: 01/10/2022
Number of Days to Update: 33

Source: Department of Ecology
Telephone: 360-407-7455
Last EDR Contact: 02/25/2022
Next Scheduled EDR Contact: 06/13/2022
Data Release Frequency: Varies

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 05/23/2006
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/06/2013
Number of Days to Update: 62

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Exhibit A-10

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 02/28/2022
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 04/06/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/01/2021
Date Data Arrived at EDR: 02/15/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 84

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 05/17/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/12/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/06/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

Exhibit A-10

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/13/2021
Date Data Arrived at EDR: 12/17/2021
Date Made Active in Reports: 03/17/2022
Number of Days to Update: 90

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/21/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/06/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/18/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/20/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Annually

Exhibit A-10

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 01/19/2022
Date Data Arrived at EDR: 01/19/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 82

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/20/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 19

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 05/05/2022
Next Scheduled EDR Contact: 06/13/2022
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 02/25/2022
Number of Days to Update: 22

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 05/05/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Quarterly

Exhibit A-10

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/29/2021
Date Data Arrived at EDR: 08/24/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 87

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 04/18/2022
Next Scheduled EDR Contact: 08/01/2022
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 02/28/2022
Next Scheduled EDR Contact: 06/13/2022
Data Release Frequency: Varies

Exhibit A-10

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 02/28/2022
Next Scheduled EDR Contact: 06/13/2022
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/06/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 03/28/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Exhibit A-10

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 04/26/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 01/14/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 70

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/04/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 23

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/02/2022
Next Scheduled EDR Contact: 07/04/2022
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/15/2022
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/16/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

Exhibit A-10

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 01/25/2022
Date Data Arrived at EDR: 02/03/2022
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 19

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 05/05/2022
Next Scheduled EDR Contact: 07/11/2022
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/02/2021
Date Data Arrived at EDR: 11/22/2021
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 84

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/23/2022
Next Scheduled EDR Contact: 06/06/2022
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data
Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 03/21/2022
Date Data Arrived at EDR: 03/22/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 3

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 03/14/2022
Next Scheduled EDR Contact: 06/13/2022
Data Release Frequency: Quarterly

Exhibit A-10

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/24/2022
Next Scheduled EDR Contact: 06/06/2022
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/24/2022
Next Scheduled EDR Contact: 06/06/2022
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 12/14/2021
Date Data Arrived at EDR: 12/15/2021
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 85

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/04/2022
Next Scheduled EDR Contact: 06/20/2022
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/04/2021
Date Data Arrived at EDR: 11/22/2021
Date Made Active in Reports: 02/25/2022
Number of Days to Update: 95

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 05/18/2022
Next Scheduled EDR Contact: 06/13/2022
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 05/19/2022
Next Scheduled EDR Contact: 09/05/2022
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Exhibit A-10

Date of Government Version: 01/01/2022
Date Data Arrived at EDR: 01/04/2022
Date Made Active in Reports: 01/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 04/05/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 01/11/2022
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 34

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/12/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/17/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 82

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 05/17/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Quarterly

AIRS (EMI): Washington Emissions Data System
Emissions inventory data.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 04/14/2021
Date Made Active in Reports: 06/29/2021
Number of Days to Update: 76

Source: Department of Ecology
Telephone: 360-407-6040
Last EDR Contact: 04/14/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Annually

ASBESTOS: Asbestos Notification Listing
Asbestos sites

Date of Government Version: 11/22/2021
Date Data Arrived at EDR: 11/24/2021
Date Made Active in Reports: 01/03/2022
Number of Days to Update: 40

Source: Department of Labor & Industries
Telephone: 360-902-6209
Last EDR Contact: 05/16/2022
Next Scheduled EDR Contact: 08/29/2022
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Site Listing
A listing of coal ash disposal site locations.

Date of Government Version: 12/15/2021
Date Data Arrived at EDR: 01/13/2022
Date Made Active in Reports: 04/06/2022
Number of Days to Update: 83

Source: Department of Ecology
Telephone: 360-407-6933
Last EDR Contact: 02/25/2022
Next Scheduled EDR Contact: 06/13/2022
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner List
A listing of registered drycleaners who registered with the Department of Ecology (using the SIC code of 7215 and 7216) as hazardous waste generators.

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 04/12/2022
Date Made Active in Reports: 04/14/2022
Number of Days to Update: 2

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 04/11/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Varies

Exhibit A-10

Financial Assurance 1: Financial Assurance Information Listing

A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/18/2021
Date Data Arrived at EDR: 11/19/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 81

Source: Department of Ecology
Telephone: 360-586-1060
Last EDR Contact: 02/22/2022
Next Scheduled EDR Contact: 06/06/2022
Data Release Frequency: No Update Planned

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/29/2021
Date Data Arrived at EDR: 11/29/2021
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 77

Source: Department of Ecology
Telephone: 360-407-6754
Last EDR Contact: 05/09/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: Varies

Financial Assurance 3: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/15/2017
Date Data Arrived at EDR: 11/20/2017
Date Made Active in Reports: 01/04/2018
Number of Days to Update: 45

Source: Department of Ecology
Telephone: 360-407-6136
Last EDR Contact: 05/09/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: No Update Planned

INACTIVE DRYCLEANERS: Inactive Drycleaners

A listing of inactive drycleaner facility locations.

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 04/12/2022
Date Made Active in Reports: 04/14/2022
Number of Days to Update: 2

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 04/11/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Annually

WA MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 08/11/2021
Date Made Active in Reports: 11/23/2021
Number of Days to Update: 104

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 03/14/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: Annually

NPDES: Water Quality Permit System Data

A listing of permitted wastewater facilities.

Date of Government Version: 01/11/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Department of Ecology
Telephone: 360-407-6073
Last EDR Contact: 04/13/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Quarterly

Exhibit A-10

UIC: Underground Injection Wells Listing
A listing of underground injection wells.

Date of Government Version: 04/01/2022
Date Data Arrived at EDR: 04/01/2022
Date Made Active in Reports: 04/13/2022
Number of Days to Update: 12

Source: Department of Ecology
Telephone: 360-407-6143
Last EDR Contact: 04/12/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Quarterly

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 02/24/2022
Next Scheduled EDR Contact: 06/06/2022
Data Release Frequency: Varies

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/31/2022
Next Scheduled EDR Contact: 07/18/2022
Data Release Frequency: Semi-Annually

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Exhibit A-10

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Ecology in Washington.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/24/2013
Number of Days to Update: 176

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Ecology in Washington.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/10/2014
Number of Days to Update: 193

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

Exhibit A-10

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank
The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Ecology in Washington.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/24/2013
Number of Days to Update: 176

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

KING COUNTY:

LF KING: Abandoned Landfill Study in King County
The King County Abandoned Landfill Survey was conducted from October through December 1984 by the Health Department's Environmental Health Division at the request of the King County Council. The primary objective of the survey was to determine if any public health problems existed at the predetermined 24 sites.

Date of Government Version: 04/30/1985
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle-King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE COUNTY:

LF SEATTLE CITY: Abandoned Landfill Study in the City of Seattle
The Seattle Abandoned Landfill Survey was conducted in June and July of 1984 by the Health Department's Environmental Health Division at the request of the Mayor's Office. The primary objective of the survey was to determine if any public health problems existed at the predetermined 12 sites.

Date of Government Version: 07/30/1984
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle - King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE/KING COUNTY:

LF SEATTLE/KING: Seattle - King County Abandoned Landfill Toxicity / Hazard Assessment Project
This report presents the Seattle-King County Health Department's follow-up investigation of two city owned and four county owned abandoned landfills which was conducted from February to December 1986.

Date of Government Version: 12/31/1986
Date Data Arrived at EDR: 08/18/1995
Date Made Active in Reports: 09/20/1995
Number of Days to Update: 33

Source: Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 08/14/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SNOHOMISH COUNTY:

LF SNOHOMISH: Solid Waste Sites of Record at Snohomish Health District
Solid waste disposal and/or utilization sites in Snohomish County.

Exhibit A-10

Date of Government Version: 09/23/2019
Date Data Arrived at EDR: 09/25/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 29

Source: Snohomish Health District
Telephone: 206-339-5250
Last EDR Contact: 03/16/2022
Next Scheduled EDR Contact: 06/27/2022
Data Release Frequency: No Update Planned

TACOMA/PIERCE COUNTY:

LF TACOMA/PIERCE: Closed Landfill Survey
Following numerous requests for information about closed dumpsites and landfills in Pierce County, the Tacoma-Pierce County Health Department decided to conduct a study on the matter. The aim of the study was to evaluate public health risks associated with the closed dumpsites and landfills, and to determine the need, if any, for further investigations of a more detailed nature. The sites represent all of the known dumpsites and landfills closed after 1950.

Date of Government Version: 09/01/2002
Date Data Arrived at EDR: 03/24/2003
Date Made Active in Reports: 05/14/2003
Number of Days to Update: 51

Source: Tacoma-Pierce County Health Department
Telephone: 206-591-6500
Last EDR Contact: 03/19/2003
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/03/2021
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/06/2022
Number of Days to Update: 84

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/09/2022
Next Scheduled EDR Contact: 08/22/2022
Data Release Frequency: No Update Planned

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 04/28/2022
Next Scheduled EDR Contact: 08/08/2022
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/08/2022
Next Scheduled EDR Contact: 07/25/2022
Data Release Frequency: Annually

Exhibit A-10

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/02/2022
Next Scheduled EDR Contact: 06/20/2022
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Daycare Center Listing
Source: Department of Social & Health Services
Telephone: 253-383-1735

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

Exhibit A-10

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Ecology
Telephone: 360-407-6121

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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APPENDIX IV

HISTORICAL DOCUMENTATION

Exhibit A-10

045.08298_8428 Bob Olson Pkwy

8428 Bob Olson Parkway

Kennewick, WA 99338

Inquiry Number: 6863743.8

February 17, 2022

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

02/17/22

Site Name:

045.08298_8428 Bob Olson Pk
8428 Bob Olson Parkway
Kennewick, WA 99338
EDR Inquiry # 6863743.8

Client Name:

EFI Global Inc.
5261 West Imperial Highway
Los Angeles, CA 90045
Contact: Galina Gamzyakova

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	*Scale*	*Details*	*Source*
2017	1"=500'	Flight Year: 2017	USDA/NAIP
2013	1"=500'	Flight Year: 2013	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1996	1"=500'	Acquisition Date: July 05, 1996	USGS/DOQQ
1991	1"=500'	Flight Date: July 02, 1991	USGS
1982	1"=500'	Flight Date: August 01, 1982	USDA
1976	1"=500'	Flight Date: July 01, 1976	USGS
1963	1"=500'	Flight Date: September 09, 1963	USGS
1952	1"=500'	Flight Date: October 17, 1952	USGS

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Exhibit A-10

Exhibit A-10

Exhibit A-10

Exhibit A-10

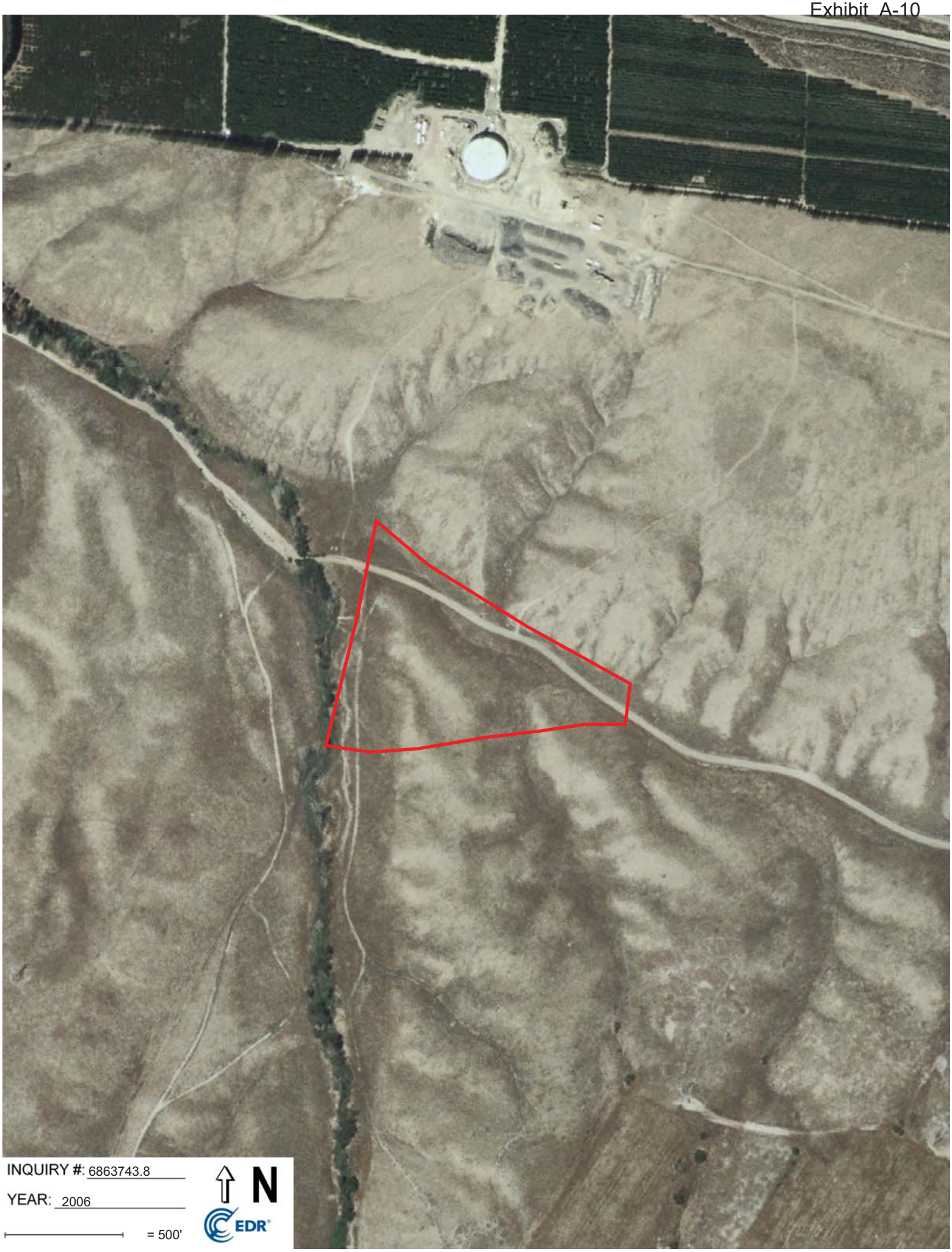

Exhibit A-10

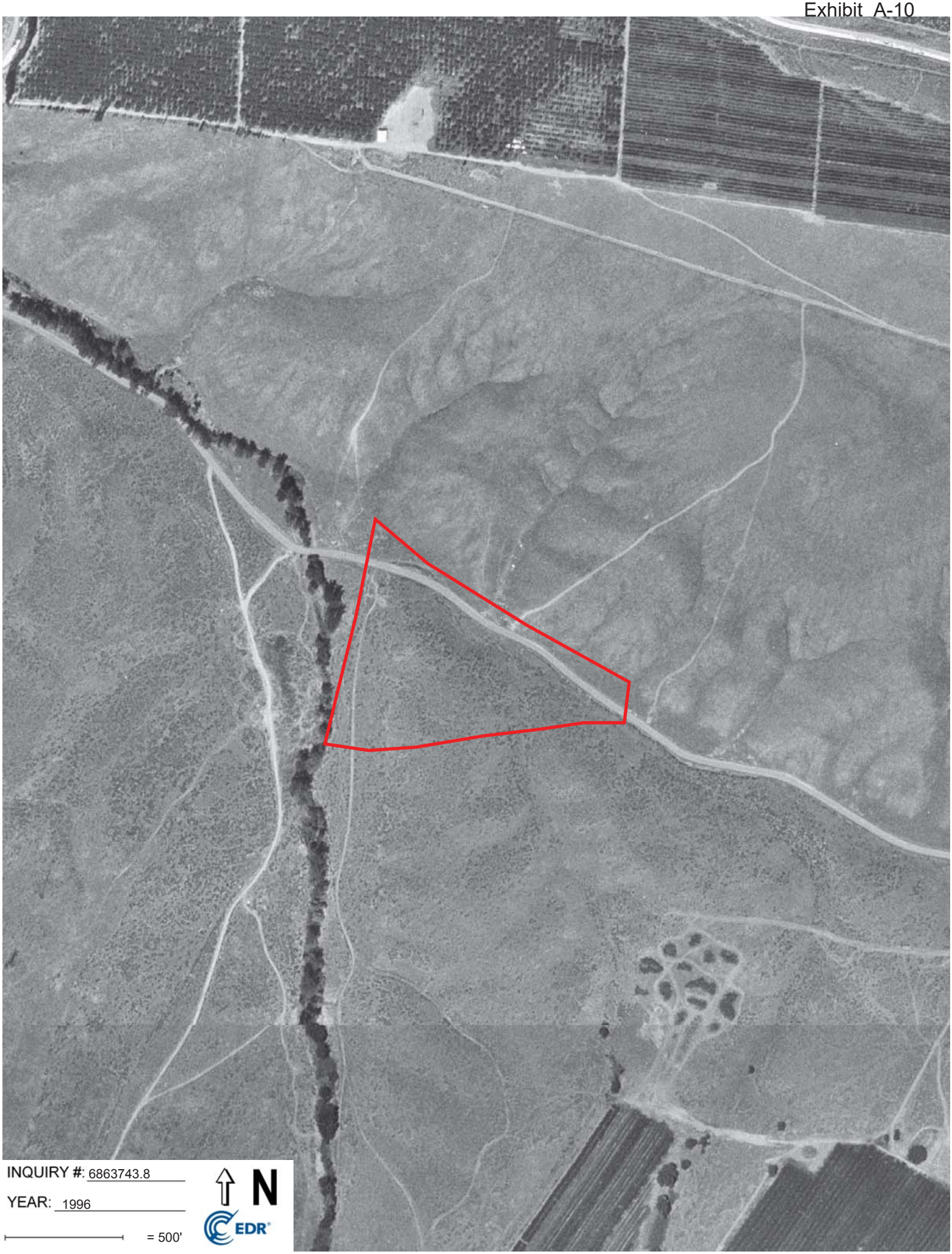

Exhibit A-10

Exhibit A-10

Exhibit A-10

Exhibit A-10

Exhibit A-10

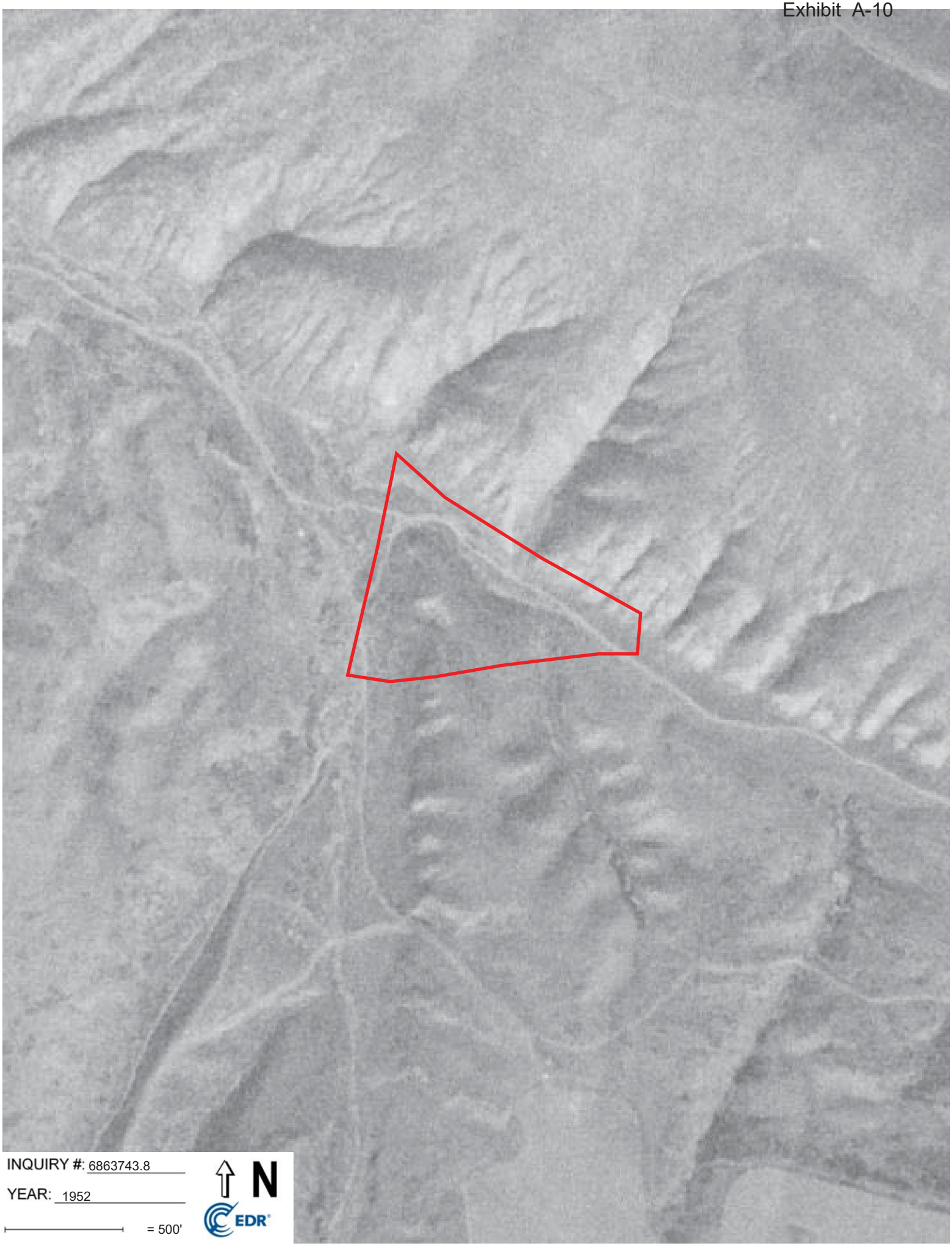

Exhibit A-10

045.08298_8428 Bob Olson Pkwy

8428 Bob Olson Parkway

Kennewick, WA 99338

Inquiry Number: 6863743.4

February 17, 2022

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

02/17/22

Site Name:	Client Name:
045.08298_8428 Bob Olson Pk	EFI Global Inc.
8428 Bob Olson Parkway	5261 West Imperial Highway
Kennewick, WA 99338	Los Angeles, CA 90045
EDR Inquiry # 6863743.4	Contact: Galina Gamzyakova

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by EFI Global Inc. were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:		*Coordinates:*	
P.O.#	NA	**Latitude:**	46.187474 46° 11' 15" North
Project:	045.08298	**Longitude:**	-119.230812 -119° 13' 51" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	327849.13
		UTM Y Meters:	5117296.45
		Elevation:	678.56' above sea level

Maps Provided:

2020
2017
2013
1992
1973, 1978
1964, 1965
1917

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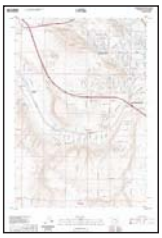
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2020 Source Sheets

Kennewick
2020
7.5-minute, 24000



Badger Mountain
2020
7.5-minute, 24000

2017 Source Sheets

Kennewick
2017
7.5-minute, 24000

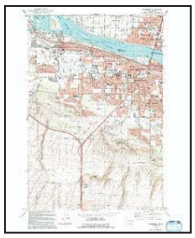
Badger Mountain
2017
7.5-minute, 24000

2013 Source Sheets

Kennewick
2013
7.5-minute, 24000

Badger Mountain
2013
7.5-minute, 24000

1992 Source Sheets

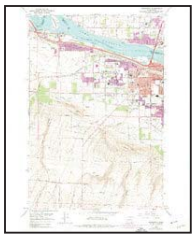


Kennewick
1992
7.5-minute, 24000
Aerial Photo Revised 1988

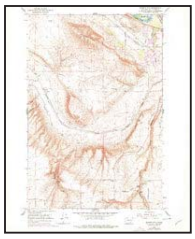
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1973, 1978 Source Sheets



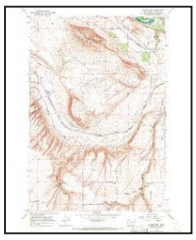
Kennewick
1973
7.5-minute, 24000
Aerial Photo Revised 1973



Badger Mtn
1978
7.5-minute, 24000
Aerial Photo Revised 1970

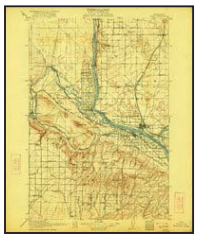
1964, 1965 Source Sheets

Kennewick
1964
7.5-minute, 24000
Aerial Photo Revised 1959



Badger Mtn
1965
7.5-minute, 24000
Aerial Photo Revised 1963

1917 Source Sheets

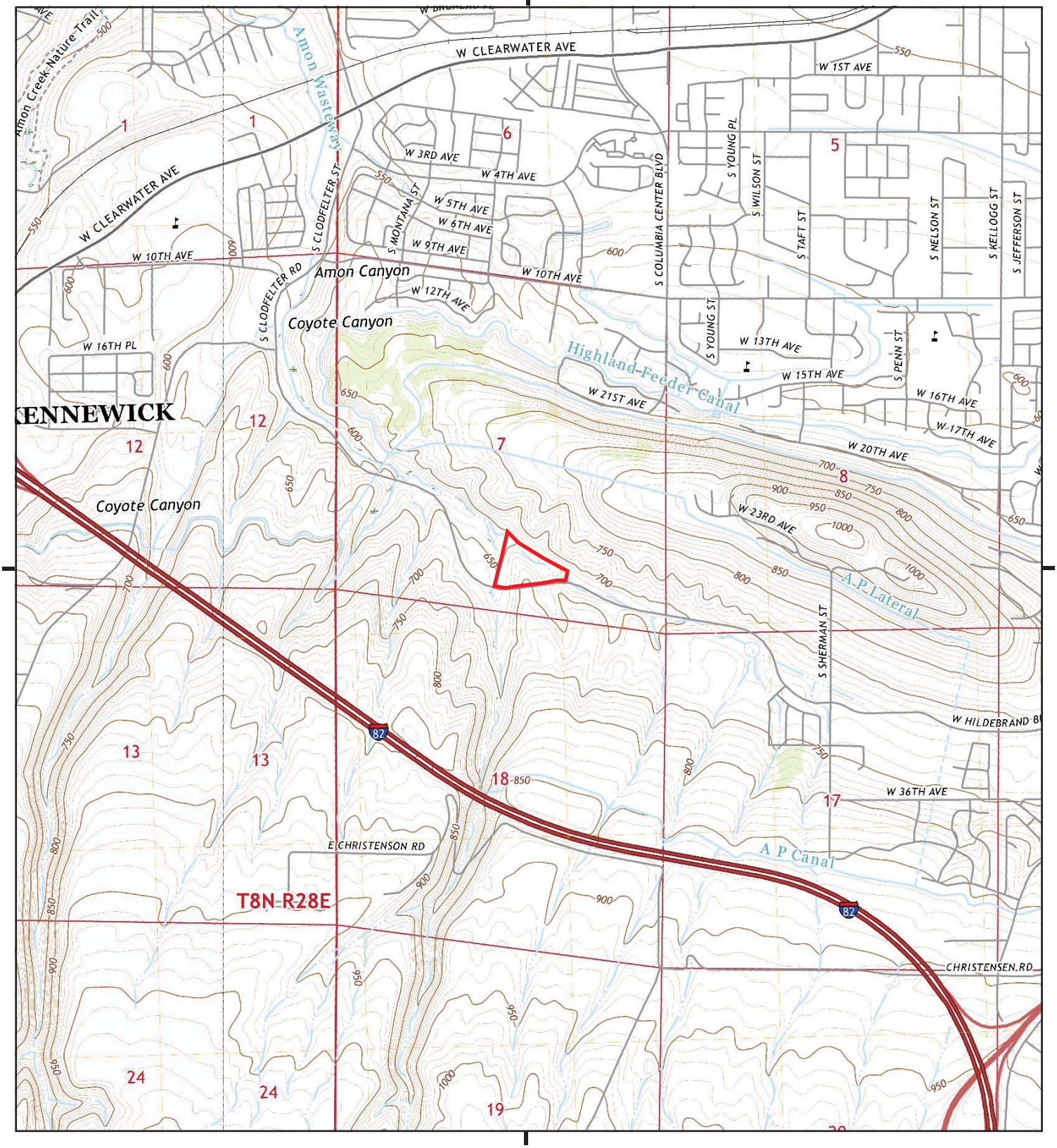


Pasco
1917
30-minute, 125000

Historical Topo Map

Exhibit A-10

2020



This report includes information from the following map sheet(s).

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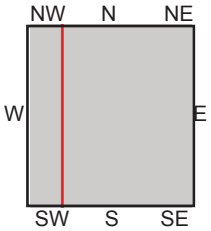


TP, Kennewick, 2020, 7.5-minute
W, Badger Mountain, 2020, 7.5-minute

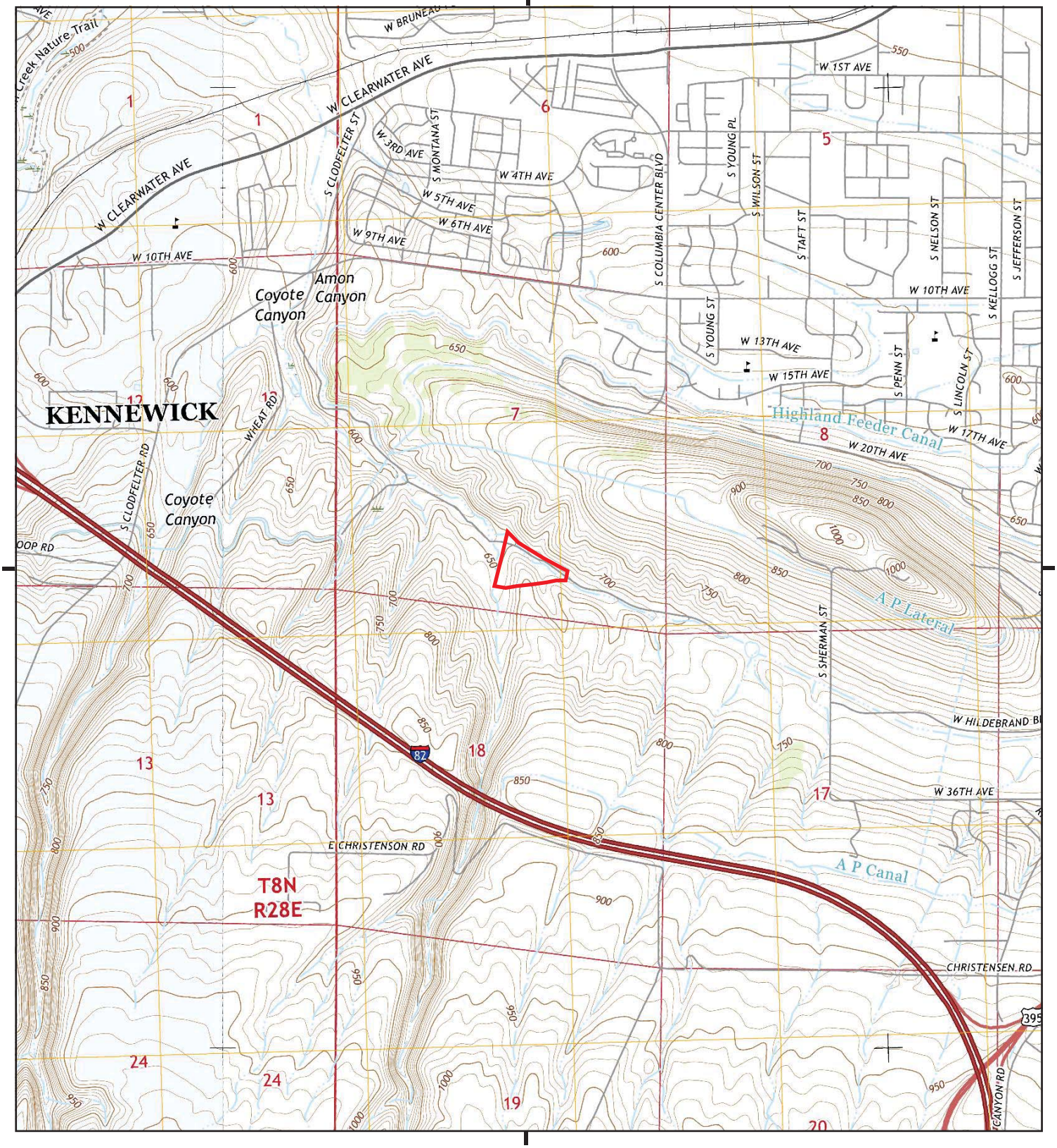
SITE NAME: 045.08298_8428 Bob Olson Pkwy
ADDRESS: 8428 Bob Olson Parkway
Kennewick, WA 99338
CLIENT: EFI Global Inc.

N

Historical Topo Map

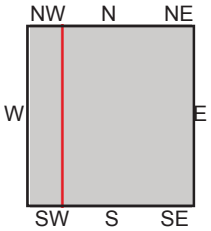
Exhibit A-10

2017



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5



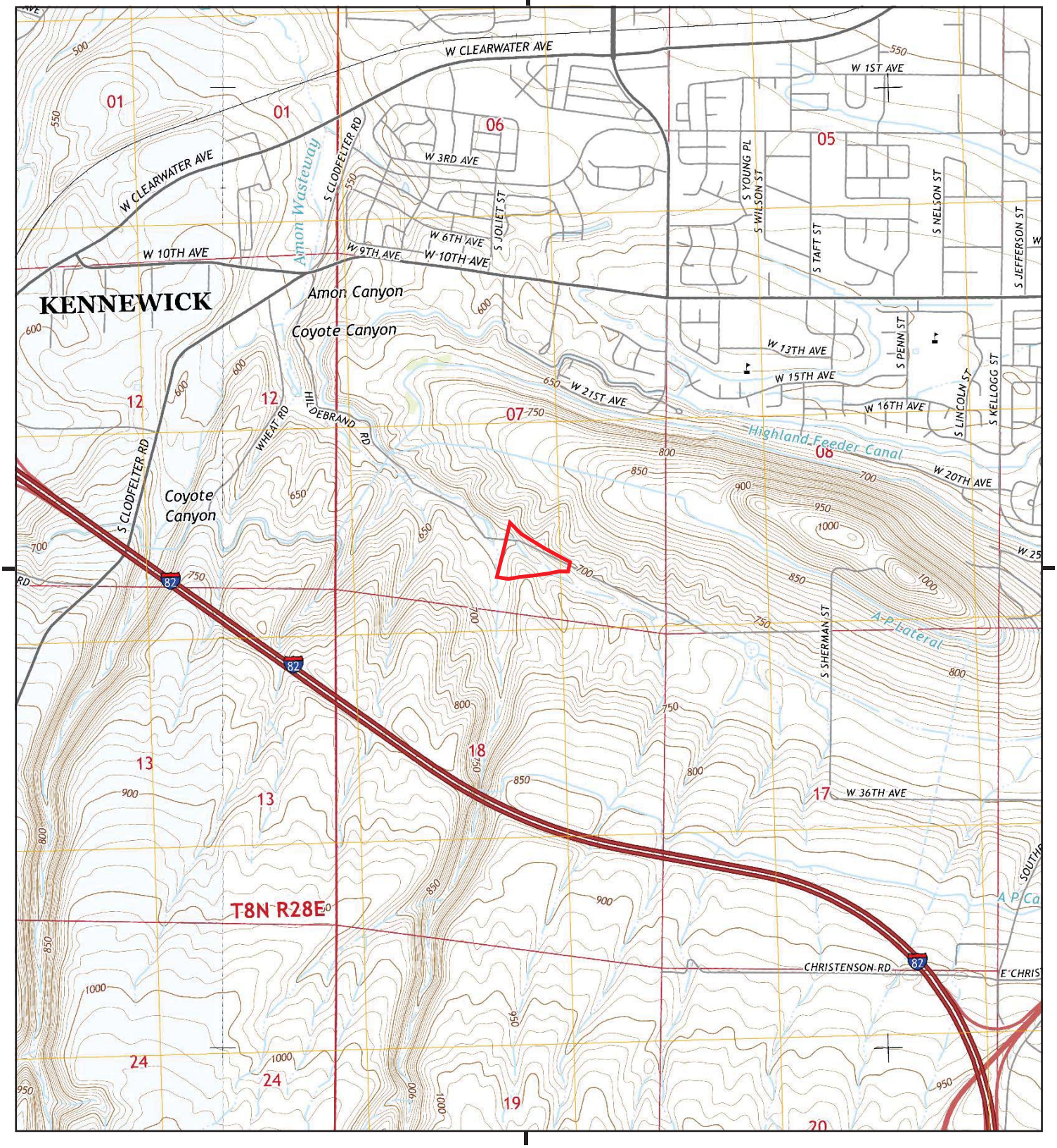
TP, Kennewick, 2017, 7.5-minute
W, Badger Mountain, 2017, 7.5-minute

SITE NAME: 045.08298_8428 Bob Olson Pkwy
ADDRESS: 8428 Bob Olson Parkway
Kennewick, WA 99338
CLIENT: EFI Global Inc.

N

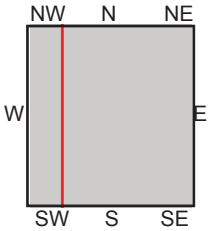
Historical Topo Map

Exhibit A-10 2013



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5



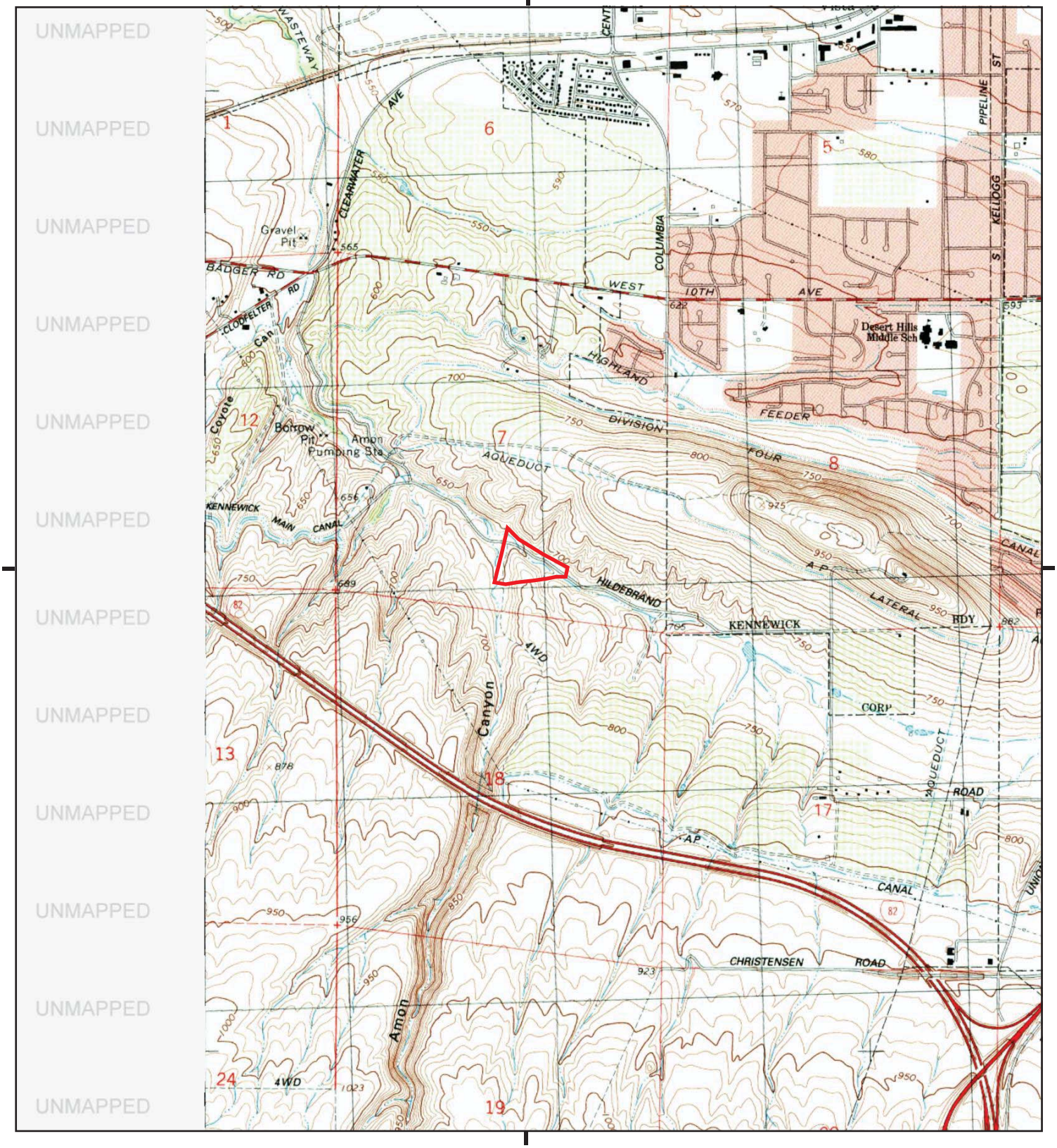
TP, Kennewick, 2013, 7.5-minute
W, Badger Mountain, 2013, 7.5-minute

SITE NAME: 045.08298_8428 Bob Olson Pkwy
ADDRESS: 8428 Bob Olson Parkway
Kennewick, WA 99338
CLIENT: EFI Global Inc.

N

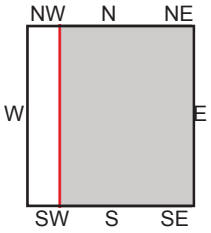
Historical Topo Map

Exhibit A-10 1992



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5



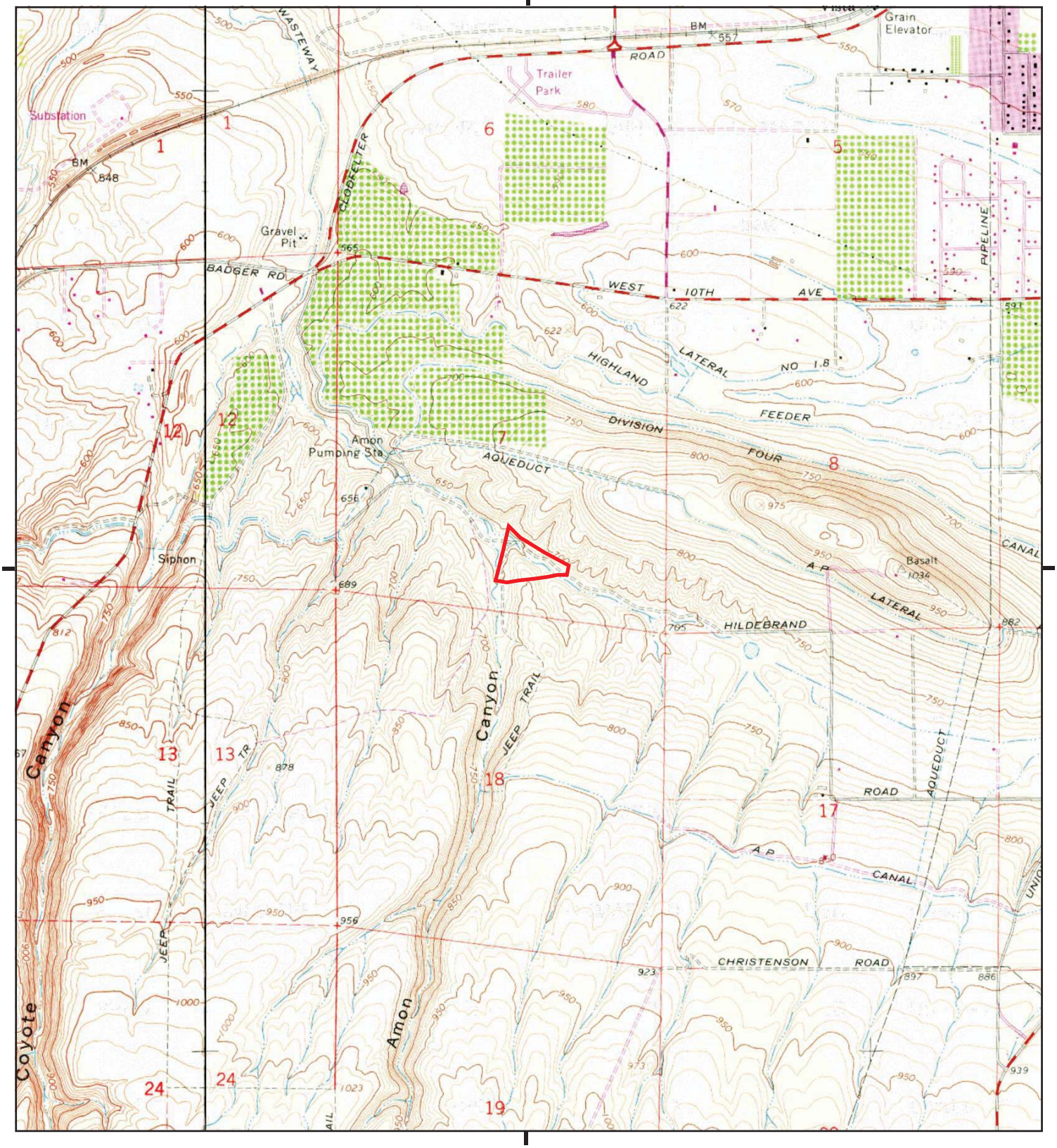
TP, Kennewick, 1992, 7.5-minute

SITE NAME: 045.08298_8428 Bob Olson Pkwy
ADDRESS: 8428 Bob Olson Parkway
Kennewick, WA 99338
CLIENT: EFI Global Inc.

N

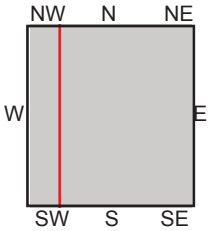
Historical Topo Map

Exhibit A-10 1973, 1978



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5



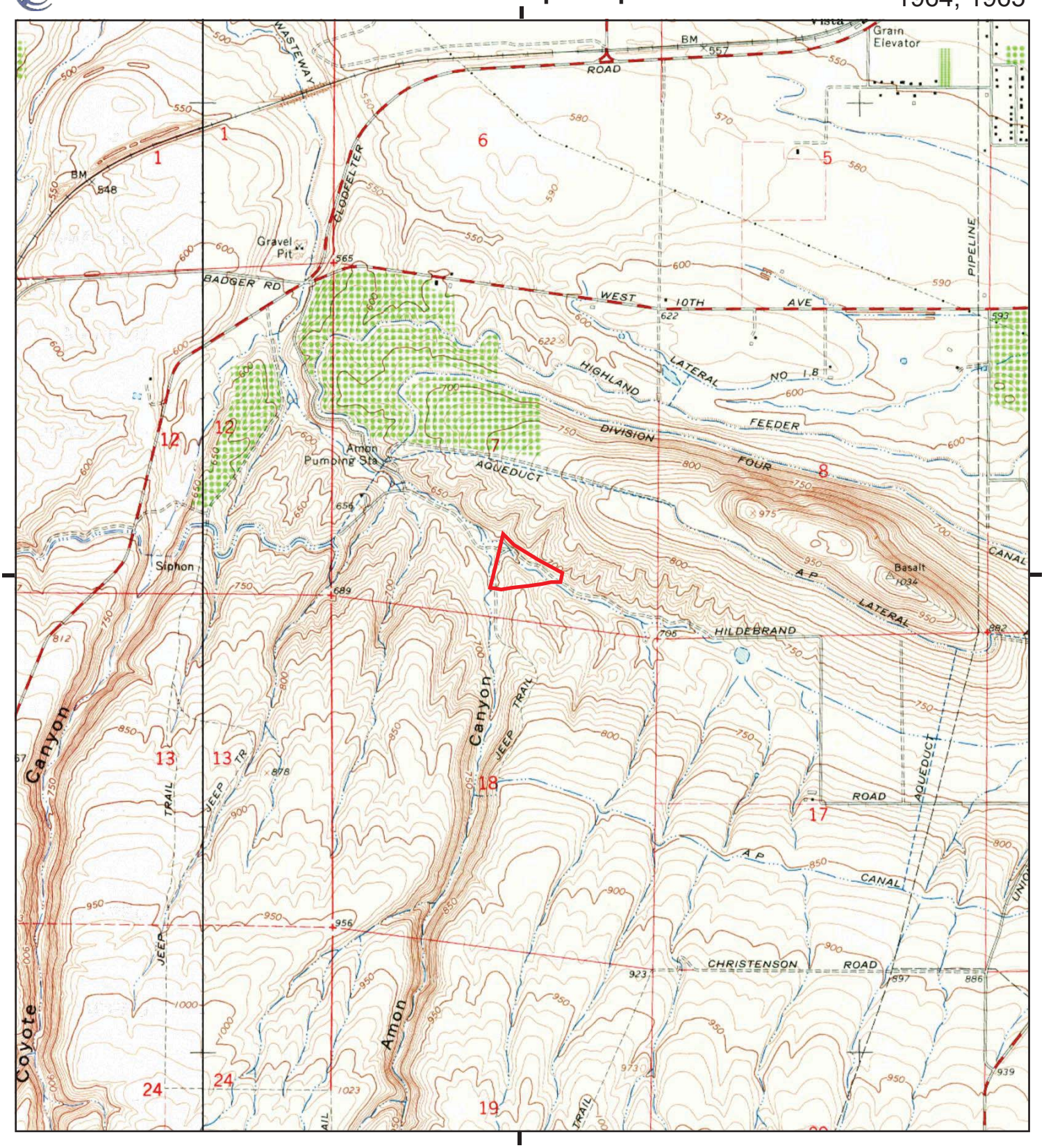
TP, Kennewick, 1973, 7.5-minute
W, Badger Mtn, 1978, 7.5-minute

SITE NAME: 045.08298_8428 Bob Olson Pkwy
ADDRESS: 8428 Bob Olson Parkway
Kennewick, WA 99338
CLIENT: EFI Global Inc.

N

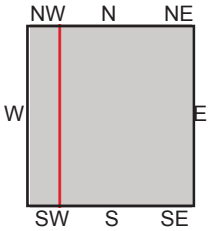
Historical Topo Map

Exhibit A-10 1964, 1965



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5



TP, Kennewick, 1964, 7.5-minute
W, Badger Mtn, 1965, 7.5-minute

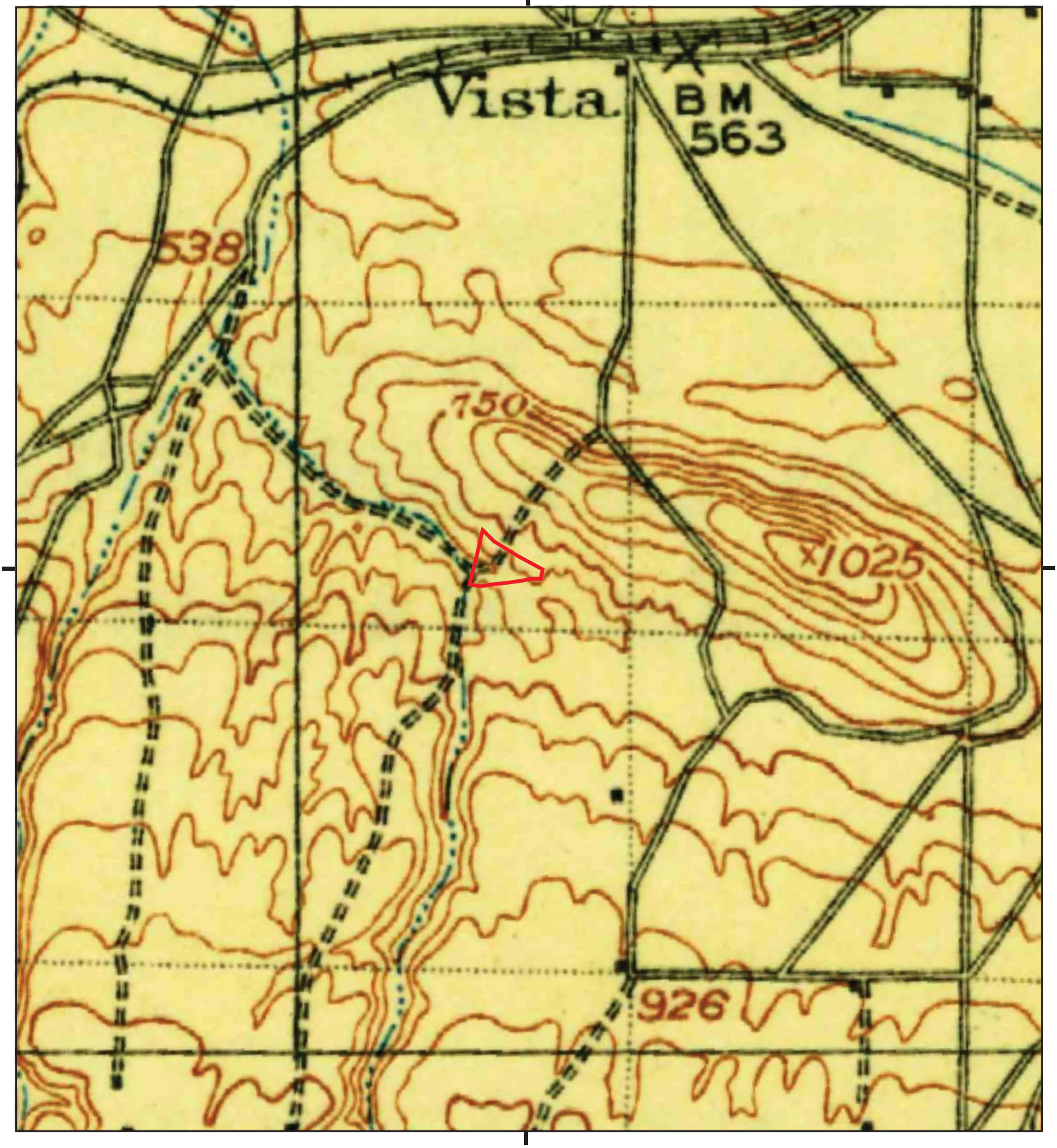
SITE NAME: 045.08298_8428 Bob Olson Pkwy
ADDRESS: 8428 Bob Olson Parkway
Kennewick, WA 99338
CLIENT: EFI Global Inc.

N

Historical Topo Map

Exhibit A-10

1917



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Pasco, 1917, 30-minute

SITE NAME: 045.08298_8428 Bob Olson Pkwy
ADDRESS: 8428 Bob Olson Parkway
Kennewick, WA 99338
CLIENT: EFI Global Inc.

N

Exhibit A-10

045.08298_8428 Bob Olson Pkwy

8428 Bob Olson Parkway

Kennewick, WA 99338

Inquiry Number: 6863743.3

February 17, 2022

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

02/17/22

Site Name:	Client Name:
045.08298_8428 Bob Olson Pk	EFI Global Inc.
8428 Bob Olson Parkway	5261 West Imperial Highway
Kennewick, WA 99338	Los Angeles, CA 90045
EDR Inquiry # 6863743.3	Contact: Galina Gamzyakova

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by EFI Global Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 80AC-4027-97E6

PO # NA

Project 045.08298

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 80AC-4027-97E6

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Exhibit A-10

045.08298_8428 Bob Olson Pkwy
8428 Bob Olson Parkway
Kennewick, WA 99338

Inquiry Number: 6863743.5
February 18, 2022

The EDR-City Directory Image Report

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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Data by infoUSA®

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2017	☐	☑	EDR Digital Archive
2014	☐	☑	EDR Digital Archive
2010	☐	☑	EDR Digital Archive
2005	☐	☑	EDR Digital Archive
2000	☐	☐	EDR Digital Archive
1995	☐	☐	EDR Digital Archive
1992	☐	☐	EDR Digital Archive
1988	☐	☐	Polk's City Directory
1983	☐	☐	Polk's City Directory
1979	☐	☐	Polk's City Directory
1974	☐	☐	Polk's City Directory
1969	☐	☐	Polk's City Directory
1964	☐	☐	Polk's City Directory

FINDINGS

TARGET PROPERTY STREET

8428 Bob Olson Parkway
Kennewick, WA 99338

Year	CD Image	Source	
BOB OLSON PARKWAY			
2017	-	EDR Digital Archive	Street not listed in Source
2014	-	EDR Digital Archive	Street not listed in Source
2010	-	EDR Digital Archive	Street not listed in Source
2005	-	EDR Digital Archive	Street not listed in Source
2000	-	EDR Digital Archive	Street not listed in Source
1995	-	EDR Digital Archive	Street not listed in Source
1992	-	EDR Digital Archive	Street not listed in Source
1988	-	Polk's City Directory	Street not listed in Source
1983	-	Polk's City Directory	Street not listed in Source
1979	-	Polk's City Directory	Street not listed in Source
1974	-	Polk's City Directory	Street not listed in Source
1969	-	Polk's City Directory	Street not listed in Source
1964	-	Polk's City Directory	Street not listed in Source

FINDINGS

CROSS STREETS

Year	CD Image	Source	
W HILDEBRAND BLVD			
2017	pg. A1	EDR Digital Archive	
2014	pg. A3	EDR Digital Archive	
2010	-	EDR Digital Archive	Street not listed in Source
2005	-	EDR Digital Archive	Street not listed in Source
2000	-	EDR Digital Archive	Street not listed in Source
1995	-	EDR Digital Archive	Street not listed in Source
1992	-	EDR Digital Archive	Street not listed in Source
1988	-	Polk's City Directory	Street not listed in Source
1983	-	Polk's City Directory	Street not listed in Source
1979	-	Polk's City Directory	Street not listed in Source
1974	-	Polk's City Directory	Street not listed in Source
1969	-	Polk's City Directory	Street not listed in Source
1964	-	Polk's City Directory	Street not listed in Source
W HILDEBRAND RD			
2017	pg. A2	EDR Digital Archive	
2014	pg. A6	EDR Digital Archive	
2010	pg. A7	EDR Digital Archive	
2005	pg. A8	EDR Digital Archive	
2000	-	EDR Digital Archive	Street not listed in Source
1995	-	EDR Digital Archive	Street not listed in Source
1992	-	EDR Digital Archive	Street not listed in Source
1988	-	Polk's City Directory	Street not listed in Source
1983	-	Polk's City Directory	Street not listed in Source
1979	-	Polk's City Directory	Street not listed in Source
1974	-	Polk's City Directory	Street not listed in Source
1969	-	Polk's City Directory	Street not listed in Source
1964	-	Polk's City Directory	Street not listed in Source

City Directory Images

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

Exhibit A-10

W HILDEBRAND BLVD 2017

4862	THE ROCK WOOD FIRED KITCHEN
4898	HOP JACKS
5207	AFFINITY AT SOUTHRIDGE
	BELLALUNA SALON & DAY SPA
	LEARN2SOAR CONSULTING INC
5501	COPPER RIDGE APARTMENTS

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

Exhibit A-10

W HILDEBRAND RD 2017

9201 BEDROCK SPECIALITY STONE

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

Exhibit A-10

W HILDEBRAND BLVD 2014

5207	AFFINITY AT SOUTHRIDGE
	ASH, KIM H
	BAILEY, RITA K
	BAMPTON, MAUREEN P
	BELLALUNA SALON & DAY SPA
	CASPER, MARJORIE A
	COLOMBO, RICHARD J
	DODSON, MORGAN
	FELDMAN, MICHAEL A
	HOPE, FARA H
	HOWARD, MAXINE E
	JASINTO, DIXIE L
	KRUMSICK, SHARON M
	LENNICK, ADAM
	MANDELL, EILEEN E
	MCCARGO, GIL R
	MCCORMICK, CHARLENE L
	MILLER, JUDY E
	ROBERTS, MICHAEL
	STILWELL, MARGARET A
	THURMAN, MICHAEL R
	WARDEN, ROSEMARY
5501	ADAMSON, MIRIAM
	ALSBURY, JASON
	AMAYA, ELIZIBETH C
	ARECHIGA, JANTTE
	AVILA, LIDIA
	BLACK, CHRISTOPHER L
	BLACKWELL, BARBARA
	BORREGO, CRISTINA
	BOYD, SHAKIRA C
	CARMONA, MARIA
	COPPER RIDGE APTS
	COWELL, BRIGETTE L
	DAVIS, LARRY C
	DECOURSEY, BRIAN F
	DOBBS, CRAIG
	DYER, KYLIE
	ENGE, MICHELLE
	ESCAMILLA, NANETTE T
	EVANS, KAITLIN
	FARNER, REMINGTON
	FLYNN, KYLIE
	FOLK, MARIANNE J
	GABINO, ALFREDO C
	GILMORE, KAYLA
	GINTNER, BENJAMIN M
	GODINES, JUAN
	GOTTSCHALK, ANTHONY
	GOWER, JARED S

W HILDEBRAND BLVD 2014 (Cont'd)

5501	HALLOCK, JAN E
	HAMPTON, ROD
	HELZER, DAWN
	HERRING, CYNTHIA I
	HOLLAND, LAURA
	HUTCHISON, RAELENE
	JAKIE, PRATHER
	JARRE, D M
	JUAN, PEREZ G
	JULIAN, MELISSA
	KASPAREK, JESSA M
	KIRKPATRICK, TYSON
	KLIPHARDT, CHRISTINA
	KOONTZ, LESLIE A
	LAKEY, NATALIE
	LANCHEROS, ERIC
	LEON, MARIA
	LONG, SHERYLLE D
	LUCAS, TYLER L
	MAGELSEN, MICHELLE L
	MARTINEZ, ANDRES
	MCCUIEN, JARRED D
	MENDOZA, BRIAN A
	MERCADO, MARIA E
	MEWES, LEANNE E
	MEZA, CLAUDIA
	MILLS, HARRISON C
	MITCHELL, MARIA V
	MOHLIN, RACHELLE L
	ORTEGA, JOSE A
	PARKER, BREANNE
	PARKER, STEPHANIE
	PATRI, CK S
	PENOR, TASCINA C
	PHILP, MARI
	PRADO, ESMERALDO
	PULIDO, MARIA
	REIS, TAWNY
	RIVAS, KAREN
	RIVERA, MISTY D
	ROCHA, GABRIEL
	ROLPH, JACKIE
	RYCKMAN, JANELL A
	SANDOVAL, FAVIAN
	SCHLENKER, NICHOLE
	SCHOENSTRA, PATRICK
	SEELY, DORONNA
	SHCHEGLYUK, ALEKSEY
	SIRMON, NATHANIEL
	STEWART, JONATHAN

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

Exhibit A-10

W HILDEBRAND BLVD 2014 (Cont'd)

5501 SWEENEY, KERRY D
TABER, BETHANY
TED, JOHNSON
TERESA, BIRRUETA
TORRES, PEDRO
WHITESELL, JEREMIE J
WILLIAMS, AMY L
WOODFORD, KATIE
YZAGUIRRE, HOLLY

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

Exhibit A-10

W HILDEBRAND RD 2014

8403	OCCUPANT UNKNOWN,
9201	BEDROCK SPECIALTY STONE
	JOHNSON, MIKE M
12225	PENNELLA, ANTHONY L

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

Exhibit A-10

W HILDEBRAND RD 2010

9201	BEDROCK SPECIALTY STONE PRDCTS
	JOHNSON, MIKE M
12225	PENNELLA, ANTHONY J
12280	LONGAKER, MIKE L

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

W HILDEBRAND RD 2005

Exhibit A-10

8403 QUESTAD, S

APPENDIX V

INTERVIEW AND USER PROVIDED DOCUMENTATION

Exhibit A-10

efi global

USER QUESTIONNAIRE

As part of the All Appropriate Inquiry (AAI) standard for conducting Phase I Environmental Site Assessments set by the Environmental Protection Agency (EPA), the following questions are to be asked of the prospective purchaser.

Please return to fax number below or e-mail to your project manager. Please also provide a **Title Report, previous environmental reports including Phase I and Phase II, Site Characterization, Removal or Remediation, Geotechnical Reports, Lead Based Paint or Asbestos Survey or Removal,** or other relevant material, as available**.**

A. GENERAL

1. Subject Property Address 8428 Bob Olson Pkwy, Kennewick WA

2. Person completing this questionnaire:

Ron Wu — Name

415.757.8639 — Telephone Number

Buyer — Relationship to Property

2/14/2022 — Date

3. What is your intended use of the property?
☐ No Change ☒ Residential Development ☐ Commercial/Industrial Development

4. What is the purpose of ordering a Phase I ESA?
☒ Purchase ☐ Refinance ☐ Other (please specify)_____

B. AAI STANDARD QUESTIONS

1. Are you aware of any environmental liens or activity and use limitations (AULs), such as engineering controls, land use restrictions or institutional controls that are in place at the property and/or have filed or recorded against the property under federal, tribal, state or local law? Yes ☐ No ☒ If Yes, Please Explain _____

2. Do you have any specialized knowledge or experience that is material to recognized environmental conditions in connection with the property? Yes ☐ No ☒ If Yes, Please Explain _____

3. Are you aware of any commonly known or reasonably ascertainable information within the local community about the property that is material to recognized environmental conditions in connection with the property?
Yes ☐ No ☒ If Yes, Please Explain_____

4. Is the purchase price of the property comparable to the fair market value of the property? Yes ☒ No ☐ N/A ☐
If the purchase price is significantly lower than the fair market value, the user must identify the alternate reason for the low purchase price if the lower purchase price is not related to the property being affected by hazardous substances or petroleum products. N/A

Exhibit A-10

efi global

Survey Questionnaire – Please Return to Fax Number Below

A. GENERAL

1. Subject Property Address NKA Bob Olson PKWY Kennewick, WA

2. Name of business(es) occupying the subject property Vacant Land

3. Person completing this questionnaire:

Nick Wright	509-845-9411
Name	Telephone Number
Developer Rep	2/14/2022
Title	Date
Work directly for ownership	5 years
Relationship to Property	How Long?

4. If you are the person who has ordered this report, what is the purpose of this report?
Purchase ☐ Sale ☐ Refinance ☐

B. PROPERTY DESCRIPTION

1. Land

A. What is the approximate square footage of the land? 13.76 Acres

B. Were there any buildings or other improvements on the property prior to the existing improvements?
Yes ☐ No ☑ DK ☐

If yes, what were the buildings used for?_____

C. Is or has there been a well on the subject property? Yes ☐ No ☑ DK ☐

If yes, what type of well is it?: ☐ Drinking Water, ☐ Irrigation, ☐ Monitoring, ☐ Dry Well

D. Is or has there been a septic system on the subject property? Yes ☐ No ☑ DK ☐

E. Has fill of unknown origin been imported onto the subject property?
Yes ☑ No ☐ DK ☐

2. Improvements (Buildings) - This includes all buildings

5261 West Imperial Highway, Los Angeles, California 90045
Toll Free: 888-705-6300 Phone: 310-854-6300 Fax: 310-854-0199 Web: https://www.efiglobal.com/our-services/environmental/

A. What is the approximate square footage of the onsite structure? None

B. What year was the onsite structure built? N/A

C. Is there a heating system at the site? Yes ☐ No ☑ DK ☐

If yes, what is it fueled by?: ☐ Natural Gas, ☐ Fuel Oil, ☐ Electricity, ☐ Solar

D. Is there a boiler at the site? Yes ☐ No ☑ DK ☐

If yes, what is it fueled by?: ☐ Natural Gas, ☐ Fuel Oil , ☐ Electricity, ☐ Solar

E. Do you have copies of the Subject Property's construction, site, and/or "as-built" drawings and building specifications? Yes ☐ No ☑ If so, please provide copies of same.

C. STORAGE TANKS

1. Are there any registered or unregistered (active or inactive) Underground Storage Tanks ("UST") or Aboveground Storage Tanks ("AST") located on the premises? Yes ☐ No ☑ DK ☐

2. Do you have any knowledge of USTs or ASTs that once existed on the Subject Property and whether such tanks were removed or abandoned? Yes ☐ No ☑ DK ☐

D. HAZARDOUS MATERIALS

1. Are any regulated hazardous materials, chemicals, or waste stored/used on-site? Yes ☐ No ☑ DK ☐

If "yes" please provide a copy of the chemical inventory.

2. To the best of your knowledge, do any of the following operations take place on the Subject Property or have ever taken place on the Subject Property:

Dry Cleaning:	Yes ☐	No ☑	Battery Storage/Sales:	Yes ☐	No ☑
Paint Storage/Sales:	Yes ☐	No ☑	Petroleum Storage/Sales:	Yes ☐	No ☑
Landfill/Dumping:	Yes ☐	No ☑	Junkyard:	Yes ☐	No ☑
Photo or X-Ray Finishing:	Yes ☐	No ☑	Electric Equip Manufacturing:	Yes ☐	No ☑
Solvent Storage or Sales:	Yes ☐	No ☑	Chemical Manufacture/Sales:	Yes ☐	No ☑
Automobile Storage or Repair:	Yes ☐	No ☑	Agriculture:	Yes ☐	No ☑
Metals Machining:	Yes ☐	No ☑	Metals Heat Treating:	Yes ☐	No ☑

Any other commercial or industrial process which may have included the use of chemicals: Yes ☐ No ☑

If yes, Please specify:_____

5261 West Imperial Highway, Los Angeles, California 90045

Toll Free: 888-705-6300 Phone: 310-854-6300 Fax: 310-854-0199 Web: https://www.efiglobal.com/our-services/environmental/

E. REGULATORY ACTION

1. Has the subject property ever been subject to any environmental enforcement action by the local government, federal, or state entities? Yes ☐ No ☑ DK ☐

2. Do you have any knowledge of pending or proposed environmental actions against the subject property or neighboring properties? Yes ☐ No ☑ DK ☐

3. Have there been any formal or informal citizen or tenant complaints regarding environmental or health matters in connection with the Subject Property? Yes ☐ No ☑ DK ☐

4. Are you aware of any releases of hazardous materials on the Subject Property? Yes ☐ No ☑ DK ☐

F. ADDITIONAL INFORMATION

1. Do you have knowledge of any previous environmental reports conducted for the site such as Phase I ESA, Phase II ESA, Site Characterization, Removal or Remediation, Geotechnical Reports, Lead Based Paint or Asbestos Survey or Removal, or other relevant material?

   Yes ☑ No ☐ If yes, please provide a copy. Geotechnical report was provided

2. Do you have a recent Title Report for the subject property?

   Yes ☑ No ☐ If yes, please provide a copy. Title report was provided to buyer

3. Can you provide the contact information of the former owner/occupant of the property? Yes ☐ No ☑
   If yes, please provide contact information below.

_____ _____
Name Telephone Number

_____ _____
Business Name Relationship to Property

5261 West Imperial Highway, Los Angeles, California 90045
Toll Free: 888-705-6300 Phone: 310-854-6300 Fax: 310-854-0199 Web: https://www.efiglobal.com/our-services/environmental/

APPENDIX VI

REGULATORY AGENCY FILE REVIEWS

Exhibit A-10

Gamzyakova, Galina

From: Washington Department of Ecology PDO <ecologywa@govqa.us>
Sent: Monday, May 23, 2022 9:54 AM
To: Gamzyakova, Galina
Subject: [Records Center] Public Records Request :: P011058-052022

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

--- Please respond above this line ---

Hello Galina,

Your public records request has been reviewed and we did not find any records responsive to your request. These were the search terms we used to search for those records - 8224 Bob Olson Blvd, Kennewick, WA and 7641 West Hildebrand Blvd, Kennewick, WA We searched the following locations for the records requested UST database, Facility Site database, ERTS database, File Room database and found no responsive records.

This request is now closed for CRO and all Ecology.

Sincerely,

Jackie Mengarelli

Public Records Coordinator / Central Regional Office

To monitor the progress or update this request please log into the Public Records Request Center

DEPARTMENT OF ECOLOGY State of Washington

Cleanup and Tank Search

Exhibit A-10

Home | Search Cleanups | Search USTs | Contact | Help

All Cleanup Sites in Washington State

Details about contaminated sites around Washington State.

Filter Table | Export Table | Map Results

Site Name? Site Name

CSID? CSID

FSID? FSID

Address bob olson

City or Zip kennewick

County Benton

Region? Region

Site Status? Site Status

Contaminant? Contaminant

Institutional Control?

Current VCP?

Clear

Click on the > button or site row to view more details.

Show 15 entries

No matching records found

Showing 0 to 0 of 0 entries (filtered from 13,879 total entries)

Previous | Next

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Version: 1.0.8101.20279 (20220307.2)

DEPARTMENT OF ECOLOGY State of Washington

Cleanup and Tank Search

Exhibit A-10

Home | Search Cleanups | Search USTs | Contact | Help

All Cleanup Sites in Washington State

Details about contaminated sites around Washington State.

Filter Table | Export Table | Map Results

Site Name? Site Name

CSID? CSID

FSID? FSID

Address hildebrand

City or Zip kennewick

County Benton

Region? Region

Site Status? Site Status

Contaminant? Contaminant

Institutional Control?

Current VCP?

Clear

Click on the > button or site row to view more details.

Show 15 entries

No matching records found

Showing 0 to 0 of 0 entries (filtered from 13,879 total entries)

Previous | Next

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DEPARTMENT OF ECOLOGY State of Washington

Cleanup and Tank Search

Exhibit A-10

Home | Search Cleanups | Search USTs | Contact | Help

Brownfield Sites

Sites on this list have received public funding through our brownfields program. Brownfields are properties that are abandoned or underused because they might be contaminated.

Filter Table | Export Table | Map Results

Site Name? Site Name

CSID? CSID

FSID? FSID

Address hildebrand

City or Zip kennewick

County Benton

Region? Region

Site Status? Site Status

Clear

Click on the > button or site row to view more details.

Show 15 entries

No matching records found

Showing 0 to 0 of 0 entries (filtered from 71 total entries)

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DEPARTMENT OF ECOLOGY State of Washington

Cleanup and Tank Search

Exhibit A-10

Home | Search Cleanups | Search USTs | Contact | Help

Brownfield Sites

Sites on this list have received public funding through our brownfields program. Brownfields are properties that are abandoned or underused because they might be contaminated.

Filter Table | Export Table | Map Results

Site Name? Site Name

CSID? CSID

FSID? FSID

Address bob olson

City or Zip kennewick

County Benton

Region? Region

Site Status? Site Status

Clear

Click on the > button or site row to view more details.

Show 15 entries

No matching records found

Showing 0 to 0 of 0 entries (filtered from 71 total entries)

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DEPARTMENT OF ECOLOGY State of Washington

Cleanup and Tank Search

Exhibit A-10

Home | Search Cleanups | Search USTs | Contact | Help

Leaking Underground Storage Tanks

This list contains information on underground storage tank facilities that require cleanup and their cleanup history.

Filter Table | Export Table | Map Results

Site Name? Site Name

CSID? CSID

FSID? FSID

Address bob olson

City or Zip kennewick

County Benton

Region? Region

LUST Status? LUST Status

Contaminant? Contaminant

Clear

Click on the > button or site row to view more details.

Show 15 entries

No matching records found

Showing 0 to 0 of 0 entries (filtered from 7,100 total entries)

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DEPARTMENT OF ECOLOGY State of Washington

Cleanup and Tank Search

Exhibit A-10

Home | Search Cleanups | Search USTs | Contact | Help

Leaking Underground Storage Tanks

This list contains information on underground storage tank facilities that require cleanup and their cleanup history.

Filter Table | Export Table | Map Results

Site Name? Site Name

CSID? CSID

FSID? FSID

Address hildebrand

City or Zip kennewick

County Benton

Region? Region

LUST Status? LUST Status

Contaminant? Contaminant

Clear

Click on the > button or site row to view more details.

Show 15 entries

No matching records found

Showing 0 to 0 of 0 entries (filtered from 7,100 total entries)

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DEPARTMENT OF ECOLOGY State of Washington

Cleanup and Tank Search

Exhibit A-10

Home | Search Cleanups | Search USTs | Contact | Help

Regulated Underground Storage Tanks (USTs)

This list shows all underground storage tanks at regulated facilities in Washington state, both active and inactive. Active facilities are defined as those having at least one tank in Operational, Temporarily Closed, Deferred, or Red Tag status.

Use the 'Site Active' filter if you only want to see active or inactive facilities, but not both.

Filter Table | Export Table

Site Name Site Name	**USTID** USTID	**FSID** FSID
Active Tag Number Active Tag Number	**Address** hildebrand	**City or Zip** kennewick
County Benton	**Region** Region	**Site Active** Site Active
Stored Substance Stored Substance		

Clear

Click on the > button or site row to view more details.

Show 15 entries

No matching records found

Showing 0 to 0 of 0 entries (filtered from 16,931 total entries)

Previous | Next

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DEPARTMENT OF ECOLOGY State of Washington

Cleanup and Tank Search

Exhibit A-10

Home | Search Cleanups | Search USTs | Contact | Help

Regulated Underground Storage Tanks (USTs)

This list shows all underground storage tanks at regulated facilities in Washington state, both active and inactive. Active facilities are defined as those having at least one tank in Operational, Temporarily Closed, Deferred, or Red Tag status.

Use the 'Site Active' filter if you only want to see active or inactive facilities, but not both.

Filter Table | Export Table

Site Name: Site Name

USTID: USTID

FSID: FSID

Active Tag Number: Active Tag Number

Address: bob olson

City or Zip: kennewick

County: Benton

Region: Region

Site Active: Site Active

Stored Substance: Stored Substance

Clear

Click on the > button or site row to view more details.

Show 15 entries

No matching records found

Showing 0 to 0 of 0 entries (filtered from 16,931 total entries)

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DEPARTMENT OF ECOLOGY State of Washington

Facility/Site

Exhibit A-10

Home/Tabular search | Map search | Data Reports | Help | Lookup values

Zoom | Legend | Filter | Tools

My maps | Print | Share | About

Basic

Pan - Identify | Zoom In | Zoom Out | Zoom Full | Zoom Last | Zoom Next | Clear Graphics

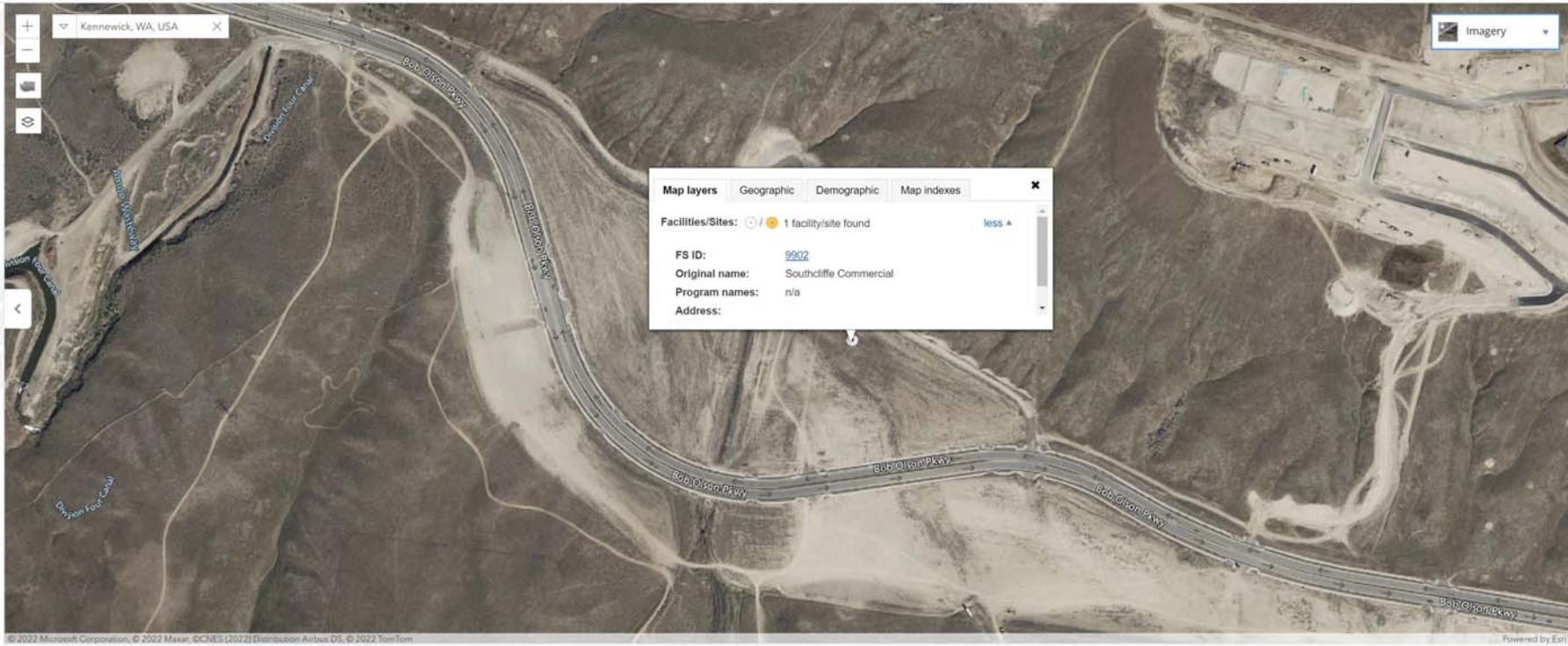
Usage:

- Click on map to identify map feature.
- Mouse-down on map + drag cursor to pan map.
- Type **SHIFT** + mouse-down on map + drag cursor to zoom map in.
- Type **CTRL** + **SHIFT** + mouse-down on map + drag cursor to zoom map out.
- Mouse wheel-in on map to zoom map in.
- Mouse wheel-out on map zoom map out.

Address

Coordinates

Map area



Facility locations | Zoom to selection | Show in tabular search

Find	FS ID	Original name	Program facility names	Details
	1	ALCOA INC WENATCHEE WORKS	ALCOA Inc Wenatchee Works LUST; ALCOA Inert Waste Demo Landfill; ALCOA WENATCHEE LLC; ALCOA WENATCHEE WORKS	show
	2	THE COUNTRY MARKET		show
	3	CDC Mead LLC	CDC Mead Inert Waste Landfill; CDC MEAD LLC WWTP; Mead Custodial Trust; Spokane Recycling Company - LLC.; Tristar North Inc	show

Show 5 entries | Showing 1 to 5 of 73,836 entries | First | Previous | Next | Last

DEPARTMENT OF ECOLOGY State of Washington

Facility/Site

Exhibit A-10

FS ID: 9902

Map facility Print

Southcliffe Commercial
Kennewick WA 99338

GIS latitude:
46.188064

GIS longitude:
-119.230985

Ecology region:
CRO

County:
Benton

Location description:
Area surrounding new Hildebrand extension between Sherman St & Clodfelter RD.

Legislative district:

8

Exhibit A-10

Congressional district:
4

WRIA:
37

Tribal land:
N

Alternate names

Also known as
Southcliffe Commercial

Alternate names

Interactions

Interaction	Interaction description	Ecology program	Ecology program contact	Program ID	Start date	End d
Construction SW GP	General permit issued to owner/operators of construction projects that disturb 1 or more acres of land through clearing, grading, excavating, or stockpiling of fill material that discharge stormwater to state waters.	WATQUAL	(360) 407-6400	WAR303725	10/15/2015	9/27/2

Interactions for this facility/site

NAICS codes

Exhibit A-10

Code	Description

NAICS codes for this facility

SIC codes

Code	Description

SIC codes for this facility

Ecology home Ecology's facility/site website Version: 1.0.0.0
Contact admin Privacy notice Accessibility
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Exhibit A-10

Gamzyakova, Galina

From: Clerk <Clerk@co.benton.wa.us>
Sent: Monday, May 23, 2022 7:33 AM
To: Gamzyakova, Galina
Subject: RE: [EXTERNAL] RE: Public Records Request

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Our office does not have the records you are requesting. We maintain the court files for Superior Court. Possibly the building or planning departments. You may find the list of public records officers at:

Public Records Request - Benton County WA

Elaine Osborne
Chief Deputy Clerk
Benton County Clerk's Office
7122 W. Okanogan Place Suite A2I0
Kennewick, WA 99336
509-735-8388 x. 3708

From: Gamzyakova, Galina <Galina.Gamzyakova@efiglobal.com>
Sent: Friday, May 20, 2022 4:45 PM
To: Clerk <Clerk@co.benton.wa.us>
Subject: [EXTERNAL] RE: Public Records Request

EXTERNAL EMAIL WARNING!!!: This email originated from outside of Benton County. DO NOT click links or open attachments unless you recognize the sender and know the content is safe.

Please see the form attached

Thank you,

Galina Gamzyakova | Environmental Specialist
EFI Global, Inc., Los Angeles, CA
CELL 310.343.8775 | OFFICE 310.854.6300 x 276
EMAIL Galina.Gamzyakova@efiglobal.com
CSLB License #: 885902
www.efiglobal.com | Caring counts®

From: Gamzyakova, Galina
Sent: Friday, May 20, 2022 4:41 PM
To: Clerk@co.benton.wa.us
Subject: Public Records Request

Hello,

This firm is performing a Phase I Environmental Site Assessment for the property located at the following addresses:

8228 Bob Olson Parkway and 7641 West Hildebrand Boulevard, Kennewick, WA 99336

We are requesting any information from your departments pertaining to:

- building permit records including demolitions, construction, tenant improvements, major sewer installations/removals, and certificates of occupancy on the property
- any reports of the storage, release or spillage of hazardous materials (HAZMAT), or substances or petroleum products that have ever been located on the property
- any underground storage tanks (USTs) and aboveground storage tanks (ASTs) on the property
- industrial wastewater discharge, clarifiers, storm water, or industrial waste water, including permits to operate and notices of violation on the property
- contaminated ground water or soil records on the property
- air emissions, including permits to operate, equipment lists and notices of violation on the property

Please feel free to contact me with any questions or concerns at 310-343-8775 or Galina.Gamzyakova@efiglobal.com.

Thank you for your assistance with this information.

Galina Gamzyakova | Environmental Specialist
EFI Global, Inc., Los Angeles, CA
CELL 310.343.8775 | OFFICE 310.854.6300 x 276
EMAIL Galina.Gamzyakova@efiglobal.com
CSLB License #: 885902
www.efiglobal.com | Caring counts®

Any personal data acquired, processed or shared by us will be lawfully processed in line with applicable data protection legislation. If you have any questions regarding how we process personal data refer to our Privacy Notice https://www.sedgwick.com/global-privacy-policy. Any communication including this email and files/attachments transmitted with it are confidential and are intended solely for the use of the individual or entity to whom they are addressed. If this message has been sent to you in error, you must not copy, distribute or disclose of the information it contains and you must notify us immediately (contact is within the privacy policy) and delete the message from your system.

Exhibit A-10

BENTON COUNTY
REQUEST FOR PUBLIC RECORDS

Benton County Ordinance No. 442 | Chapter 5.14 BCC (Benton County Code)

TO BE COMPLETED BY REQUESTOR:

DATE OF REQUEST: 5/20/2022 **TIME:** 4:45 PM

NAME: Galina Gamzyakova PHONE NUMBER: 310-343-8775

ADDRESS: 5261 West Imperial Highway, Los Angeles CA 90045

STREET CITY STATE ZIP CODE

E-MAIL/OTHER CONTACT INFORMATION: Galina.Gamzyakova@EFIGlobal.com

I WOULD LIKE TO (mark all that apply):
- ☐ Inspect the public records
- ☑ Obtain copies of the public records

DESCRIBE THE RECORDS YOU ARE REQUESTING: This firm is performing a Phase I Environmental Site Assessment for the property located at the following addresses:

8224 Bob Olson Parkway and 7641 West Hildebrand Boulevard, Kennewick, WA 99336

We are requesting any information from your departments pertaining to:

- building permit records including demolitions, construction, tenant improvements, major sewer installations/removals, and certificates of occupancy on the property
- underground storage tanks (USTs), aboveground storage tanks (ASTs) on the property
- any reports of the storage, release or spillage of hazardous materials (HAZMAT), or substances or petroleum products that have ever been located on the property
- industrial wastewater discharge, clarifiers, storm water, or industrial waste water, including permits to operate and notices of violation on the property
- air emissions, including permits to operate, equipment lists and notices of violation on the property

NOTE: If the request is for a list of names and/or addresses, please attach a signed statement, under the penalty of perjury, that the list will not be used for any commercial purposes.

TO BE COMPLETED BY RECORDS OFFICER:

DATE RECEIVED: _____ TIME: _____

OFFICE/DEPARTMENT/COMMISSION/BOARD: _____

RECORDS OFFICER: _____

Request:
- ☐ was forwarded to Prosecuting Attorney's Office for advice;
- ☐ was not forwarded to Prosecuting Attorney's Office for advice.

Records:
- ☐ are available for inspection or copying (attach copy of letter to requestor required by BCC 5.14.090(*a*)(1) or (2));
- ☐ are not identifiable and a request for clarification was made on this date _____ by email or letter (attach copy of email or letter to requestor required by BCC 5.14.909(*a*)(3));
- ☐ may be available, but more time is needed to respond (attach copy of letter to requestor required by BCC 5.14.090(*a*)(3));
- ☐ are not available because they are exempt (attach copy of letter to requestor required by BCC 5.14.090(*a*)(4));
- ☐ partially available for inspection or copying as some portion of the records are exempt and have been withheld and/or redacted (attach copy of letter to requestor required by BCC 5.14.090(*a*)(4));
- ☐ not available because no responsive records exist (attach copy of letter to requestor required by BCC 5.14.090(*a*)(4).

_____

Signature of Records Officer Date

Request closed because:
- ☐ copies were inspected or provided to requestor;
- ☐ no response was received to request for clarification and requestor was notified request has been closed (attach copy of closure letter to requestor required by BCC 5.14.090(*e*));
- ☐ records were exempt in their entirety and requestor was notified of exemptions;
- ☐ no payment was received from requestor and requestor was notified that the request has been closed (attach copy of closure letter to requestor BCC 5.14.090(*l*)).

_____

Signature of Records Officer (or Prosecuting Attorney if request handled by PA's office) Date

Exhibit A-10

Gamzyakova, Galina

From: John Lyle <john.lyle@bentoncleanair.org>
Sent: Thursday, May 26, 2022 3:44 PM
To: Gamzyakova, Galina
Subject: RE: Public Records Request

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Galina,

This letter is to advise you that we are in receipt of your Request for Public Record.

The Revised Code of Washington (RCW) 42.56.520 states in part:

> *Within five (5) business days of receiving a public record request, an agency…must respond by either: (1) providing the record; (2) acknowledging that the agency … has received the request and [is] providing a reasonable estimate of the time the agency… will require to respond to the request; or (3) denying the public record request.*

In accordance with this RCW, this letter is to inform you, the records you requested will be available on June 30, 2022.

Thanks,

John Lyle
Air Quality Specialist

Benton Clean Air Agency
526 S. Steptoe St.
Kennewick, WA 99336
509-783-1304 ext. 103
www.bentoncleanair.org

This email may contain privileged or confidential information disclosed only to the addressee.
If you have received this email in error, do not copy or distribute without authorization.
Please contact the sender at 509-783-1304. Thank you

From: Gamzyakova, Galina <Galina.Gamzyakova@efiglobal.com>
Sent: Monday, May 23, 2022 12:21 PM
To: John Lyle <john.lyle@bentoncleanair.org>
Subject: RE: Public Records Request

Hello John,

Please see attached parcel map for your reference. Our property is outlined portion, parcel # 107894000001003.

Thank you,

Galina Gamzyakova | Environmental Specialist
EFI Global, Inc., Los Angeles, CA
CELL 310.343.8775 | OFFICE 310.854.6300 x 276
EMAIL Galina.Gamzyakova@efiglobal.com
CSLB License #: 885902
www.efiglobal.com | Caring counts®

From: John Lyle <john.lyle@bentoncleanair.org>
Sent: Monday, May 23, 2022 11:04 AM
To: Gamzyakova, Galina <Galina.Gamzyakova@efiglobal.com>
Subject: RE: Public Records Request

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Galina,

I have located 7641 West Hildebrand Blvd but I have not been able to locate 8224 Bob Olson Park Way. Do you have are parcel number or approximate location of this parcel so I can look for any of your requested records?

Thanks,

John Lyle
Air Quality Specialist

Benton Clean Air Agency
526 S. Steptoe St.
Kennewick, WA 99336
509-783-1304 ext. 103
www.bentoncleanair.org

This email may contain privileged or confidential information disclosed only to the addressee.
If you have received this email in error, do not copy or distribute without authorization.
Please contact the sender at 509-783-1304. Thank you

From: Gamzyakova, Galina <Galina.Gamzyakova@efiglobal.com>
Sent: Friday, May 20, 2022 4:36 PM
To: John Lyle <john.lyle@bentoncleanair.org>
Subject: Public Records Request

Hello, John

This firm is performing a Phase I Environmental Site Assessment for the property located at the following addresses:

8224 Bob Olson Parkway and 7641 West Hildebrand Boulevard, Kennewick, WA 99336

We are requesting any information from your departments pertaining to air emissions, including permits to operate, equipment lists and notices of violation on the property.
Please feel free to contact me with any questions or concerns at 310-343-8775 or Galina.Gamzyakova@efiglobal.com.

Thank you for your assistance with this information.

Galina Gamzyakova | Environmental Specialist
EFI Global, Inc., Los Angeles, CA
CELL 310.343.8775 | OFFICE 310.854.6300 x 276
EMAIL Galina.Gamzyakova@efiglobal.com
CSLB License #: 885902
www.efiglobal.com | Caring counts®

Any personal data acquired, processed or shared by us will be lawfully processed in line with applicable data protection legislation. If you have any questions regarding how we process personal data refer to our Privacy Notice https://www.sedgwick.com/global-privacy-policy. Any communication including this email and files/attachments transmitted with it are confidential and are intended solely for the use of the individual or entity to whom they are addressed. If this message has been sent to you in error, you must not copy, distribute or disclose of the information it contains and you must notify us immediately (contact is within the privacy policy) and delete the message from your system.

C000211-052022 - Public Records Request - PRR

Exhibit A-10

Message History (3)

On 5/23/2022 8:35:20 AM, Records Request Center (Kennewick, WA) wrote:

Subject: Public Records Request - PRR :: C000211-052022
Body:

Galina Gamzyakova
5261 West Imperial Highway
Los Angeles CA 90045

RE: Public Disclosure Request # C000211-052022

Greetings:

The City of Kennewick has received your public disclosure request regarding:

> **"This firm is performing a Phase I Environmental Site Assessment for the property located at the following addresses:**
> **8224 Bob Olson Parkway and 7641 West Hildebrand Boulevard, Kennewick, WA 99336**
> **We are requesting any information from your departments pertaining to building permit records including demolitions, construction, tenant improvements, major sewer installations/removals, and certificates of occupancy on the property.**
> **Please feel free to contact me with any questions or concerns at 310-343-8775 or Galina.Gamzyakova@efiglobal.com.**
>
> **Thank you for your assistance with this information."**

Because you have recently made prior public records requests that were never claimed, based on WAC 44-14-07006, RCW 42.56.120(4) and KMC 1.40.090(5); we are requiring a copy deposit of $.69 before we begin work on this request. This is 10% of our anticipated copy charge. Please note the actual cost of copies may be higher than this amount.

Your payment may be made in person or by mail. Once payment has been received work will then begin to research your request and compile responsive records.

IN PERSON PAYMENTS: Please visit the Customer Service Counter at City Hall Monday - Friday (8:30 a.m. to 4:30 p.m.) to make your in person payment (note that our offices are closed for federal holidays):

210 West Sixth Avenue
Kennewick, WA 99336

PAYMENT BY MAIL: Be sure that your envelope is addressed to my attention. Otherwise, your check may not be credited to your request and the request may be shown as abandoned.

City of Kennewick
ATTN: Krystal Townsend, Public Records Officer
PO Box 6108
Kennewick, WA 99336

PAYMENT BY PHONE OR INTERNET IS NOT AVAILABLE.

Your request will remain open pending payment through June 22, 2022. Without your payment by this date the request will be automatically closed as an abandoned request.

If you have any questions or need further assistance with this request, please contact me by calling 509-585-4578 or by your direct reply to this message. **You can quickly access your request here: https://kennewickwa.mycusthelp.com/WEBAPP/_rs/RequestEdit.aspx?rid=20834&coid=**

Sincerely,

Krystal Townsend
Public Records Officer

NOTE:

Please be sure to review our public records policy *(via this link)* which contains important information about how the City administers public records requests, the rights of requestors, and the obligations of each party.

Please keep in mind records are maintained in accordance with the state retention scheduled and may not be available for a future submission should you abandon this request. **Furthermore, customers who have abandoned requests must pay a deposit before work will begin on any future requests.**

On 5/20/2022 5:21:18 PM, Records Request Center (Kennewick, WA) wrote:

Hello!

The City of Kennewick has received your request and we look forward to assisting you. We will be responding from this email account *(Records Request Center (Kennewick, WA))* each time. **Please add us to your safe sender list if this message originally went to your spam or junk folder.**

The City administers public records requests in strict compliance with RCW 42.56 and Kennewick Municipal Code Chapter 1.40. Our Public Records Policy is enforced as required by RCW 42.56.100.

The City will respond to your request on or before May 31, 2022 by either:

1. providing the record(s);
2. providing an internet address and link on the city's web site to the specific records requested;
3. providing a reasonable estimate of the time the city will require to respond to the request;
4. seeking clarification of the request; or
5. denying the public record request.

In the meanwhile, please take a moment to review instructions on how to access the responsive records. This way, you'll be ready when you're notified that records have been uploaded to your account.

»For traffic videos, click here.

»For all other records, click here.

A link to your request is posted at the bottom of this message.

~~~~~~

A NOTE ABOUT POLICE DEPARTMENT RECORDS:

If your request seeks police-related related records, this request will be denied. **Police-related requests are administered separately and you need to make your request here: KPD Records Request.** We are providing this notice now so that you may make a new request to the police department without delay.
~~~~~~

Track the issue status and respond at:
https://kennewickwa.mycusthelp.com/WEBAPP//_rs/RequestEdit.aspx?rid=20834

On 5/20/2022 5:21:17 PM, Galina Gamzyakova wrote:

Request Created on Public Portal

City of Kennewick

Approved Plan Search

Exhibit A-10

Fill in at least one of the following fields and click search to retrieve an Approved Plan Set.

Permit Number:

Project Number:

Parcel Number: 1-0789-400-0001-003

Street Address:

Search

Document Search Results

No items to display

Items: 0

Please Select an Item

City of Kennewick

Approved Plan Search

Exhibit A-10

Fill in at least one of the following fields and click search to retrieve an Approved Plan Set.

Permit Number:

Project Number:

Parcel Number:

Street Address:
Address is invalid or no documents found for this address.

8224 bob olson

Search

Exhibit A-10

City of Kennewick

Approved Plan Search

Fill in at least one of the following fields and click search to retrieve an Approved Plan Set.

Permit Number:

Project Number:

Parcel Number:

Street Address: 7641 hildebrand

Address is invalid or no documents found for this address.

Search

Exhibit A-10

City of Kennewick

Certificate of Occupancy Search

Fill in at least one of the following fields and click search to find Certificates of Occupancy. Search for a Company Name by entering it in the Document Text field sourrounded by quotes.

Permit Number:

Parcel Number: 1-0789-400-0001-003

Street Address:

Document Text (contains):

Search

OnBase

Custom Query Results

No items to display

Items: 0

Please Select an Item

City of Kennewick

Certificate of Occupancy Search

Exhibit A-10

Fill in at least one of the following fields and click search to find Certificates of Occupancy. Search for a Company Name by entering it in the Document Text field sourrounded by quotes.

Permit Number:

Parcel Number:

Street Address:
Address is invalid or no documents found for this address.

8224 bob olson

Document Text (contains):

Search

City of Kennewick

Certificate of Occupancy Search

Exhibit A-10

Fill in at least one of the following fields and click search to find Certificates of Occupancy. Search for a Company Name by entering it in the Document Text field sourrounded by quotes.

Permit Number:

Parcel Number:

Street Address:
Address is invalid or no documents found for this address.

7641 hildebrand

Document Text (contains):

Search

Exhibit A-10

City of Kennewick

Site Plan Search

Fill in at least one of the following fields and click search to find Site Plan drawings, comment letters and/or approval letters.

Permit Number:

Project Number:

Parcel Number:

Street Address:
Address is invalid or no documents found for this address.

8224 bob olson

Search

City of Kennewick

Site Plan Search

Exhibit A-10

Fill in at least one of the following fields and click search to find Site Plan drawings, comment letters and/or approval letters.

Permit Number:

Project Number:

Parcel Number:

Street Address:
Address is invalid or no documents found for this address.

7641 hildebrand

Search

Exhibit A-10

DEPARTMENT OF ECOLOGY State of Washington

Water Quality Permitting and Reporting Information System (PARIS)

About PARIS

PARIS contains information on Water Quality Permits, Inspections, Enforcement Actions, and Discharge Monitoring Data. Both NPDES and State Waste Discharge permits are included in the database.

Look up a permit:

Enter PermitNumber or PermitType or FacilityName or Address or City or County or Zipcode or Region

8224 bob olson kennewick 46 characters left.

No permits were found matching your search.

☐ Show Inactive Permits

Search for a Permit Reset

Search for:

Permit Number/Type
Inspections
Enforcements
Discharge Monitoring Data
Violations and Permit Triggers
Permit Documents
Historical WPLCS Permit Data (Permits Inactive before early 2010)

Questions?

Contact: Central Regional Office Eastern Regional Office Northwest Regional Office Southwest Regional Office Industrial Regional Office Stormwater Regional Office

Paris Version : 1.1.0.0

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Exhibit A-10

DEPARTMENT OF ECOLOGY State of Washington

Water Quality Permitting and Reporting Information System (PARIS)

Permits/Applications | Compliance and Violations | Inspections and Enforcements | Help | More Water Quality Info | Search

About PARIS

PARIS contains information on Water Quality Permits, Inspections, Enforcement Actions, and Discharge Monitoring Data. Both NPDES and State Waste Discharge permits are included in the database.

Look up a permit:

Enter PermitNumber or PermitType or FacilityName or Address or City or County or Zipcode or Region

7641 hildebrand kennewick 45 characters left.

No permits were found matching your search.

☐ Show Inactive Permits

Search for a Permit | Reset

Search for:

Permit Number/Type
Inspections
Enforcements
Discharge Monitoring Data
Violations and Permit Triggers
Permit Documents
Historical WPLCS Permit Data (Permits Inactive before early 2010)

Questions?

Contact: Central Regional Office Eastern Regional Office Northwest Regional Office Southwest Regional Office Industrial Regional Office Stormwater Regional Office

Ecology home | PARIS home | Disclaimer | Privacy notice | Accessibility | Contact admin/Feedback | Maintenance |

Paris Version : 1.1.0.0

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Exhibit A-10

City of Kennewick

Site Plan Search

Fill in at least one of the following fields and click search to find Site Plan drawings, comment letters and/or approval letters.

Permit Number:

Project Number:

Parcel Number: 1-0789-400-0001-003

Street Address:

Search

Exhibit A-10

CITY OF KENNEWICK WASHINGTON

April 7, 2016

Marcus Fullard-Leo
NW Federal Construction, LLC
1505 NE Village Steet
Fairview, OR 97024

RE: GRADE 15-06/PLN-2015-03411

Dear Mr. Fullard-Leo,

Grading Permit No. 15-06/PLN-2015-03411 has been approved for re-issuance and is subject to the attached conditions.

Your permit is available to be picked up in the Building and Planning Department at City Hall. If you have any questions or comments regarding this permit and/or any of the conditions set forth in the approval, please feel free to contact me by phone: (509) 585-4558 or email: wes.romine@ci.kennewick.wa.us

Sincerely,

Wes Romine
Development Services Manager

Attachments: Findings of Fact
Conditions of Approval
Grading Plans with Erosion Control Notes
KID Comments dated 11/5/15

cc. GRADE 15-06/PLN-2015-03411 file

FINDINGS OF FACT

Staff has reviewed the grading application, and subject to the conditions of approval, make the following findings:

1. The applicant for this application is NW Federal Construction, LLC, 1505 NE Village Street, Fairview, OR 97024.

2. The proposed grading is a parcel of land at 7641 W. Hildebrand Boulevard, parcel no. 1-0789-400-0001-003.

3. GRADE 15-06/PLN-2015-03411 is a grading permit for approximately 660,000 cubic yards of excavation and 660,000 cubic yards of fill to prepare the site for a future commercial/mixed use development.

4. The subject property zoning is Commercial Community (CC), and the Comprehensive Plan Land Use designation is Commercial.

5. This Grading permit was received by the City of Kennewick on October 7, 2015 and declared complete for processing. It was routed for review to the Public Works Department, Benton Clean Air Agency and the Kennewick Irrigation District on October 14, 2015. An application with new applicant and contractor information was receive April 1, 2016.

6. A Mitigated Determination of Non-significance was issued November 20, 2915 for the subject grading permit. A SEPA Checklist and further environmental review will be required when the property is developed.

7. Per the City of Kennewick Critical Areas map there are no wetlands on the site.

8. The Southridge EIS dated November 2004 does not list any wetlands on the subject site.

9. Per Senate Bill 5292 which went into effect June 6, 2012, section 5 and section 21, "Wetlands" do not include irrigation and drainage ditches, and "Fish and wildlife habitat" does not included irrigations canals and drainage ditches.

CONDITIONS OF APPROVAL

As per KMC 18.42.040, Grade Permit No. 15-06/PLN-2015-03411 is approved with the following conditions:

1. Comply with the Erosion & Sedimentation Control Notes on the approved grading plans.

2. Grading shall be in conformance to the approved grading plans.

3. The applicant shall not interfere or delay the City contract work along Hildebrand Blvd. or the maintenance road. No work will be conducted within 50 feet of the City roadway project without the permission of the City Engineer. Public Works will allow the applicant to cross the City Hildebrand Blvd. project corridor to provide fuel for equipment and water for dust abatement. The Applicant shall coordinate with the City Engineer or his representative to ensure that any crossing does not implead the City's contract work.

4. Full restoration of any disturbed subgrade, shoulder and ditch work associated with the City's Hildebrand Boulevard.

5. The contractor shall at all times during construction, maintain proper dust control in accordance with the requirements of the Benton Clean Air Authority. If water is not available, the Contractor shall be responsible for dust control by any means approved by the Benton Clean Air Authority, Per City of Kennewick Standards Specifications 1-11.

6. Prevent mud and debris from construction equipment entering existing streets per Erosion & Sedimentation Control note #6.

7. Property owners as well as their contractors, subcontractors and other representatives shall follow all KMC's regarding storm water management, erosion and sediment control, and illicit discharges. Failure to meet City Code can result in approval delays, fines, and a hold on permits per the following KMC's:
    a. KMC 14.29: Illicit Discharge
    b. KMC 18.72: Clearing and Grading
    c. KMC 18.20: Design and Construction

8. At the completion of grading, submit as built drawings stamped by a licensed engineer and confirmation that grading complies with the approved grading plans. No permits will be issued at any of the parcels until as-built drawings are received.

9. All grading shall be in accordance with the geotechnical report prepared by White Shield.

10. Grading to be monitored by a licensed geotechnical engineer and confirmation that grading conforms to the "Seismic Refraction Survey Results" and "Revised Preliminary Geotechnical Engineering Study" is required at the completion of grading.

11. A geotechnical report will be required at the time of future building construction.

12. An NPDES Construction Stormwater General Permit is required from the Washington State Department of Ecology if there is a potential for stormwater discharge from a construction site with more than one acre of disturbed ground. It is the applicant's responsibility to obtain required stormwater permits from the Department of Ecology. For questions, contact Bryan Neet at (509) 575-2808 at the Washington State Department of Ecology.

13. Comply with WAC 173-400-040 general standards for maximum emissions as required by Benton Clean Air authority:
    a. Fallout
        i. No person shall cause or permit the emission of particulate matter from any source to be deposited beyond the property under direct control of the owner(s) or operator(s) of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.
    b. Fugitive dust sources
        i. The owner or operator of a source of fugitive dust shall take reasonable precautions to prevent fugitive dust from becoming airborne and shall maintain and operate the source to minimize emissions.

Exhibit A-10

November 20, 2015

Eldon McDaniels
E-Mac
111003 Windward Lane
Kennewick, WA 99338

RE: GRADE 15-06/PLN-2015-03411

Dear Mr. McDaniels,

Grading Permit No. 15-06/PLN-2015-03411 has been approved and is subject to the attached conditions.

Your permit is available to be picked up in the Building and Planning Department at City Hall upon receipt of your Contractor information. If you have any questions or comments regarding this permit and/or any of the conditions set forth in the approval, please feel free to contact me by phone: (509) 585-4558 or email: wes.romine@ci.kennewick.wa.us

Sincerely,

Wes Romine
Development Services Manager

Attachments: Findings of Fact
Conditions of Approval
Grading Plans with Erosion Control Notes
KID Comments dated 11/5/15

cc. GRADE 15-06/PLN-2015-03411 file

FINDINGS OF FACT

Staff has reviewed the grading application, and subject to the conditions of approval, make the following findings:

1. The applicant for this application is Eldon McDaniels for E-Mac for Milo Bauder, 111003 Windward Lane, Kennewick, WA 99338

2. The proposed grading is a parcel of land at 7641 W. Hildebrand Boulevard, parcel no. 1-0789-400-0001-003.

3. GRADE 15-06/PLN-2015-03411 is a grading permit for approximately 650,000 cubic yards of excavation and 650,000 cubic yards of fill to prepare the site for a future commercial/mixed use development.

4. The subject property zoning is Commercial Community (CC), and the Comprehensive Plan Land Use designation is Commercial.

5. This Grading permit was received by the City of Kennewick on October 7, 2015 and declared complete for processing. It was routed for review to the Public Works Department, Benton Clean Air Agency and the Kennewick Irrigation District on October 14, 2015.

6. A Mitigated Determination of Non-significance was issued November 20, 2915 for the subject grading permit. A SEPA Checklist and further environmental review will be required when the property is developed.

7. Per the City of Kennewick Critical Areas map there are no wetlands on the site.

8. The Southridge EIS dated November 2004 does not list any wetlands on the subject site.

9. Per Senate Bill 5292 which went into effect June 6, 2012, section 5 and section 21, “Wetlands” do not include irrigation and drainage ditches, and “Fish and wildlife habitat” does not included irrigations canals and drainage ditches.

CONDITIONS OF APPROVAL

As per KMC 18.42.040, Grade Permit No. 15-06/PLN-2015-03411 is approved with the following conditions:

1. Comply with the Erosion & Sedimentation Control Notes on the approved grading plans.

2. Grading shall be in conformance to the approved grading plans.

3. Grading can begin no earlier than December 7, 2015 on the west end and no earlier than December 21, 2015 on the east end in order to allow the completion of the current City contract work. This condition applies with the exception of the area north of Hildebrand Blvd., South of the maintenance road, and east of the proposed ditch. Hildebrand Blvd. shall only be crossed one time to get the equipment to the site. The applicant shall not interfere or delay the City contract work along Hildebrand Blvd. or the maintenance road. No work will be conducted within 50 feet of the City roadway project without the permission of the City Engineer. Public Works will allow the applicant to cross the City Hildebrand Blvd. project corridor to provide fuel for equipment and water for dust abatement. The Applicant shall coordinate with the City Engineer or his representative to ensure that any crossing does not implead the City's contract work.

4. Full restoration of any disturbed subgrade, shoulder and ditch work associated with the City's Hildebrand Blvd. and adjacent maintenance road project shall be completed no later than February 26, 2016.

5. The contractor shall at all times during construction, maintain proper dust control in accordance with the requirements of the Benton Clean Air Authority. If water is not available, the Contractor shall be responsible for dust control by any means approved by the Benton Clean Air Authority, Per City of Kennewick Standards Specifications 1-11.

6. Prevent mud and debris from construction equipment entering existing streets per Erosion & Sedimentation Control note #6.

7. Property owners as well as their contractors, subcontractors and other representatives shall follow all KMC's regarding storm water management, erosion and sediment control, and illicit discharges. Failure to meet City Code can result in approval delays, fines, and a hold on permits per the following KMC's:
    a. KMC 14.29: Illicit Discharge
    b. KMC 18.72: Clearing and Grading
    c. KMC 18.20: Design and Construction

8. At the completion of grading, submit as built drawings stamped by a licensed engineer and confirmation that grading complies with the approved grading plans. No permits will be issued at any of the parcels until as-built drawings are received.

9. All grading shall be in accordance with the geotechnical report prepared by White Shield.

10. Grading to be monitored by a licensed geotechnical engineer and confirmation that grading conforms to the “Seismic Refraction Survey Results” and “Revised Preliminary Geotechnical Engineering Study” is required at the completion of grading.

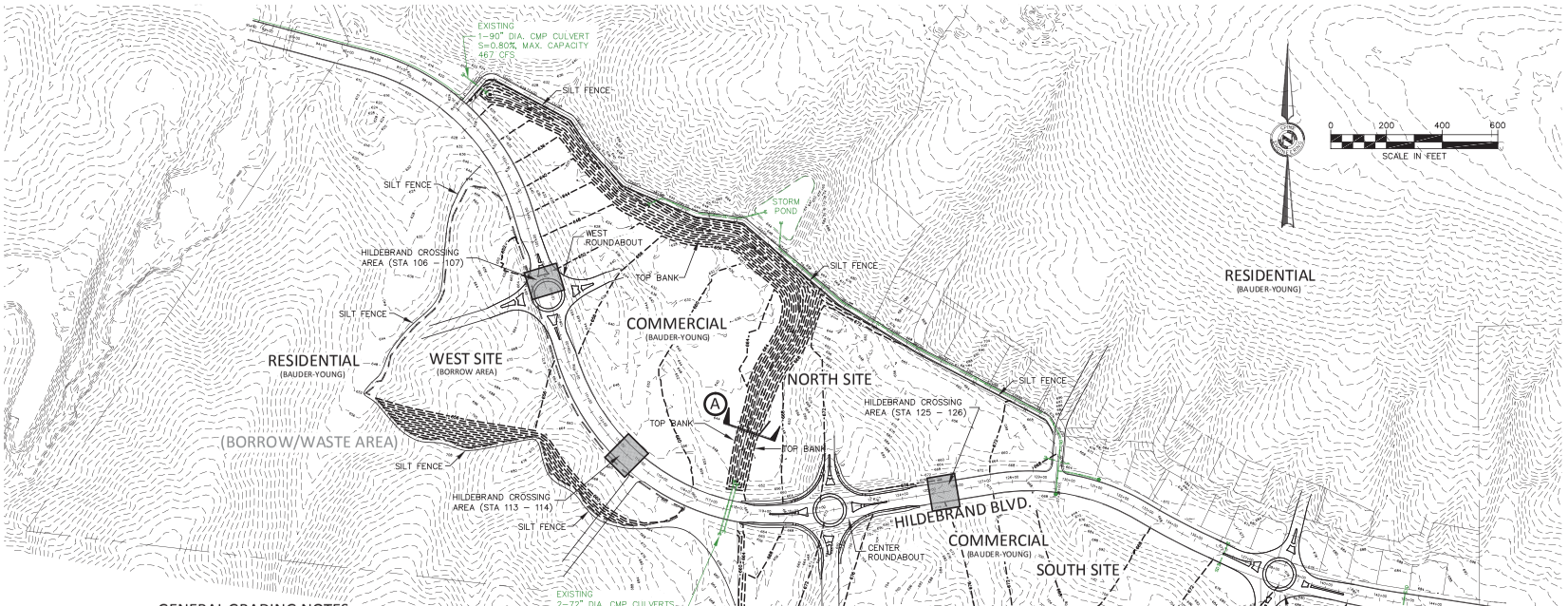
11. A geotechnical report will be required at the time of future building construction.

12. An NPDES Construction Stormwater General Permit is required from the Washington State Department of Ecology if there is a potential for stormwater discharge from a construction site with more than one acre of disturbed ground. It is the applicant’s responsibility to obtain required stormwater permits from the Department of Ecology. For questions, contact Bryan Neet at (509) 575-2808 at the Washington State Department of Ecology.

13. Comply with WAC 173-400-040 general standards for maximum emissions as required by Benton Clean Air authority:
    a. Fallout
        i. No person shall cause or permit the emission of particulate matter from any source to be deposited beyond the property under direct control of the owner(s) or operator(s) of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.
    b. Fugitive dust sources
        i. The owner or operator of a source of fugitive dust shall take reasonable precautions to prevent fugitive dust from becoming airborne and shall maintain and operate the source to minimize emissions.

Exhibit A-10

SECTION 18, T. 8 N., R. 29 E., W.M.

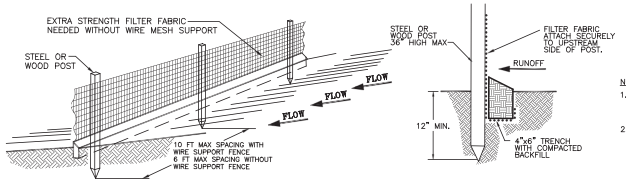


GENERAL GRADING NOTES

1. ALL GRADING CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE GEO–TECHNICAL REPORT PREPARED BY WHITE SHIELD, INC. AND APPENDIX J OF THE 2012 BUILDING CODE.
2. PROPOSED CONTOURS SHOWN ON THIS PLAN REPRESENT FINISHED GRADE. CONTOURS SHOWN ARE AT 4 FOOT VERTICAL INTERVALS.
3. CONTRACTOR SHALL PROTECT EXISTING UTILITY INFRASTRUCTURE INCLUDING ROCK SWALES.

EROSION & SEDIMENTATION CONTROL NOTES

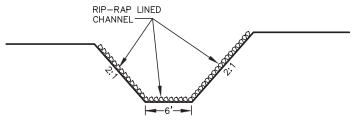
1. THE CONTRACTOR SHALL BE RESPONSIBLE, AT ALL TIMES DURING CONSTRUCTION, FOR EROSION AND SEDIMENTATION CONTROL. THE CONTRACTOR SHALL INSTALL A SILT FENCE AROUND PERIMETER OF PROJECT SITE TO PROTECT ADJACENT PROPERTIES FROM WIND BLOWN DUST & SAND AND FROM SEDIMENTATION TRANSPORTED BY WATER RUN–OFF.
2. THE ESC FACILITIES MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE WATER STANDARDS.
3. DURING THE CONSTRUCTION PERIOD, ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DOES NOT LEAVE THE SITE.
4. AT NO TIME SHALL MORE THAN 1 FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
5. ALL DISTURBED AREAS SHALL BE HYDRO–SEEDED AT THE COMPLETION OF THIS PROJECT.
6. THE CONTRACTOR SHALL BE RESPONSIBLE, AT ALL TIMES DURING CONSTRUCTION, FOR PREVENTING MUD AND DEBRIS FROM CONSTRUCTION EQUIPMENT ENTERING EXISTING STREETS.



NOTES:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF–SITE AND CAN BE PERMANENTLY STABILIZED.

SILT FENCE DETAILS & NOTES



(A) TYPICAL DRAINAGE CHANNEL SECTION

CHANNEL LENGTH – 2,100 LF
CHANNEL SLOPE – 1.69%
MAX. CHANNEL CAPACITY AT 4' DEEP – 579 CFS

APPROVED
Wes Romine
November 20, 2015

ESTIMATED EARTHWORK QUANTITIES

	EXCAVATION		EMBANKMENT
NORTH SITE	42,891 CY	NEATLINE	622,576 CY
SOUTH SITE	539,655 CY	NEATLINE	37,098 CY
WEST SITE	248,455 CY (AVAILABLE)	NEATLINE	0 CY

11-4-15

811 Know what's below. Call before you dig.
48 HOURS NOTICE REQUIRED

REV.	DATE	DESCRIPTION	BY	APPD
1	11-4-15	REVISED FOR CITY REVIEW	SWS	ARR

SPINK ENGINEERING
11413 Julianna Ave., Suite E • Richland, WA • 509-946-1591 • www.spinkeng.com

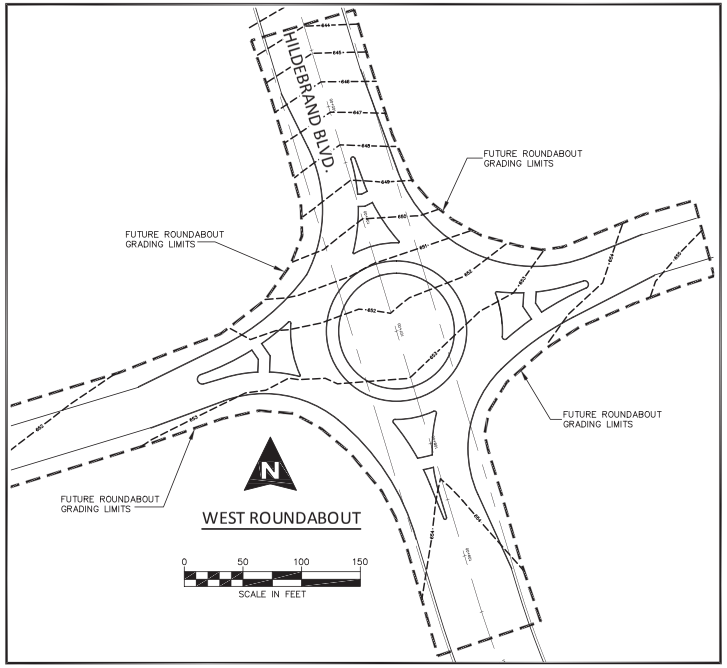
SCALE: AS SHOWN
DRAWN BY: SWS
DESIGNED BY: SWS
APPROVED BY: ARR
FILE: 15129.DWG

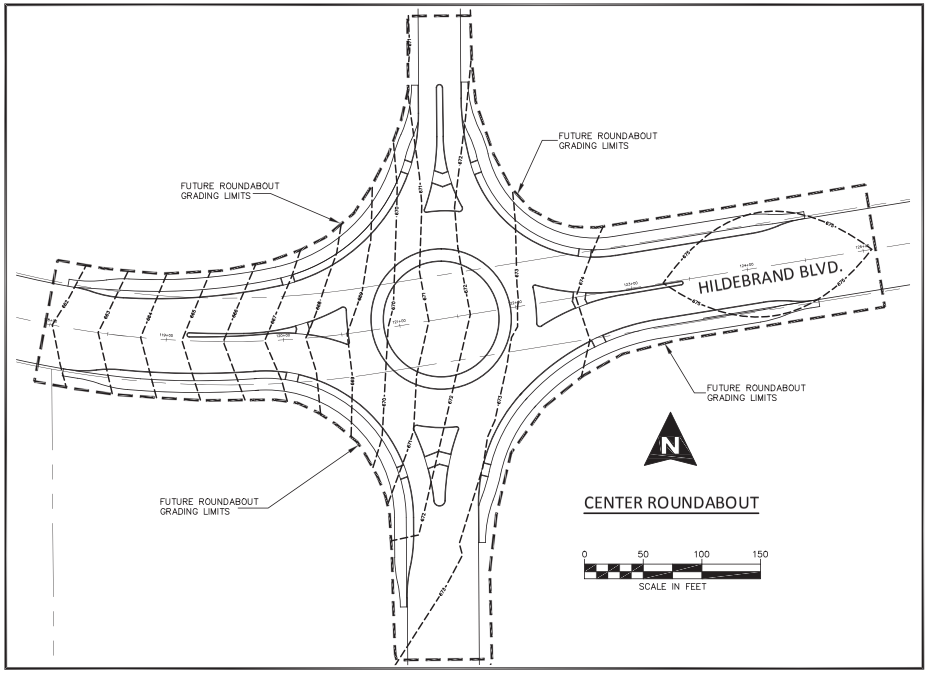
BAUDER - YOUNG
GRADING PLAN
SOUTHCLIFFE COMMERCIAL
KENNEWICK WASHINGTON

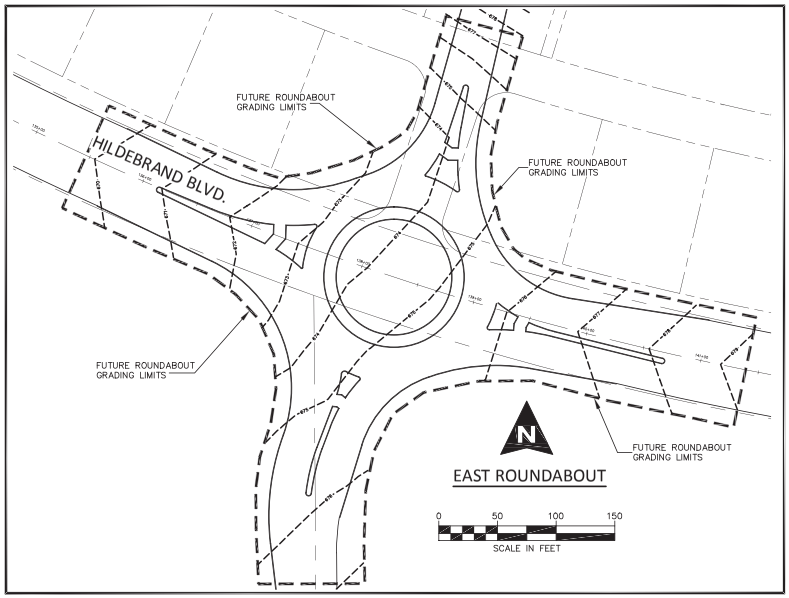
SHEET 1 of 3
JOB# 15-129
DWG# 600-122

Exhibit A-10

SECTION 18, T. 8 N., R. 29 E., W.M.







GENERAL GRADING NOTES

1. PROPOSED CONTOURS SHOWN ON THIS PLAN REPRESENT SUBGRADE. CONTOURS SHOWN ARE AT 1 FOOT VERTICAL INTERVALS.
2. ROUNDABOUT GRADING SHOWN ON THIS SHEET REPRESENTS PRELIMINARY ROUGH GRADING AND IS INTENDED TO SHOW GENERAL GRADING OF THE ROUNDABOUT AREAS. ADDITIONAL GRADING WILL BE REQUIRED FOR CONSTRUCTION.

811
Know what's below.
Call before you dig.
48 HOURS NOTICE REQUIRED

APPROVED
Wes Romine
November 20, 2015

11-4-15

REV.	DATE	DESCRIPTION	BY	APVD
1	11-4-15	REVISED PER CITY REVIEW	SWS	

SPINK ENGINEERING
1445 Jadwin Ave., Suite E • Richland, WA • 509-946-1587 • www.spinkeng.com

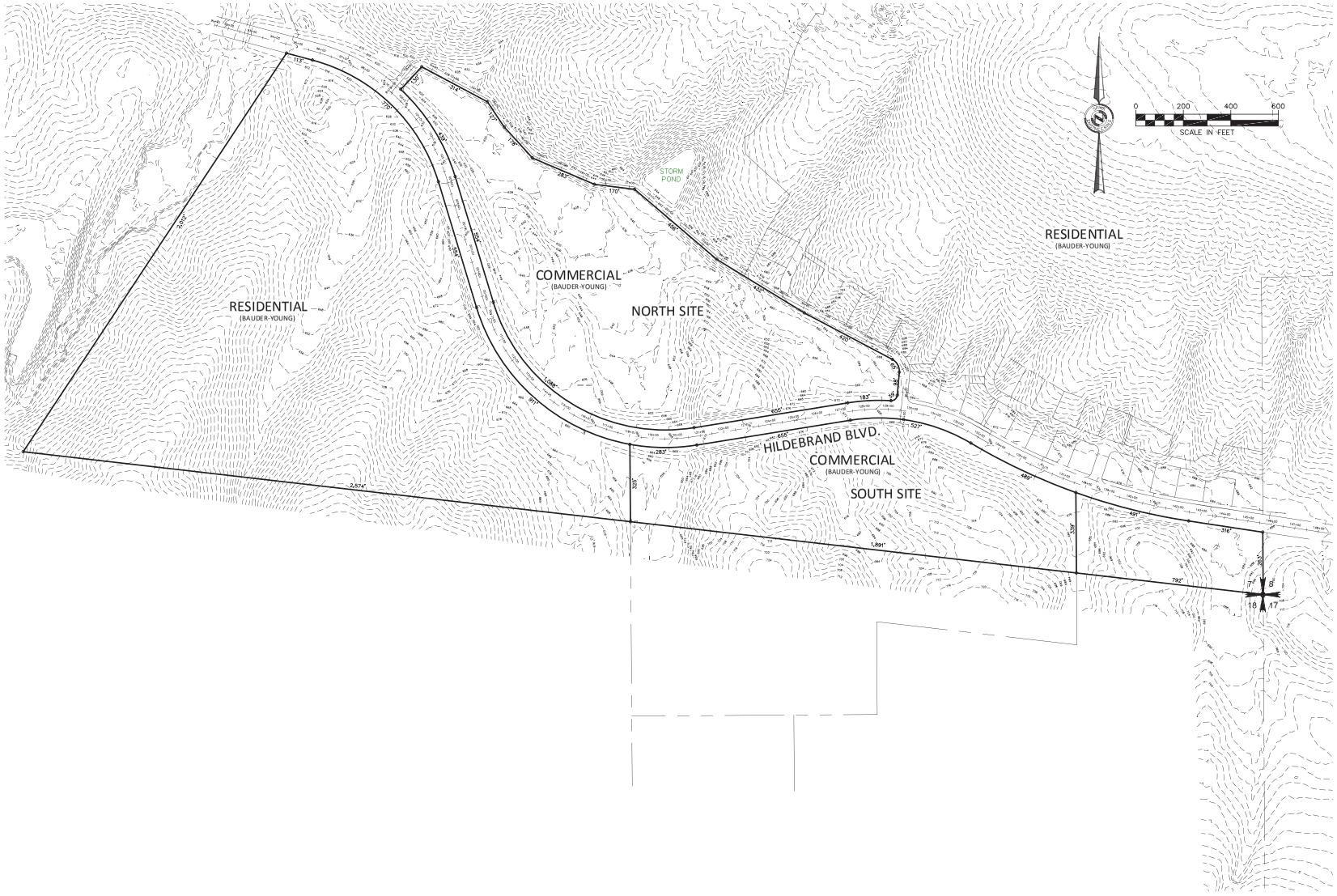
SCALE: AS SHOWN
DRAWN BY: SWS
DESIGNED BY: SWS
APPROVED BY: ARR
FILE: 15129.DWG

BAUDER - YOUNG
ROUNDABOUT AREAS
PRELIMINARY GRADING
SOUTHCLIFFE COMMERCIAL
KENNEWICK WASHINGTON

SHEET 2 of 3
JOB# 15-129
DWG# 600-122

Exhibit A-10

SECTION 18, T. 8 N., R. 29 E., W.M.



Know what's below.
Call before you dig.
48 HOURS NOTICE REQUIRED

APPROVED
Wes Romine
November 20, 2015

11-4-15

REV	DATE	DESCRIPTION	BY	APPD
1	11-4-15	REVISED PER CITY REVIEW	SWS	ARR

SPINK ENGINEERING
1145 Jadwin Ave., Suite E ■ Richland, WA ■ 509-946-1381 ■ www.spinkeng.com

SCALE: AS SHOWN
DRAWN BY: SWS
DESIGNED BY: SWS
APPROVED BY: ARR
FILE: 15129.DWG

BAUDER - YOUNG
PROPERTY DISPLAY
GRADING PLAN
SOUTHCLIFFE COMMERCIAL
KENNEWICK WASHINGTON

SHEET 3 of 3
JOB# 15-129
DWG# 600-122

Development Services Division
210 West 6th Avenue
Kennewick, WA 99336
Phone: (509) 585-4280
cedinfo@ci.kennewick.wa.us

5/6/2021

Nick Wright
1955 Jadwin Ave
Richland, Washington 99354

RE: Parcel Combination: PC 21-04/PLN-2021-01286

Dear Mr. Wright,

The City of Kennewick has reviewed your request to combine the following parcels:
1-0789-401-3622-002
1-0789-400-0001-003

This request to combine the above listed parcels is hereby approved. The following documents must be recorded with the Benton County Auditor's office in order to complete the parcel combination:

- Deeds
- Map or Record Survey

Please be sure to take this letter with you to present at the Auditor's office as proof that the City has approved this boundary line adjustment.

Per Washington State Law (RCW 64.04.050), a tax affidavit is required prior to recording the deeds to complete this Parcel Combination. Both the deeds and the tax affidavit must be stamped by the Benton County Treasurer's office and then recorded with Benton County Auditor's office. Questions regarding the tax affidavits can be answered by the Benton County Treasurer's office (509) 735-8505. Questions about recording documents can be answered by the Benton County Auditor's office (509) 736-2727.

Please return a copy of the recorded documents to the City of Kennewick Development Services Division. No permits will be issued until a copy of the recorded documents is received. This approval will be null and void if documents are not recorded within 180 days of the date of this letter.

Should you have any questions, please feel free to contact me at (509) 585-4416 or matt.halitsky@ci.kennewick.wa.us.

Sincerely,

Matthew Halitsky, AICP
Planner

Attachment: Deeds & Map

cc: file

Exhibit A-10

Feasibility Review Meeting

FEA 21-16 / PLN-2021-00966

Project Description: COMP PLAN AMENDMENT OF MULTIPLE PARCELS

Reviewed By:

Date: 3/31/21

Critical Area:
PIF ZONE: WEST
TIF DISTRICT: 1

Address: SOUTH OF BOB OLSON PARKWAY AT GEORGIA ST

Design Standards: COMMERCIAL **Zoning:** CC, RL, RH

Planning Comments:

1. Multiple applications are not required, but in order to approve the ordinance all proposed amendments would have to be approved. It may be cleaner or submit multiple applications.
2. A boundary line adjustment and rezone applications will need to be applied for after the land use amendments have been approved.

Building Comments:

1. Building has no comments at this time.

Fire Comments:

1. Identify grade percentages on the plans for approval. In accordance with City of Kennewick Engineering Standards, 12% is the maximum grade allowed.
2. In accordance with City of Kennewick Engineering standards, fire hydrants shall be installed at all intersections and shall be spaced an average of 500' along the street. IFC Appendix C
3. All residential lots shall be within 600 feet of two (2) independent egress routes or, residential fire sprinkler system is required to be installed in accordance with NFPA 13d.
4. All structures within 30 feet of a property line adjoining a wild-land area shall have noncombustible siding, soffit, and skirting on the side adjacent to the wild-land area when the wild-land area is in excess of five contiguous acres. This requirement shall not apply to interior lots of platted parcels of land and development phases whose streets are accessible and whose water system is operational.

Public Works Comments:

1. Install utilities on City right of way. When the City of Kennewick (COK) Public Works Department grants approval for an exception, dedication of minimum 15-ft tract will be required. Paved access over the utility within the tract will also require. An easement across private property not permitted.

2. Provide a water comprehensive plan for review and approval before submitting construction drawings for review per KMC 14.10.030.
3. Provide a sanitary sewer comprehensive plan for review and approval before submitting construction drawings for review per KMC 14.22.040.
4. Provide a stormwater comprehensive plan for review per KMC 14.28.045.
5. Include pipe sizes and water zones on proposed water mains and pipe sizes on sewer and storm mains on the comprehensive plans at full subdivision build out for review.
6. Developer will be required to loop all water mains to maintain water quality. Potable water is not available for irrigation purposes. Provide irrigation water to irrigate proposed plat. Contact KID for the locations to connect to existing irrigation lines.
7. Proposed parcels are served by Zone 3 and Zone 4 waterlines with Zone 4 available from Bob Olson waterline extensions and from Apple Valley subdivision from the east.
8. Hydraulic Modeling required after the water comprehensive plans are prepared with construction phasing to analyze the water zones serving proposed development.
9. All plans showing existing water/sewer utilities shall call out the Record Drawing set number that installed such utilities. All shall clearly identify the size and type of water/sewer utility that is being proposed or connected to (i.e. “Existing 8-inch Water”).
10. Design residential sub-divisions to retain and dispose of the calculated difference between a 25-year, 24-hour, event for the developed state and the 24-hour event for the natural pre-developed state. Retention Ponds are preferred method.
11. Stormwater design, construction and post construction per KMC 14.28.045 and COK Standard Specification 5-8.
12. Stormwater design must include erosion control and conveyance of the upstream flow through the project considering as well as overflows at low points and the effects on downstream capacity. We recommend starting in Section 3.1 of the SMMEW.
13. Provide erosion control and site stability notes.
14. Provide compaction test and testing requirements within the right of way meeting COK Standard Specifications section 2-4.02 and 1-13.04
15. Provide storm routing through the subdivision for offsite runoff or show it does not exist
16. This project requires a separate DPW Permit for civil plan reviews with the following:
    a. PDF copy of the Application for Civil Review and Storm Calculations.
    b. One full size (24”x36”) PDF copy of the construction plans.
    c. After project completion, Record Drawings showing improvements made on the property will be required prior to acceptance of the construction permit(s).
17. Kennewick Survey Data Requirements for construction plans and as built drawings:
    a. Construct all projects using current City Survey Data.

For detailed information on Kennewick Survey Data and Record Drawings go to COK website @ https://www.go2kennewick.com/314/Civil-Plan-Review.

Traffic Comments:

KMC 13.16 Transportation Impact Fees

1. The Transportation Impact Fee (TIF) is a one-time charge for direct impacts caused by the traffic generated from the proposed development and used to pay for transportation projects needed to address said impacts. The TIF amendment on June 5, 2018 (effective June 14, 2018) created Traffic Impact Fee Districts, which allows fees to be remitted to projects congruent with the area where the impact is realized.

Traffic Operations

1. A comprehensive Traffic Impact Analysis (TIA) for the overall build-out condition of the development is required. See table below. Please contact the City's Traffic Engineer, Sorin Juster, PE, PTOE, to discuss the scope of the TIA.

Development Level	Trip Generation [a]	Analysis Requirement
Level 1	≤ 30 peak hour trips	None
Level 2	>30 < 100 new peak hour trips	Trip Generation and Distribution Letter
Level 3 [b]	≥ 100 new peak hour trips	Traffic Impact Analysis (TIA) Study

2. Please coordinate with Kennewick School District to include school/pedestrian traffic (if any) in the TIA.

General Comments (to be addresses during the design process)

The proposed Comp Plan Amendment area has significant topographic concerns that could affect the public roadway design and traffic operations. The General Comments below are in no way comprehensive but provided as a guidance only. All applicable COK Standards and codes are applicable.

Proposed Roadway

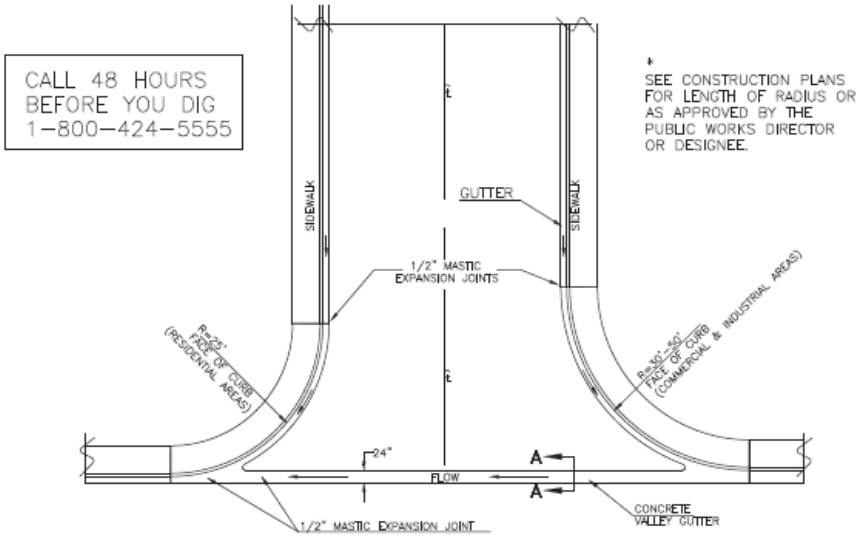
1. Please note that Bob Olsen Parkway is functionally designated Principal Arterial. All connections to Bob Olson Parkway shall meet City requirements and standards for maximum grade and intersection approach criteria.
2. Align all proposed street intersections with existing and approved proposed street intersections. Please note that per KMC 17.20.010(3)(l) below for minimum centerline offsets.

3. Proposed residential driveways accessing directly onto public right-of-way is required to meet COK Design Standards.
4. Please note that KMC 5.56.275(1)'s minimum centerline radius of 200'

5.56.275: - Street Radii and Grade.

(1) Local Streets: Unless otherwise approved by the Deputy Director of Public Works, local streets shall be constructed with centerline radii which meet the following standards. On minor loop streets and cul-de-sac streets, where the street makes a 90-degree plus or minus five-degree turn, the minimum centerline radius shall be 50 feet. On all other minor loop street and cul-de-sac street curves, the minimum centerline radius shall be 150 feet. On all local through streets, other than minor loop streets, as determined by the Deputy Director of Public Works, the minimum centerline radius shall be 200. Unless otherwise approved by the Deputy Director of Public Works, the maximum grade on local streets shall be 12 percent.

5. Please refer to KMC Standard Drawing No. 2-9 for intersection design guidelines.



NOTE: SEE CITY OF KENNEWICK STD. DWG. No.2-12 OR 2-12A FOR WHEELCHAIR RAMP DETAILS AND LOCATIONS.

6. Please refer to the table below for the design rate of vertical curvature, K, values for vertical curves at the proposed roadway design speed.

Table 3-34. Design Controls for Crest Vertical Curves Based on Stopping Sight Distance

Metric				U.S. Customary			
Design Speed (km/h)	Stopping Sight Distance (m)	Rate of Vertical Curvature, K[a]		Design Speed (mph)	Stopping Sight Distance (ft)	Rate of Vertical Curvature, K[a]	
		Calculated	Design			Calculated	Design
20	20	0.6	1	15	80	3.0	3
30	35	1.9	2	20	115	6.1	7
40	50	3.8	4	25	155	11.1	12
50	65	6.4	7	30	200	18.5	19
60	85	11.0	11	35	250	29.0	29
70	105	16.8	17	40	305	43.1	44
80	130	25.7	26	45	360	60.1	61
90	160	38.9	39	50	425	83.7	84
100	185	52.0	52	55	495	113.5	114
110	220	73.6	74	60	570	150.6	151
120	250	95.0	95	65	645	192.8	193
130	285	123.4	124	70	730	246.9	247
				75	820	311.6	312
				80	910	383.7	384

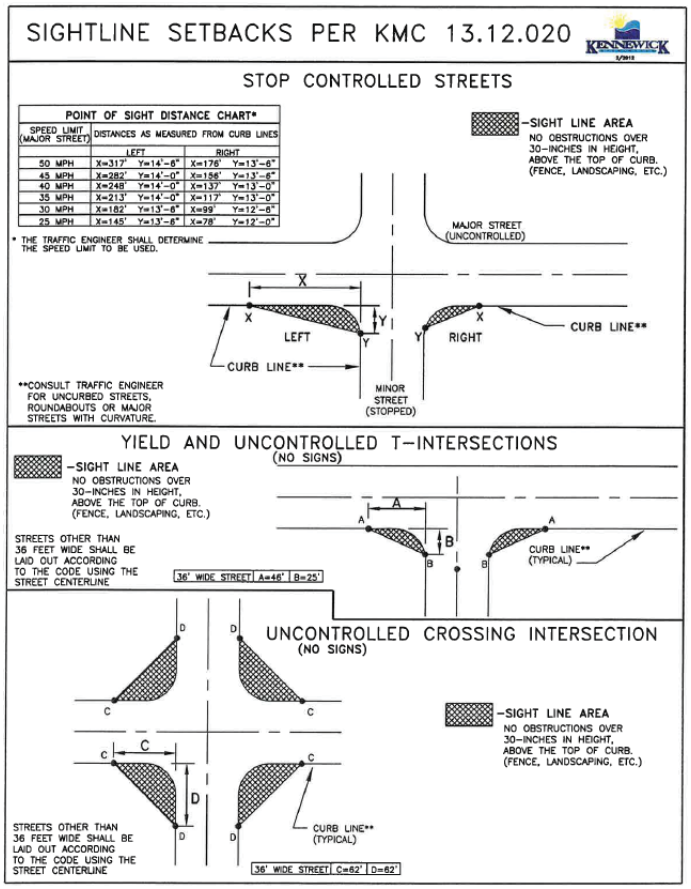
[a] Rate of vertical curvature, K, is the length of curve per percent algebraic difference in intersecting grades (A), K = L/A.

Table 3-36. Design Controls for Sag Vertical Curves

Metric				U.S. Customary			
Design Speed (km/h)	Stopping Sight Distance (m)	Rate of Vertical Curvature, K[a]		Design Speed (mph)	Stopping Sight Distance (ft)	Rate of Vertical Curvature, K[a]	
		Calculated	Design			Calculated	Design
20	20	2.1	3	15	80	9.4	10
30	35	5.1	6	20	115	16.5	17
40	50	8.5	9	25	155	25.5	26
50	65	12.2	13	30	200	36.4	37
60	85	17.3	18	35	250	49.0	49
70	105	22.6	23	40	305	63.4	64
80	130	29.4	30	45	360	78.1	79
90	160	37.6	38	50	425	95.7	96
100	185	44.6	45	55	495	114.9	115
110	220	54.4	55	60	570	135.7	136
120	250	62.8	63	65	645	156.5	157
130	285	72.7	73	70	730	180.3	181
				75	820	205.6	206
				80	910	231.0	231

[a] Rate of vertical curvature, K, is the length of curve (m) per percent algebraic difference intersecting grades (A), K = L/A.

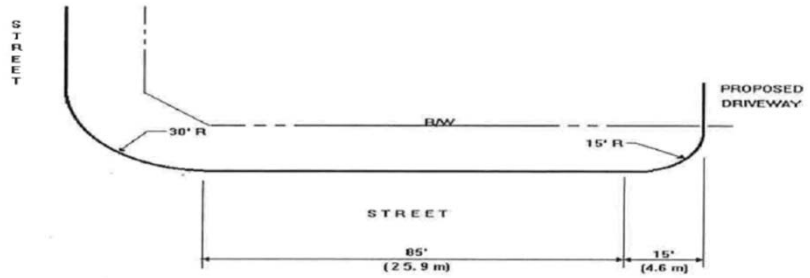
7. Street intersection sightline setback triangles, per KMC 13.12.020(5), are required with no view obstruction between 36 inches and 90 inches above the roadway surface for both sides of the setback triangles, except as allowed in Section 13.12.020(6).



8. Please note that per KMC 17.20.010(4)(d), residential lots shall not have direct driveway access onto arterial or collector streets unless approved by the Traffic Engineer.
9. Please note that corner parcels at public roadway intersections (arterial or collector streets) will need to meet minimum Corner Clearance requirements per KAC 13-46-110.

13-46-110: Corner Clearance: All direct access driveways shall be constructed such that the point of tangency of the curb radius return closest to a signalized or stop-sign controlled intersection be at least 100 feet (30.5 m) from the corner right-of-way of the intersecting street (see figure 10). Access driveway(s), if approved by the Traffic Engineer, that are within 350 feet (107 m) of an existing or planned signalized intersection, or the intersection of arterial and/or collector streets, or major traffic generating access (over 1,000 vehicle per day) may require restricted vehicle movements as documented in a traffic impact study and as determined by the Traffic Engineer.

Figure 10
Minimum Corner Clearance



10. Please note that per KMC 13.04.010, minor/principal arterials/collector have controlled driveway spacing requirement. The proposed development's driveway has to meet minimum spacing, per KAC 13-46.100, between adjacent driveways.

13-46-120: Driveway Spacing: Driveway spacing will be determined as a function of the highway operating speeds. Spacing will be determined according Table 6.

Table 6
Minimum Driveway (Access) Spacing

HIGHWAY OPERATING SPEED	MINIMUM DRIVEWAY SPACING	IDEAL MINIMUM DRIVEWAY SPACING
25 mph (40 km/h)	105 feet (32 m)	-
30 mph (50 km/h)	125 feet (39 m)	185 feet
35 mph (60 km/h)	150 feet (46 m)	245 feet
40 mph (60 km/h)	185 feet (57 m)	300 feet
45 mph (70 km/h)	230 feet (70 m)	350 feet
50 mph (80 km/h)	275 feet (85 m)	-
55 mph (90 km/h)	325 feet (100 m)	-

These spacings are based on average vehicle acceleration and deceleration rates and are considered necessary to maintain safe traffic operation. Spacing will be measured between the ends of each driveway as they intersect the street. In event that a particular parcel or parcels lack sufficient street frontage to maintain adequate spacing the land owner(s) may use one of following two options:

Right of Way and Easement

1. Please note refer to City of Kennewick Standard Drawing 2-1 for Local Streets, 2-3 for Collector, 2-4 for Minor Arterials and 2-5 for Principal Arterials.
2. Dedicate to the City public right of way pursuant to the proposed roadway's functional classification and Kennewick Standard Drawing.
3. Record public sidewalk, utility and irrigation easement along the proposed development's streets and frontages pursuant to the proposed roadway's functional classification and Kennewick Standard Drawing.
4. Please note that if joint/shared driveways are being considered, said driveways will require recorded mutual Access Easement with the AFN shown on the plans.
5. The Civil plans will need to include a signing and striping plan.

American Disability Act (ADA) Compliance

1. Maintain ADA compliant Pedestrian Accessibility Route (PAR) accessibility, continuity and connectivity for all proposed pedestrian facilities within the public right of way and easement, including but not limited to driveways, sidewalks, curb ramps, etc.
2. Due to topographic challenges, provide a proposed sidewalk design concept to maintain ADA compliant driveways for the lots abutting the public roadway.
3. Provide asphalt transition ramps at all proposed sidewalk termini, or match into existing sidewalks for ADA compliance.

Street Lights

1. Due to topographic challenges, provide a proposed lighting plan that would demonstrate street lighting coverage compliant with KMC 5.53, Public Works Construction Standard Chapter 6.

Outside Agency Comments:

It is the applicant's responsibility to contact all outside agencies to insure compliance with applicable regulations of development. Responses have been received from the following agencies:

Exhibit A-10

From: Martin Nelson
Sent: 20 Nov 2015 00:55:18 +0000
To: Wes Romine
Cc: Cary Roe;Bruce Beauchene;Fernando Garcia
Subject: Grade 15-06/PLN-2015-03411

Wes,

Cary is willing to accept item 7 without correction on the November 16th comment letter. He has asked to approve the permit tomorrow, November 20th 2015. Please call me if there are any issues with this approval.

Martin Nelson
City of Kennewick
Public Works
1010 E Chemical Dr.
Kennewick WA, 99336
509-585-4306

From: Martin Nelson
Sent: 20 Nov 2015 20:12:09 +0000
To: Wes Romine
Cc: Cary Roe;Bruce Beauchene;Fernando Garcia;Dan Jacobsen
Subject: PLN-2015-03411 GRADE 15-06

Wes,
In addition to accepting item 7 on the November 16, 2015 Comments Letter without revision, Public Works will allow the Applicant to cross the City's Hildebrand Blvd project corridor to provide fuel for equipment and water for dust abatement. The Applicant will coordinate with the City Engineer or his representative to ensure that any crossing does not implead the City's contract work.

Martin Nelson
City of Kennewick
Public Works
1010 E Chemical Dr.
Kennewick WA, 99336
509-585-4306

MEMORANDUM

Engineering Division of Public Works

To: Wes Romine, Development Services Manager

From: Martin Nelson

Date: November 16, 2015

Re: Public Works Consolidated Comments to Applicants Revision 1

Project: GRADE No. 15-06/PLN-2015-03411

This memorandum includes items from the memorandum dated October 28, 2015 as well as the revised Public Works comments in response to the Applicant's resubmitted plans provided to Public Works on November 9, 2015.

1. Grading can begin no earlier than December 7, 2015 on the west end and no earlier than December 21, 2015 on the east end in order to allow the completion of the current City contract work.

   These conditions above apply with the exception of the area North of Hildebrand Blvd., South of the maintenance road, and East of the proposed ditch. Hildebrand Blvd. shall only be crossed one time to get the equipment to the site. The Applicant shall not interfere or delay the City Contract work along Hildebrand Blvd. or the maintenance road. No work will be conducted within 50 feet of the City roadway project limits without the permission of the City Engineer. This is a condition of the permit approval.

2. All compaction shall be in accordance with the submitted geotechnical report and support current Building Code. This is now shown on plans.

3. The Applicant shall protect any existing rock swales, and utility infrastructure. This is now shown on the plans.

4. Full restoration of any disturbed subgrade, shoulder and ditch work associated with the City's Hildebrand Blvd and adjacent maintenance road project shall be completed no later than February 26, 2016. This is a requirement of permit acceptance.

5. Revise the plans to show subgrade elevations. The current plans show the City's top of asphalt elevations. This is now shown on plans.

6. Plan Sheet 1 of 2, Note 1 - Straw "bales" are difficult to use correctly on their own as the primary sediment control BMP. Provide greater detail on their layout and installation or use another technique. The erosion and sediment control plan is shown on plans.

7. Plan Sheet 1 of 2 - The full property boundary descriptions are not shown on plans. Show angles and curve data.

Public Works Department
1010 S. Chemical Drive * PO Box 6108* Kennewick, WA 99336-0108
509-585-4419 * 509-585-4451 Fax

8. Excavation and compaction quantities are different on the plans, application, and SEPA. Please confirm planned quantity estimate. These values are now revised on the application.

9. The SEPA states that the erosion sediment control will be consistent with Washington State Department of Ecology. Show Erosion Sediment Control type and locations on plans. These locations are now shown the plans. It is the responsibility of the Owner or his representative to insure that erosion and sediment control is maintained and adjusted as needed to manage stormwater runoff and erosion until the project is complete and accepted.

10. Traffic Engineer Comments:

    a. Grades entering/exiting the roundabouts should be 4% or less and 3% or less if at all possible. In general it appears that the roundabout proposals meet this criteria. However, we need one more look after the grading is resubmitted with the subgrade elevations. Grading along Hildebrand should match the City's profile and cross slope all the way to the future 5-lane curb line while roundabout areas outside this envelope should be close enough in elevation to minimize cut and fill for the future grading of a roundabout.
    b. The roundabouts generally should fit in the envelopes shown, however the final design has not been submitted or approved. There will be some instances in final where a second approach lane is added on an approach which also means that a 2nd circulating lane could be added in the roundabout on select legs and there will be subtle tweaks to the approaches that go along with this. Typically, the designs show a 180 foot outside diameter. To allow for final design as needed, the current grading should go out to as far as 195 feet outside diameter. Note the diameter described above is curb to curb for the exterior circle and does not include sidewalks and planter strips which must be graded to meet ADA as well. The current limits of roundabout grading do not account for the potential for a second approach lane. Ultimately a second approach lane may be necessary on all approaches except the southbound approach for the eastern roundabout.
    c. It is important to note that the Center Parkway Roundabout is planned to have right-turn slip lanes for both the northbound Center Parkway to eastbound Hildebrand movement and for the eastbound Hildebrand to southbound Center Parkway movement. These slip lanes are in addition to the basic layout as proposed and should be considered in the grading plan. Work with the Traffic Engineer for design requirements for the slip lanes. The current limits of roundabout grading do not account for the potential slip lanes which may ultimately be required in the future.

APPENDIX VII

ADDITIONAL DOCUMENTATION

Benton County Property Search

Exhibit A-10

Property

Account

Property ID: 298192

Abbreviated Legal Description: REAL PROPERTY SITUATED IN THE CITY OF KENNEWICK, BENTON COUNTY, WASHINGTON, LYING IN THE SOUTHEAST QUARTER AND THE EAST HALF OF THE SOUTHWEST QUARTER OF SECTION 7, TOWNSHIP 8 NORTH, RANGE 29 EAST, W.M. BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS; COMMENCING AT THE SOUTHEAST CORNER OF SECTION 7; THENCE NORTH 83° 26' 01" WEST ALONG THE SOUTH LINE OF SECTION 7 A DISTANCE OF 791.86 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING NORTH 83° 26' 01" WEST ALONG THE SOUTH LINE OF THE SECTION 7 A DISTANCE OF 1891.06 FEET; THENCE NORTH 00° 23' 14" WEST A DISTANCE OF 325.32 FEET TO A POINT ON THE PROPOSED SOUTH RIGHT OF WAY LINE OF HILDEBRAND BOULEVARD SAID POINT BEING A POINT ON THE ARC OF A 831.00 FOOT RADIUS CURVE; THENCE ALONG THE PROPOSED SOUTH RIGHT OF WAY LINE THE FOLLOWING COURSES; FROM A TANGENT BEARING OF NORTH 79° 39' 08" WEST ALONG SAID CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 62° 48' 16" AN ARC DISTANCE OF 910.90 FEET TO A POINT OF TANGENCY; THENCE NORTH 16° 50' 52" WEST A DISTANCE OF 553.59 FEET TO THE POINT OF CURVATURE OF A 757.00 FOOT RADIUS CURVE; THENCE ALONG SAID CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 30° 14' 10" AN ARC DISTANCE OF 399.49 FEET TO A POINT ON A NON-TANGENT LINE SAID POINT BEARS SOUTH 52° 31' 42" EAST A DISTANCE OF 1972.07 FEET FROM THE WEST QUARTER CORNER OF SAID SECTION 7; THENCE LEAVING THE PROPOSED SOUTH RIGHT OF WAY LINE NORTH 42° 54' 58" EAST A DISTANCE OF 203.65 FEET; THENCE SOUTH 61° 54' 57" EAST A DISTANCE OF 313.72 FEET; THENCE SOUTH 33° 42' 17" EAST A DISTANCE OF 126.81 FEET; THENCE SOUTH 42° 20' 25" EAST A DISTANCE OF 177.61 FEET; THENCE SOUTH 67° 00' 36" EAST A DISTANCE OF 283.17 FEET; THENCE SOUTH 82° 52' 43" EAST A DISTANCE OF 170.19 FEET; THENCE SOUTH 49° 36' 23" EAST A DISTANCE OF 455.81 FEET; THENCE SOUTH 58° 34' 11" EAST A DISTANCE OF 431.57 FEET; THENCE SOUTH 62° 07' 52" EAST A DISTANCE OF 456.37 FEET; THENCE SOUTH 05° 07' 26" WEST A DISTANCE OF 159.12 FEET TO A POINT ON THE PROPOSED NORTH RIGHT OF WAY OF HILDEBRAND BOULEVARD SAID POINT BEING A POINT ON THE ARC OF A 831.00 FOOT RADIUS CURVE; THENCE ALONG THE

Exhibit A-10

PROPOSED NORTH RIGHT OF WAY LINE THE FOLLOWING COURSES: FROM A TANGENT BEARING OF SOUTH 84° 52' 34" EAST ALONG SAID CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 25° 36' 13" AN ARC DISTANCE OF 371.35 FEET TO A POINT OF REVERSE CURVATURE WITH A 2463.00 FOOT RADIUS CURVE; THENCE ALONG SAID CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 10° 25' 16" AN ARC DISTANCE OF 447.98 FEET TO A NON TANGENT LINE; THENCE LEAVING THE PROPOSED NORTH RIGHT OF WAY LINE SOUTH 00° 21' 55" EAST A DISTANCE OF 417.71 FEET TO THE SOUTH LINE OF SAID SECTION 7 AND THE POINT OF BEGINNING. (BOUNDARY LINE ADJUSTMENT, AF#2010-037309, 12/16/2010). EXCEPT THAT PORTION FOR ROAD RIGHT OF WAY DESCRIBED AS FOLLOWS: REAL PROPERTY SITUATED IN THE CITY OF KENNEWICK, BENTON COUNTY, WASHINGTON, LYING IN THE SOUTH HALF OF SECTION 7, TOWNSHIP 8 NORTH, RANGE 29 EAST OF THE W.M. BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: A STRIP OF LAND 74.00 FEET WIDE, LYING 37.00 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE; COMMENCING AT THE SOUTHEAST CORNER OF SECTION 7; THENCE NORTH 00° 18' 40" WEST ALONG THE EAST LINE OF THE SOUTH HALF OF SECTION 7 A DISTANCE OF 299.95 FEET TO THE POINT OF BEGINNING OF SAID CENTERLINE; THENCE NORTH 81° 24' 34" WEST A DISTANCE OF 309.85 FEET TO A POINT OF CURVATURE OF A 2500.00 FOOT RADIUS CURVE; THENCE ALONG SAID CURVE TO THE RIGHT, THROUGH A CENTRAL ANGLE OF 22° 08' 13" AN ARC DISTANCE OF 965.90 FEET TO A POINT OF REVERSE CURVATURE WITH A 794.00 FOOT RADIUS CURVE; THENCE ALONG SAID CURVE TO THE LEFT; THROUGH A CENTRAL ANGLE OF 39° 54' 56", AN ARC DISTANCE OF 553.15 FEET TO A POINT OF TANGENCY; THENCE SOUTH 80° 48' 42" WEST A DISTANCE OF 655.44 FEET TO A POINT OF CURVATURE OF A 794.00 FOOT RADIUS CURVE, THENCE ALONG SAID CURVE TO THE RIGHT, THROUGH A CENTRAL ANGLE OF 82° 20' 26", AN ARC DISTANCE OF 1141.07 FEET TO A POINT OF CURVATURE OF A 794.00 FOOT RADIUS CURVE; THENCE ALONG SAID CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 58° 16' 54", AN ARC DISTANCE OF 807.66 FEET TO A POINT OF TANGENCY; THENCE NORTH 75° 07' 46" WEST A DISTANCE OF 100.98 FEET TO THE EASTERLY BOUNDARY OF A PARCEL WHOSE DEED IS RECORDED UNDER AF#2010-007656, RECORDS OF BENTON COUNTY AUDITOR AND THE TERMINUS OF SAID CENTERLINE; SAID TERMINUS BEARS SOUTH 50° 15' 52" EAST A DISTANCE OF 1503.05 FEET FROM THE WEST QUARTER CORNER OF SECTION 7; THE SIDELINES OF THIS STRIP OF LAND SHALL BE LENGTHENED

Exhibit A-10

OR SHORTENED AS NECESSARY TO ABUT THE EAST LINE OF THE SOUTH HALF OF SECTION 7 AND THE EASTERLY BOUNDARY OF A PARCEL WHOSE DEED IS RECORDED UNDER AF#2010-007656, RECORDS OF BENTON COUNTY AUDITOR, TO PROVIDE A UNIFORM STRIP OF LAND 74.00 FEET WIDE; ALSO AN EASEMENT FOR SIDEWALK AND UTILITIES ON EACH SIDE OF THE ABOVE DESCRIBED STRIP OF LAND BEING 52.00 FEET EACH SIDE OF SAID CENTERLINE, EXCEPT THE ABOVE DESCRIBED 74.00 FOOT STRIP OF LAND, CREATING TWO STRIPS OF LAND 15.00 FEET WIDE EACH; THE SIDELINES OF THESE STRIPS OF LAND SHALL BE LENGTHENED OR SHORTENED TO MATCH THE EAST LINE OF THE SOUTH HALF OF SECTION 7 AND THE EASTERLY BOUNDARY OF A PARCEL WHOSE DEED IS REQUIRED UNDER AF#2010-007656, RECORDS OF BENTON COUNTY AUDITOR, TO PROVIDE TWO UNIFORM STRIPS 15.00 OF LAND FEET WIDE EACH; ALSO AN EASEMENT FOR TEMPORARY CONSTRUCTION OF SLOPES ON EACH SIDE OF THE ABOVE DESCRIBED STRIP OF LAND BEING 120.00 FEET EACH SIDE OF SAID CENTERLINE, EXCEPT THE ABOVE DESCRIBED 74.00 FOOT STRIP OF LAND, CREATING TWO STRIPS OF LAND 83.00 FEET WIDE EACH. THE SIDELINES OF THESE STRIPS OF LAND SHALL BE LENGTHENED OR SHORTENED TO MATCH THE EAST LINE OF THE SOUTH HALF OF SECTION 7 AND THE EASTERLY BOUNDARY OF A PARCEL WHOSE DEED IS RECORDED UNDER AF#2010-007656, RECORDS OF BENTON COUNTY AUDITOR, TO PROVIDE TWO UNIFORM STRIPS 83.00 FEET WIDE EACH. (DESCRIPTION CHANGE PER AF#2011-036131, 12/20/2011).

Parcel # / Geo ID:	107894000001003	Agent Code:	
Type:	Real		
Tax Area:	K1 RA1 - Created for the Southridge Revitalization Area	Land Use Code	59
Open Space:	N	DFL	N
Historic Property:	N	Remodel Property:	N
Multi-Family Redevelopment:	N		
Township:	08	Section:	07
Range:	29	Legal Acres:	49.4600

Location

Address:	7641 W HILDEBRAND BLVD KENNEWICK, WA 99337	Mapsco:	
Neighborhood:	KENNEWICK GEN COMM	Map ID:	
Neighborhood CD:	610103GC		

Owner

Name:	BAUDER YOUNG PROPERTIES LLC	Owner ID:	201748
Mailing Address:	859 MEADOW HILLS RICHLAND, WA 99352	% Ownership:	100.0000000000%
		Exemptions:	

Pay Tax Due

Select the appropriate checkbox next to the year to be paid. Multiple years may be selected.

Year - Statement ID	Tax	Assessment	Penalty	Interest	Total Due
2022 - 70810 (Balance)	$95.36	$9.23	$0.00	$0.00	$104.59

Total Amount to Pay: $

*Convenience Fee not included

Exhibit A-10

Taxes and Assessment Details

Property Tax Information as of 05/20/2022

Amount Due if Paid on: NOTE: If you plan to submit payment on a future date, make sure you enter the date and click RECALCULATE to obtain the correct total amount due.

Click on "Statement Details" to expand or collapse a tax statement.

Year	Statement ID	First Half Base Amt.	Second Half Base Amt.	Penalty	Interest	Base Paid	Amount Due
▸ Statement Details							
2022	70810	$104.67	$104.59	$0.00	$0.00	$104.67	$104.59
▸ Statement Details							
2021	71154	$107.35	$107.27	$0.00	$0.00	$214.62	$0.00

Values

(+) Improvement Homesite Value:	+	$0	
(+) Improvement Non-Homesite Value:	+	$0	
(+) Land Homesite Value:	+	$0	
(+) Land Non-Homesite Value:	+	$19,780	
(+) Curr Use (HS):	+	$0	$0
(+) Curr Use (NHS):	+	$0	$0

(=) Market Value:	=	$19,780	
(–) Productivity Loss:	–	$0	

(=) Subtotal:	=	$19,780	
(+) Senior Appraised Value:	+	$0	
(+) Non-Senior Appraised Value:	+	$19,780	

(=) Total Appraised Value:	=	$19,780	
(–) Senior Exemption Loss:	–	$0	
(–) Exemption Loss:	–	$0	

(=) Taxable Value:	=	$19,780	

Taxing Jurisdiction

Owner: BAUDER YOUNG PROPERTIES LLC

% Ownership: 100.0000000000%

Total Value: N/A

Tax Area: K1 RA1 - Created for the Southridge Revitalization Area

Levy Code	Description	Levy Rate	Appraised Value	Taxable Value	Estimated Tax
KENN	KENNEWICK GENERAL	N/A	N/A	N/A	N/A
CNYHMNSVCS	COUNTY HUMAN SERVICES	N/A	N/A	N/A	N/A
CNYVET	COUNTY VETERANS	N/A	N/A	N/A	N/A
COUNTY	COUNTY	N/A	N/A	N/A	N/A
KENNHOSP	KENNEWICK HOSPITAL	N/A	N/A	N/A	N/A
MCLIB	MID-COLUMBIA LIBRARY	N/A	N/A	N/A	N/A
PTKEN	PORT OF KENNEWICK	N/A	N/A	N/A	N/A
SD17	SCHOOL DIST 17 DEBT SERVICE	N/A	N/A	N/A	N/A
SD17CP	SCHOOL DIST 17 CAPITAL PROJECTS	N/A	N/A	N/A	N/A
SD17MO	SCHOOL DIST 17 ENRICHMENT	N/A	N/A	N/A	N/A
STATE	STATE SCHOOL	N/A	N/A	N/A	N/A
STATE2	STATE SCHOOL PART 2	N/A	N/A	N/A	N/A
	Total Tax Rate:	N/A			
				Taxes w/Current Exemptions:	N/A
				Taxes w/o Exemptions:	N/A

Improvement / Building

Property Image

This property contains TIFF images. Click on the button(s) to download the full image (which may contain multiple pages).

Exhibit A-10

Department of Revenue Washington State
Form 84 0001a
Real Estate Excise Tax Affidavit (RCW 82.45 WAC 458-61A)
Only for sales in a single location code on or after January 1, 2020.
This affidavit will not be accepted unless all areas on all pages are fully completed.
This form is your receipt when stamped by cashier. Please type or print.
Check box if the sale occurred in more than one location code.
Check box if partial sale, indicate % ____ with (as percentage of ownership acquired next to each name.
1 Seller/Grantor
Name: Bauder Young Properties LLC
Mailing address: 300 Meadow Hills Drive
City/State/Zip: Richland, WA 99352
Phone (including area code): 509-371-6266
2 Buyer/Grantee
Name: Bauder Young Properties LLC
Mailing address: 300 Meadow Hills Drive
City/State/Zip: Richland, WA 99352
Phone (including area code): 509-371-6266
3 Send all property tax correspondence to: ☒ Same as Buyer/Grantee
Name
Mailing address
City/State/Zip
List all real and personal property tax parcel account numbers | Personal property? | Assessed value(s)
1-0700-01-0000-0002 ☐ $0.00
1-0700-01-0000-0004 ☐ $0.00
☐ $0.00
4 Street address of property: 1900 Bob Olson Place
This property is located in Kennewick (for unincorporated locations please select your county)
☐ Check box if any of the listed parcels are being segregated from another parcel, are part of a boundary line adjustment or parcels being merged.
Legal description of property (if you need more space, attach a separate sheet to each page of the affidavit).
Parcel 1 of Lot 2 of BLA 2020-01 together with that property lying in the south half Southeast quarter and the east half of the south west quarter of Section 7, Township 8 North
5 Select land use code(s)
Enter any additional codes
(see back of last page for instructions)
Was the seller receiving a property tax exemption or deferral under RCW 84.36, 84.37, or 84.38 (nonprofit org., senior citizen or disabled person, homeowner with limited income)? ☐ Yes ☐ No
Is this property predominately used for timber (as classified under RCW 84.33 or 84.34 or agriculture (as classified under RCW 84.34)? ☐ Yes ☐ No
If yes, complete the predominate use calculation (see instructions for section 5).
6 Is this property designated as forest land per RCW 84.33? ☐ Yes ☒ No
Is this property classified as current use (open space, farm and agricultural, or timber) land per RCW 84.34? ☐ Yes ☐ No
Is this property receiving special valuation as historical property per RCW 84.26? ☐ Yes ☐ No
If any answers are yes, complete as instructed below.
(1) NOTICE OF CONTINUANCE (FOREST LAND OR CURRENT USE) NEW OWNER(S): To continue the current designation as forest land or classification as current use (open space, farm and agricultural, or timber) land, you must sign on (2) below. The county assessor must then determine if the land is mainland qualifies to be classified or designated as forest land. If the land no longer qualifies or you do not wish to continue the designation or classification, it will be removed and the compensating or additional taxes will be due and payable by the seller or transferor at the time of sale (RCW 84.33.140 or 84.34.108). Prior to signing (2) below, you may contact your local county assessor for more information.
This land continuance. ☐ Does ☐ Does not qualify for
Deputy assessor signature Date
(2) NOTICE OF COMPLIANCE (FORTHCOMING PROPERTY)
NEW OWNER(S): To continue special valuation as historic property, sign (2) below. If the new owner(s) doesn't wish to continue, all additional tax calculated pursuant to RCW 84.26, shall be due and payable by the seller or transferor at the time of sale.
(2) NEW OWNER(S) SIGNATURE
Signature Signature
Print name Print name
7 List all personal property (tangible and intangible) included in selling price.
NA
If claiming an exemption, list WAC number and reason for exemption.
WAC number (section/subsection) 458-61A-205(2)(a)
Reason for exemption
Business to business sale
Type of document Deed
Date of document 5/10/2021
Gross selling price 0.00
*Personal property (deduct) 0.00
Exemption claimed (deduct) 0.00
*Taxable selling price 0.00
Excise tax state
Less than $500,000.00 at 1.1% 0.00
From $500,000.00 to $1,500,000.00 at 1.28% 0.00
From $1,500,000.00 to $3,000,000.00 at 2.75% 0.00
Above $3,000,000 at 3% 0.00
Agricultural and timberland at 1.28% 0.00
Total excise tax state 0.00
Local 0.00
*Delinquent interest: state 0.00
Local 0.00
*Delinquent penalty 0.00
Subtotal 0.00
*State technology fee 0.00
Affidavit processing fee 10
Total due 10
A MINIMUM OF $10.00 IS DUE IN FEES AND/OR TAX
TAX INSTRUCTIONS
8 I certify under penalty of perjury that the foregoing is true and correct.
Signature of grantee or agent
Name (print) Terri Young
Date & city of signing 5/10/21 Kennewick WA
Signature of grantee or agent
Name (print) Jim Young
Date & city of signing
JUN 14 2021
Pursuant to the second degree is a class C felony which is punishable by confinement in a state correctional institution for a maximum term of five years, or by a fine in an amount fixed by the court of not more than $10,000, or by both such confinement and the fine (RCW 9A.20.021). Tax evasion may also be subject to other penalties.
To ask about the availability of this publication in an alternate format for the visually impaired, please call 360-705-6705. Teletype (TTY) users may use the WA Relay Service by calling 711.
THIS SPACE TREASURER'S USE ONLY
COUNTY TREASURER
EXCISE TAX PAID

Department of Revenue Washington State
Form 84 0001a
Real Estate Excise Tax Affidavit (RCW 82.45 WAC 458-61A)
Only for sales in a single location code on or after January 1, 2020.
This affidavit will not be accepted unless all areas on all pages are fully completed.
This form is your receipt when stamped by cashier. Please type or print.
Check box if the sale occurred in more than one location code.
Check box if partial sale, indicate % ____ with (as percentage of ownership acquired next to each name.
1 Seller/Grantor
Name: Bauder Young Properties LLC
Mailing address: 300 Meadow Hills Drive
City/State/Zip: Richland, WA 99352
Phone (including area code): 509-371-6266
2 Buyer/Grantee
Name: Bauder Young Properties LLC
Mailing address: 300 Meadow Hills Drive
City/State/Zip: Richland, WA 99352
Phone (including area code): 509-371-6266
3 Send all property tax correspondence to: ☒ Same as Buyer/Grantee
Name
Mailing address
City/State/Zip
List all real and personal property tax parcel account numbers | Personal property? | Assessed value(s)
1-0700-01-0000-0002 ☐ $0.00
1-0700-01-0000-0004 ☐ $0.00
☐ $0.00
4 Street address of property: 1900 Bob Olson Place
This property is located in Kennewick (for unincorporated locations please select your county)
☐ Check box if any of the listed parcels are being segregated from another parcel, are part of a boundary line adjustment or parcels being merged.
Legal description of property (if you need more space, attach a separate sheet to each page of the affidavit).
Attached
5 84 - Other undeveloped land
Enter any additional codes
(see back of last page for instructions)
Was the seller receiving a property tax exemption or deferral under RCW 84.36, 84.37, or 84.38 (nonprofit org., senior citizen or disabled person, homeowner with limited income)? ☐ Yes ☐ No
Is this property predominately used for timber (as classified under RCW 84.33 or 84.34 or agriculture (as classified under RCW 84.34)? ☐ Yes ☐ No
If yes, complete the predominate use calculation (see instructions for section 5).
6 Is this property designated as forest land per RCW 84.33? ☐ Yes ☒ No
Is this property classified as current use (open space, farm and agricultural, or timber) land per RCW 84.34? ☐ Yes ☒ No
Is this property receiving special valuation as historical property per RCW 84.26? ☐ Yes ☒ No
If any answers are yes, complete as instructed below.
(1) NOTICE OF CONTINUANCE (FOREST LAND OR CURRENT USE) NEW OWNER(S): To continue the current designation as forest land or classification as current use (open space, farm and agricultural, or timber) land, you must sign on (2) below. The county assessor must then determine if the land is mainland qualifies to be classified or designated as forest land. If the land no longer qualifies or you do not wish to continue the designation or classification, it will be removed and the compensating or additional taxes will be due and payable by the seller or transferor at the time of sale (RCW 84.33.140 or 84.34.108). Prior to signing (2) below, you may contact your local county assessor for more information.
This land continuance. ☐ Does ☐ Does not qualify for
Deputy assessor signature Date
(2) NOTICE OF COMPLIANCE (FORTHCOMING PROPERTY)
NEW OWNER(S): To continue special valuation as historic property, sign (2) below. If the new owner(s) doesn't wish to continue, all additional tax calculated pursuant to RCW 84.26, shall be due and payable by the seller or transferor at the time of sale.
(2) NEW OWNER(S) SIGNATURE
Signature Signature
Print name Print name
7 List all personal property (tangible and intangible) included in selling price.
NA
If claiming an exemption, list WAC number and reason for exemption.
WAC number (section/subsection) 458-61A-205(2)(a)
Reason for exemption
Business to business sale
Type of document Quit Claim Deed
Date of document March 5, 2021
Gross selling price 0.00
*Personal property (deduct) 0.00
Exemption claimed (deduct) 0.00
*Taxable selling price 0.00
Excise tax state
Less than $500,000.00 at 1.1% 0.00
From $500,000.00 to $1,500,000.00 at 1.28% 0.00
From $1,500,000.00 to $3,000,000.00 at 2.75% 0.00
Above $3,000,000 at 3% 0.00
Agricultural and timberland at 1.28% 0.00
Total excise tax state 0.00
0.0000 Local 0.00
*Delinquent interest: state 0.00
Local 0.00
*Delinquent penalty 0.00
Subtotal 0.00
*State technology fee 0.00
Affidavit processing fee 0.00
Total due 0.00
A MINIMUM OF $10.00 IS DUE IN FEES AND/OR TAX
TAX INSTRUCTIONS
8 I certify under penalty of perjury that the foregoing is true and correct.
Signature of grantee or agent
Name (print) Terri Young
Date & city of signing Richland, WA
Signature of grantee or agent
Name (print) Jim Young
Date & city of signing Richland, WA
Pursuant to the second degree is a class C felony which is punishable by confinement in a state correctional institution for a maximum term of five years, or by a fine in an amount fixed by the court of not more than $10,000, or by both such confinement and the fine (RCW 9A.20.021). Tax evasion may also be subject to other penalties.
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THIS SPACE TREASURER'S USE ONLY
COUNTY TREASURER
Print on legal size paper
Page 1 of 2

8/31/21 BLD - REET 4719
Department of Revenue Washington State
Form 84 0001a
Real Estate Excise Tax Affidavit (RCW 82.45 WAC 458-61A) 162170
Only for sales in a single location code on or after January 1, 2020.
This affidavit will not be accepted unless all areas on all pages are fully completed.
This form is your receipt when stamped by cashier. Please type or print.
Check box if the sale occurred in more than one location code.
Check box if partial sale, indicate % ____ with (as percentage of ownership acquired next to each name.
1 Seller/Grantor
Name: BAUDER YOUNG PROPERTIES LLC
Mailing address: 300 MEADOW HILLS
City/State/Zip: Richland, WA 99352
Phone (including area code): 509-943-6011
2 Buyer/Grantee
Name: BAUDER YOUNG PROPERTIES LLC
Mailing address: 300 MEADOW HILLS
City/State/Zip: Richland, WA 99352
Phone (including area code): 509-943-6011
3 Send all property tax correspondence to: ☒ Same as Buyer/Grantee
Name
Mailing address
City/State/Zip
List all real and personal property tax parcel account numbers | Personal property? | Assessed value(s)
1-0700-01-0000-0002 ☐ $ 18,000.00
1-0700-01-0000-0004 ☐ $ 18,700.00
☐ $ 0.00
4 Street address of property: 2021 W. Vineyard Blvd, Kennewick, WA
This property is located in Kennewick (for unincorporated locations please select your county)
☐ Check box if any of the listed parcels are being segregated from another parcel, are part of a boundary line adjustment or parcels being merged.
Legal description of property (if you need more space, attach a separate sheet to each page of the affidavit).
Attached
5 81 - Undeveloped land (land only)
Enter any additional codes: 80 Retail - Other
(see back of last page for instructions)
Was the seller receiving a property tax exemption or deferral under RCW 84.36, 84.37, or 84.38 (nonprofit org., senior citizen or disabled person, homeowner with limited income)? ☐ Yes ☐ No
Is this property predominately used for timber (as classified under RCW 84.33 or 84.34 or agriculture (as classified under RCW 84.34)? ☐ Yes ☐ No
If yes, complete the predominate use calculation (see instructions for section 5).
6 Is this property designated as forest land per RCW 84.33? ☐ Yes ☐ No
Is this property classified as current use (open space, farm and agricultural, or timber) land per RCW 84.34? ☐ Yes ☐ No
Is this property receiving special valuation as historical property per RCW 84.26? ☐ Yes ☐ No
If any answers are yes, complete as instructed below.
(1) NOTICE OF CONTINUANCE (FOREST LAND OR CURRENT USE) NEW OWNER(S): To continue the current designation as forest land or classification as current use (open space, farm and agricultural, or timber) land, you must sign on (2) below. The county assessor must then determine if the land is mainland qualifies to be classified or designated as forest land. If the land no longer qualifies or you do not wish to continue the designation or classification, it will be removed and the compensating or additional taxes will be due and payable by the seller or transferor at the time of sale (RCW 84.33.140 or 84.34.108). Prior to signing (2) below, you may contact your local county assessor for more information.
This land continuance. ☐ Does ☐ Does not qualify for
Deputy assessor signature Date
(2) NOTICE OF COMPLIANCE (FORTHCOMING PROPERTY)
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(2) NEW OWNER(S) SIGNATURE
Signature Signature
Print name Print name
7 List all personal property (tangible and intangible) included in selling price.
NA
If claiming an exemption, list WAC number and reason for exemption.
WAC number (section/subsection) RCW 458-61A-210(1)
Reason for exemption
Grantor and Grantee are the same.
Type of document Quit Claim Deed
Date of document August 5, 2021
Gross selling price 0.00
*Personal property (deduct) 0.00
Exemption claimed (deduct) 0.00
*Taxable selling price 0.00
Excise tax state
Less than $500,000.00 at 1.1% 0.00
From $500,000.00 to $1,500,000.00 at 1.28% 0.00
From $1,500,000.00 to $3,000,000.00 at 2.75% 0.00
Above $3,000,000 at 3% 0.00
Agricultural and timberland at 1.28% 0.00
Total excise tax state 0.00
0.0000 Local 0.00
*Delinquent interest: state 0.00
Local 0.00
*Delinquent penalty 0.00
Subtotal 0.00
*State technology fee 0.00
Affidavit processing fee 0.00
Total due 0.00
A MINIMUM OF $10.00 IS DUE IN FEES AND/OR TAX
TAX INSTRUCTIONS
8 I certify under penalty of perjury that the foregoing is true and correct.
Signature of grantee or agent
Name (print) S. Charles Stowers, Attorney
Date & city of signing 8/31/2021
Signature of grantee or agent
Name (print) S. Charles Stowers, Attorney
Date & city of signing 8/31/2021
Pursuant to the second degree is a class C felony which is punishable by confinement in a state correctional institution for a maximum term of five years, or by a fine in an amount fixed by the court of not more than $10,000, or by both such confinement and the fine (RCW 9A.20.021). Tax evasion may also be subject to other penalties.
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Page 1 of 2

Exhibit A-10

Real Estate Excise Tax Affidavit

Real Estate Excise Tax Affidavit

Real Estate Excise Tax Affidavit

Land

#	Type	Description	Acres	Sqft	Eff Front	Eff Depth	# Lots	Market Value	Prod. Value
1	11	Primary Commercial/Indust Land	49.4600	2154478.00	0.00	0.00	1.00	$19,780	$0

Roll Value History

Year	Improvements	Land Market	Current Use	Total Appraised	Taxable Value
2022	N/A	N/A	N/A	N/A	N/A
2021	$0	$19,780	$0	$19,780	$19,780
2020	$0	$19,780	$0	$19,780	$19,780

Exhibit A-10

Deed and Sales History

#	Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Sale Price	Excise Number
1	11/21/2012	QCD	Quit Claim Deed	BAUDER AND YOUNG PROPERTIES,	BAUDER YOUNG PROPERTIES LLC	2012-037136	12K05043	$0.00	0

Payout Agreement

No payout information available..

Benton County WA

Exhibit A-10

5/20/2022, 11:07:21 AM

Parcels and Assess

City Limits

Kennewick

1:4,514

0 0.04 0.07 0.15 mi

0 0.05 0.1 0.2 km

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Benton County WA, Maxar | Esri Community Maps Contributors, City of Kennewick, State of Oregon GEO, WA State Parks GIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA |

Exhibit A-10

BENTON COUNTY WA PROPERTY SEARCH

Search

Owner	Property Address	Market Value
BAUDER YOUNG	7641 W HILDEBRAND	$19,780.00

Exhibit A-10

Legal Description

REAL PROPERTY SITUATED IN THE CITY OF KENNEWICK, BENTON COUNTY, WASHINGTON, LYING IN THE SOUTHEAST QUARTER AND THE EAST HALF OF THE

Parcel ID	Primary Use Code	Neighborhood Name	Land Size Acres	Tax Code Area
107894000001003	59	KENNEWICK GEN COMM	49.46	K1 RA1

Plat and Survey Lookup

Exhibit A-10

Parcel Value Analysis

Report a Data Issue

Select one of the table headers below to view records ↓

Property Details | Roll Value History | Taxing Jurisdiction Details | Sales & Change of Owne >

Scroll left to right to view additional attributes ↔

Recent Nearby Sales

Click a recent sale below to jump into our web map

Date

12/6/2021
5121 W CANAL DR
KENNEWICK, WA 99336
$1,240,000

6/6/2021
1247 SE COLUMBIA TRL
RICHLAND, WA 99352
$475,000

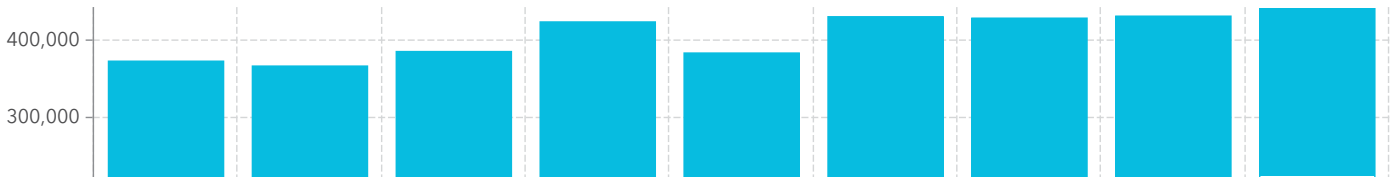
5/27/2021
UNDETERMINED
WA
$149,900

5/17/2021
1200 N IRVING PL
KENNEWICK, WA 99336
$130,571

1 2

Average Home Price

Exhibit A-10



Benton County does not warrant, guarantee, or accept liability for accuracy, precision or completeness of any information shown hereon or for any inferences made therefrom. Any use made of this information is solely at the risk of the user. Benton County makes no warranty, expressed or implied, and any oral or written statement by any employee of Benton County or agents thereof to the contrary is void and ultra vires. The information shown herein is a product of the Benton County Geographic Information Systems, and is prepared for presentation purposes only.

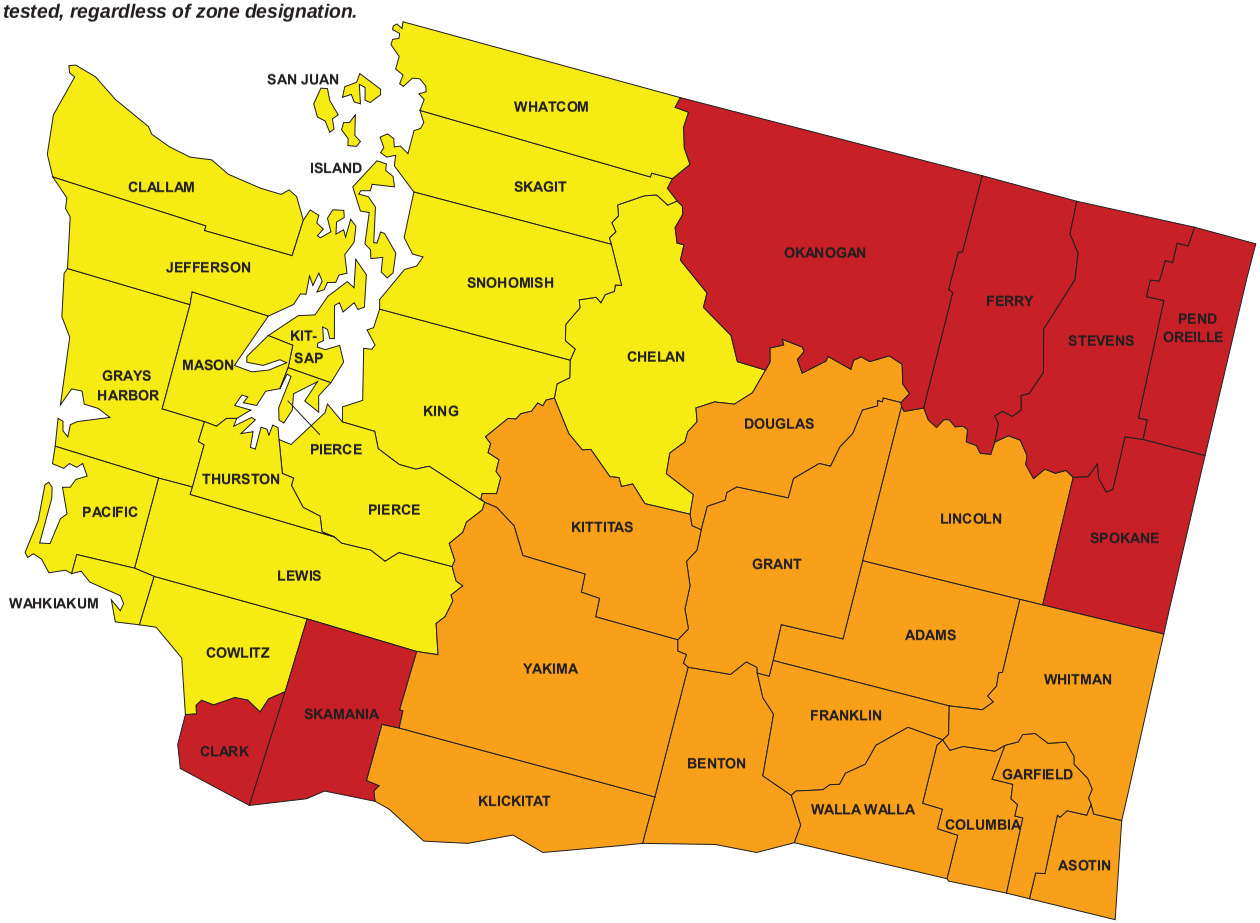
WASHINGTON - EPA Map of Radon Zones

http://www.epa.gov/radon/zonemap.html

The purpose of this map is to assist National, State and local organizations to target their resources and to implement radon-resistant building codes.

This map is not intended to determine if a home in a given zone should be tested for radon. Homes with elevated levels of radon have been found in all three zones.

All homes should be tested, regardless of zone designation.



Zone 1 Zone 2 Zone 3

IMPORTANT: Consult the publication entitled "Preliminary Geologic Radon Potential Assessment of Washington" (USGS Open-file Report 93-292-J) before using this map. http://energy.cr.usgs.gov/radon/grpinfo.html This document contains information on radon potential variations within counties. EPA also recommends that this map be supplemented with any available local data in order to further understand and predict the radon potential of a specific area.

Exhibit A-10

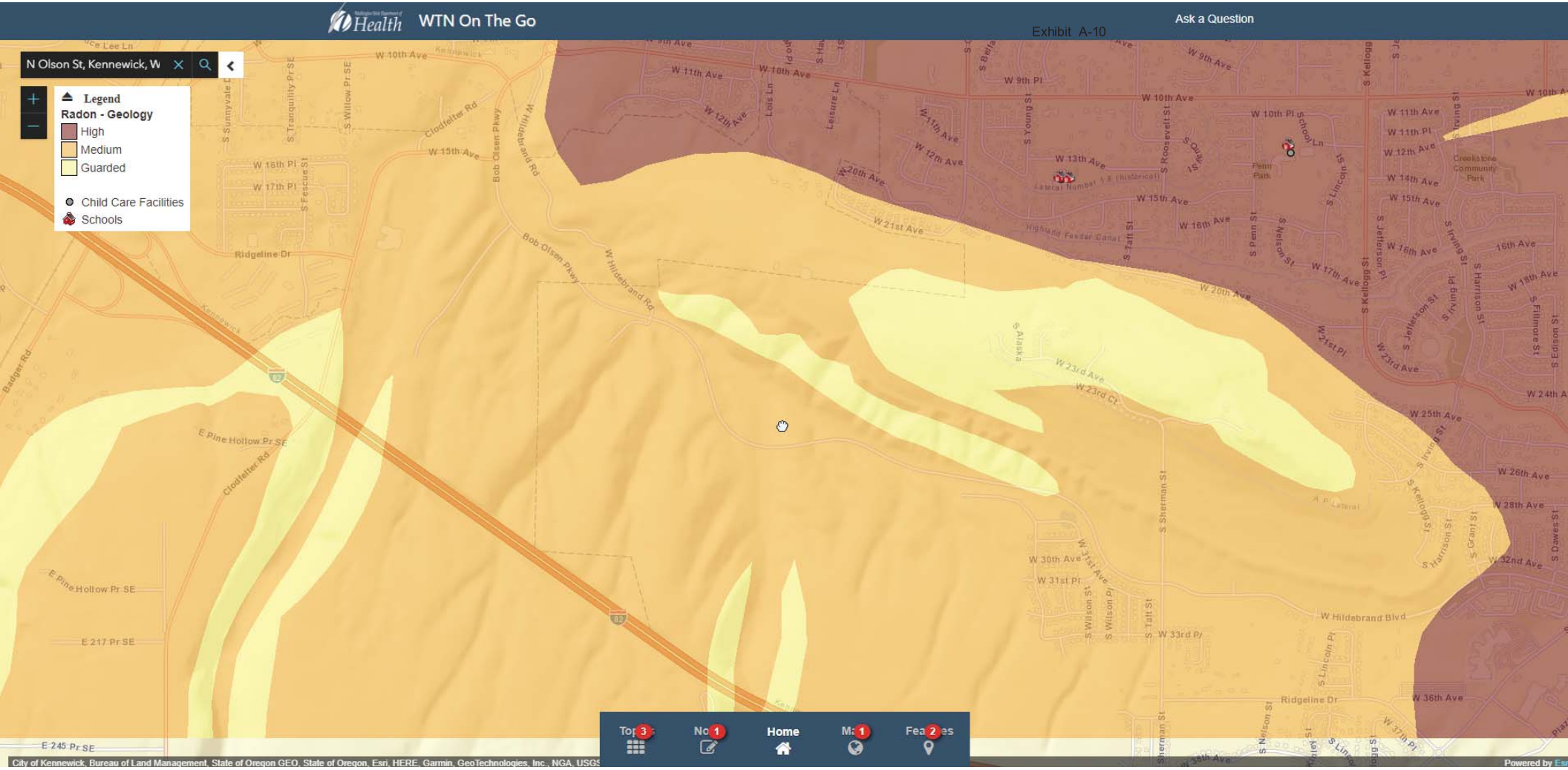
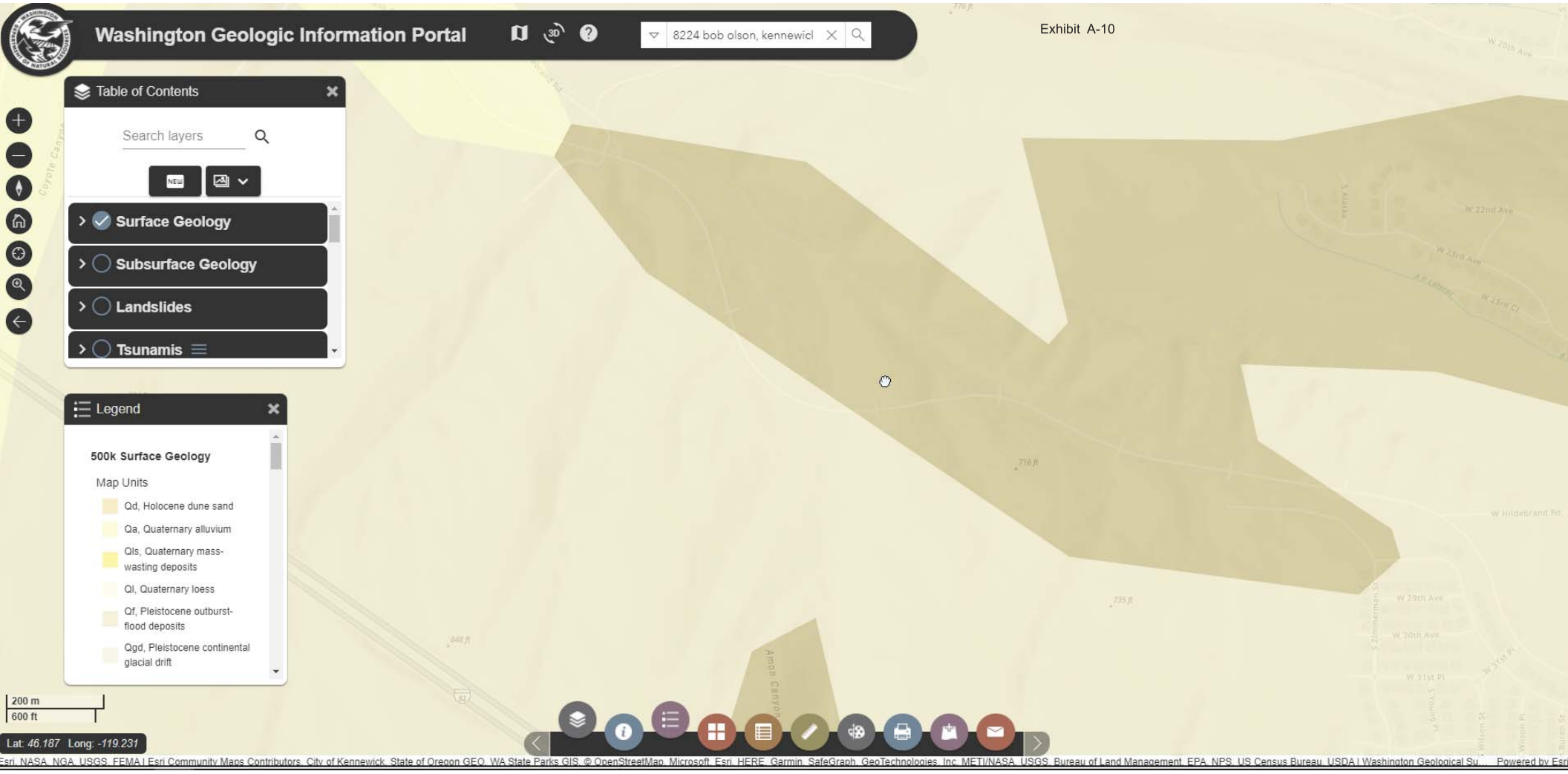

Health
WTN On The Go
Ask a Question
N Olson St, Kennewick, W
Legend
Radon - Geology
High
Medium
Guarded
Child Care Facilities
Schools
W 10th Ave
W 11th Ave
W 12th Ave
W 13th Ave
W 15th Ave
W 16th Ave
W 17th Ave
W 20th Ave
W 21st Ave
W 23rd Ave
W 25th Ave
W 26th Ave
W 28th Ave
W 30th Ave
W 36th Ave
W 9th Pl
W 10th Pl
W 11th Pl
W 12th Pl
W 16th Pl
W 17th Pl
W 21st Pl
W 23rd Pl
W 31st Pl
W 33rd Pl
Clodfelter Rd
Bob Olsen Pkwy
W Hildebrand Rd
W Hildebrand Blvd
Ridgeline Dr
E Pine Hollow Pr SE
E 217 Pr SE
E 245 Pr SE
Badger Rd
S Sunnyvale
S Tranquility Pr SE
S Willow Pr SE
S Fescue St
Lois Ln
Leisure Ln
S Young St
S Roosevelt St
S Taft St
S Penn St
S Nelson St
S Lincoln St
S Kellogg St
S Jefferson St
S Irving St
S Harrison St
S Fillmore St
S Edison St
S Grant St
S Dawes St
S Sherman St
S Wilson St
S Wilson Pl
S Alaska
Penn Park
Creekstone Community Park
Highland Feeder Canal
A P Lateral
Top
Notes
Home
Map
Features
City of Kennewick, Bureau of Land Management, State of Oregon GEO, State of Oregon, Esri, HERE, Garmin, GeoTechnologies, Inc., NGA, USGS
Powered by Esri

Exhibit A-10


Washington Geologic Information Portal
8224 bob olson, kennewicl
Table of Contents
Search layers
Surface Geology
Subsurface Geology
Landslides
Tsunamis
Legend
500k Surface Geology
Map Units
Qd, Holocene dune sand
Qa, Quaternary alluvium
Qls, Quaternary mass-wasting deposits
Ql, Quaternary loess
Qf, Pleistocene outburst-flood deposits
Qgd, Pleistocene continental glacial drift
200 m
600 ft
Lat: 46.187 Long: -119.231
Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, City of Kennewick, State of Oregon GEO, WA State Parks GIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA | Washington Geological Su...
Powered by Esri

National Wetlands Inventory
surface waters and wetlands
ABOUT
GET DATA
PRINT
FIND LOCATION
BASEMAPS
MAP LAYERS
Wetlands
Riparian
Riparian Mapping Areas
Data Source
Source Type
Image Scale
Image Year
Areas of Interest
FWS Managed Lands
Historic Wetland Data
Measure
Exhibit A-10
PFO1C
LEGEND
Wetlands
Estuarine and Marine Deepwater
Estuarine and Marine Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Other
Riverine
Riparian
Forested/Shrub
Herbaceous
1:4,514
46.188 | -119.231
U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov | State of Oregon, State of Oregon GEO, Esri, HERE, Garmin, GeoTechnologies, Inc. | Benton Co...
esri

APPENDIX VIII

RESUMES

efi global

Galina Gamzyakova | Environmental Specialist

5261 West Imperial Highway, Los Angeles, CA 90045 *Office: 310.854.6300 Mobile: 310.343.8775*
galina.gamzyakova@efiglobal.com

Professional Summary:

Ms. Gamzyakova is an Environmental Specialist with approximately three years of experience in environmental consulting, ecosystem restoration, and scientific research industries. Current area of expertise of Ms. Gamzyakova includes preparation and assisting of Phase I Environmental Site Assessments and other limited environmental due diligence products on residential, commercial and industrial types of properties in accordance with ASTM standards, Phase II Environmental Site Assessment fieldwork assistance, and developing health and safety plans.

Areas of Expertise:

- Records Search with Risk Assessments
- Transaction Screen Assessments
- Phase I Environmental Site Assessments project management
- Phase II Environmental Site Assessments fieldwork assistance

Licenses and Certifications:

OSHA 8-Hour HAZWOPER Annual Refresher # 2104155329878, Safety Unlimited, Inc., 2021.

OSHA 40-Hour HAZWOPER, OSHA Training Institute at CSU Dominguez Hills (DH), 2019.

Introduction to Safety and Health Management – OSHA Training Institute at CSUDH, 2019.

Project Experience:

Records Search with Risk Assessment project management – Lending Institution

Provided desktop regulatory databases review and research of historical sources per the scope of work associated with refinance transaction for multi-family residential properties throughout Southern California, including Los Angeles, Orange, Riverside, and San Bernardino Counties, Northern California, and Arizona.

Transaction Screen Assessment project management – Lending Institution
Performed site visits and regulatory databases review for multi-family residential properties per the scope of work of transaction screen assessments for the purpose of refinance and acquisition. One of the projects included expedited one-week deadline, which was successfully met, with provided follow-up support to the client.

Phase I Environmental Site Assessment projects portfolio – Lending Institution

Performed project management and maintained inspection related communications with site contacts for assisted living facilities located in Northern and Southern California, Washington, and Arizona.

Phase I Environmental Site Assessment project management – Conservation Agency

Performed site visits of undeveloped properties in unincorporated areas of Riverside County, agency file reviews, historical records, and regulatory databases review per the scope of work associated with acquisition transactions for environmental conservation purposes.

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Professional Experience:

EFI Global, Inc., Environmental Specialist, Los Angeles, CA, May 2019 – present.
Boreskov Institute of Catalysis, Siberian Branch of the Russian Academy of Sciences, Laboratory Research Assistant, 2006 – 2008.

Education:

Bachelor of Science in Environmental Engineering, Novosibirsk State Technical University, Novosiborsk, Russia, 2008.

Leadership and Community Involvement:

Lightbox (EDR)-Trust Bank Developing Leaders Mentorship Program Graduate, 2021.
The Bay Foundation, Natural Ecosystem Restoration volunteer, April 2019 – present.
Los Angeles Waterkeeper, River Assessment Fieldwork Team member, May 2019 – October 2019.

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Exhibit A-10

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Aaron Hill | Field Professional, AHERA Asbestos Inspector #175668

11 Commerce Way, Suite A, Totowa, NJ 07512 *732-629-7930*

Professional Summary:

Mr. Hill is a senior environmental professional with more than 15 years of experience in environmental engineering and environmental assessment. He has performed numerous Phase I and Phase II ESAs ranging from the simple to the complex. In addition, Mr. Hill has performed airborne mold sampling and asbestos sampling. Mr. Hill is well versed in generally accepted testing methods of mixed media including soil, water, and soil vapor.

The types of ESAs that Mr. Hill has performed include Phase I investigations and due diligence in support of real estate transactions for Government facilities, Heavy and Light Industrial, Multi-Family Housing, Commercial, and Academic Facilities, and investigations of surface and subsurface soil, groundwater and surface water by a variety of chemical contaminants. He is well versed in ASTM E1527-13. Additionally, Mr. Hill has performed numerous ACM and LBP studies on both commercial and residential properties.

Licenses and Certifications:

Asbestos Inspector, AHERA, #175668

Project Experience:

Phase I Environmental Assessment
Pitney Lane, Junction City Oregon, performing a Phase I Environmental Assessment of a multi-family mobile home park to identify any potential and or existing environmental hazards throughout the due diligence process.

Terraphase Engineering, Portland, Oregon
Hazardous Materials Building Survey
Performing a Hazardous Materials Building Survey of a residential and agricultural property in order to identify hazardous materials including asbestos containing materials, lead based paints and or PCB containing materials prior to the demolition of the property.

Phase I Environmental Assessment
2801 Western Avenue, Seattle Washington performing a Phase I Environmental Assessment of a multi-family apartment complex to identify any potential and or existing environmental hazards throughout the due diligence process.

Professional Experience:

A Hill and Associates, Principal Consultant, January 1, 2015 – Present
Terraphase Engineering, Senior Staff, 2019 – Present
Aaron's Inspection Services, Principal Inspector, 2017 – 2019
Applied Consultants, Project Manager, October 1999 – January 2008

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Education:

MBA, Sustainable Business, Dominican University of California, San Rafael, California 2009
BA, Environmental Studies, Naropa University, Boulder, Colorado 1997

Affiliations:

Northwest Association of Environmental Professionals (NWAEP)

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Exhibit A-10

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Brian Brennan | Senior Project Manager | Environmental Services

3870 Murphy Canyon, San Diego, California 92123 *760-473-5695*
brian.brennan@efiglobal.com

Professional Summary:

Mr. Brennan has over 24 years of environmental consulting experience. Mr. Brennan qualifies as an Environmental Professional with experience that includes preparing, reviewing and managing all aspects of Phase I and II Environmental Site Assessment (ESA) in commercial real estate transactions and large-scale commercial and residential developments following ASTM International E1527-13/21 and 40 CFR Part 312 (AAI) guidelines. Mr. Brennan has served as a Senior Project Manager and Director of Environmental Services for both government agencies and private clients. Mr. Brennan is familiar with a wide array of investigative techniques and sampling methods including cone penetrometer testing, groundwater sampling and monitoring, geophysical data interpretation, sub-slab and soil vapor probe installation and sampling, indoor air sampling, and asbestos containing materials (ACMs), lead-based paint (LBP) and universal wastes. He also has experience drilling and installing monitoring, extraction, and injection wells using hollow-stem auger, dual tube air percussion, air rotary casing hammer, sonic, and mud-rotary methods. Mr. Brennan has proven skills in planning, managing and executing all phases of small to large scale projects involving soil, soil gas and groundwater investigation and remediation at sites impacted by petroleum hydrocarbons, heavy metals, pesticides, and chlorinated solvents. Mr. Brennan has managed multiple remediation projects that employ soil vapor extraction, total fluids extraction, vertical and horizontal bio-sparging, and light non-aqueous phase liquids removal. Mr. Brennan's technical skills include developing, maintaining and meeting project scope and financial responsibilities; coordinating and managing professional staff and subcontractors; reviewing and evaluating environmental data and risk assessment; preparing and reviewing technical writing documents; and communicating to senior and junior staff, regulatory agencies and clients. Mr. Brennan is an experienced project manager with the ability to oversee professional staff in multiple disciplines and geographic locations; tracking and maintaining schedules, budgets and deliverables; and maintaining current clients, while conducting future business development and marketing.

Areas of Expertise:

Environmental Due Diligence (Phase I/II ESA)

Site Assessment and Remediation/Mitigation

Risk and Data Evaluation

Property Development

Project Management

Third Party Review

Licenses and Certifications:

OSHA 40-Hour Hazardous Waste Operations Certified OSHA

8-Hour HAWOPER Annual Refresher

Environmental Professional, per the CFR Title 40, Chapter I, Subchapter J, Part 312, Subpart C, Section 312.21

California Registered Environmental Assessor II (REA-II) No. 07920

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Project Experience:

Single/Multi-Family and Affordable Housing Developers.
Environmental Due Diligence and Site Assessment and Remediation
Mr. Brennan provides Senior Project Manager and Director-level technical oversight on various development and redevelopment projects located throughout the United States that involve Phase I ESA, Phase II ESA, hazardous materials surveys, site characterization, remedial planning, remediation and mitigation, remediation oversight. Projects include master-planned communities, affordable and low income housing and ground up construction projects on previously undeveloped, and/or existing commercial and industrial properties. Services also include client representation in CEQA and NEPA proceedings and public participation proceedings.

Various Lending Institutions.
Environmental Due Diligence and Site Assessment and Remediation
Mr. Brennan provides Senior Project Manager and Director-level technical oversight on various projects located throughout the United States that involve Phase I ESA, Phase II ESA, and hazardous materials surveys for local, regional and national lenders. Projects include adaptive reuse of existing historical or other structures for affordable and low income housing and ground up construction projects on previously undeveloped, commercial and industrial properties.

Government Agencies, Western United States.
Environmental Due Diligence and Site Assessment and Remediation
Mr. Brennan has served as a Senior Project Manager for various local, state, and federal government agencies on projects located in the western United States that have involved environmental due diligence, and site assessment and remediation at Brownfields facilities, commercial and industrial properties, and former military facilities.

Former Norton Air Force Base, Building 468 and Air Command Building, San Bernardino, California.
Site Assessment and Remediation
Mr. Brennan served as a Senior Project Manager during site assessment and remediation of a leaking underground storage tank, asbestos containing piping, and site characterization and demolition of structures associated with the former Norton Air Force Base.

Former Leaking Underground Storage Tank Facility, Imperial, CA.
Site Assessment and Remediation
Mr. Brennan served as Senior Project Manager during site assessment and remediation of a former leaking underground storage tank facility that required remedial soil investigation, groundwater injection treatment, routine compliance monitoring, and the design and implementation of a passive sub-slab soil vapor venting system, which resulted in regulatory agency (Colorado River Basin Water Quality Control Board) case closure.

Former Mr. Best Cleaners, Oceanside, CA.
Environmental Due Diligence and Site Assessment and Remediation
Mr. Brennan served as Senior Project Manager during the preparation of environmental due diligence technical reports. Mr. Brennan also designed and implemented a remedial action plan chlorinated solvent-impacted soil and soil vapor. Remediation activities included remedial excavation, passive sub-slab soil vapor venting system, and human risk assessment for a proposed future sensitive use tenant, which was resulted in regulatory agency (County of San Diego Department of Environmental Health and Quality) case closure.

efi global

Court Qualifications/ Depositions:

Superior Court of California, County of Riverside / County of Riverside v. Alvin C. Assink, et al., Case No. RIC 512629, July 16, 2012.
Superior Court of California, County of San Diego / Shirey Falls, LP v. Guadalupe and Evangeline Hernandez, Case No. 37-2014-00006580, October 27, 2015.

Professional Experience:

EFI Global - Environmental Senior Project Manager, 2019-Present
EEI - Director, Environmental Services/Senior Project Manager, 2014-2019
EEI - Senior Project Manager, 2008-2014
EEI - Project Manager, 2004-2008 EEI - Staff Scientist, 2000-2004
United States Department of Interior, Yellowstone National Park, Visitor Use Assistance/Wildland Firefighter/GIS Analyst, 2001
City of San Diego, Parks and Recreation, GIS and Environmental Services, Intern, 1998-2000

Specialized Education:

Geographic Information Systems (GIS), ArcGIS , San Diego State University, 2000
The Groundwater Pollution and Hydrology Course, Princeton Groundwater, Inc., 2003
The Remediation Class, Princeton Groundwater, Inc., 2005
Natural Attenuation, Risk Assessment, and Risk-Based Corrective Action (RBCA) Through Applied Groundwater Modeling, National Groundwater Association (NGWA), 2007
California Environmental Quality Act, University of California, San Diego, 2008

Education:

Master of Science, Environmental Engineering, National University, San Diego, California, 2008
Bachelor of Arts, Geography and Environmental Analysis, San Diego State University, San Diego, California, 2000

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Exhibit A-11

Department of Energy

Bonneville Power Administration
2211 North Commercial Avenue
Pasco, WA 99301

TRANSMISSION SERVICES

June 24, 2022

In reply refer to: CPA-2022-0006
Located within a Portion of Section 7, Township 8 North,
Range 29 East, W.M., Benton County, Washington

Tract Nos.: ABH-14-AR-1P2
Facility/Line Name: Franklin Badger-Canyon No. 1
McNary-Badger Canyon No. 1
Structure Nos. 16/2 and 29/2

Steve Donovan
City of Kennewick
Community Planning/Planner
210 W. 6th Avenue - PO Box 6108
Kennewick, WA 99336

Dear Steve:

Bonneville Power Administration (BPA) has had the opportunity to review CPA-2022-0006. The application is to change 13.76 acres from Commercial to High Density Residential. The property is located at 8224 Bob Olsen Parkway in Kennewick, WA

BPA access road easements are taken with certain restrictions on the underlying land. In order to maintain operation and safety criteria, all activities planned within the BPA easement need to be approved by BPA prior to their occurrence. Activities that block maintenance crews (such as the installation of fences) access to the transmission line (such as buildings, driveways, utilities, or small structures) need to be addressed prior to construction in order to avoid later modification, at the landowner's expense.

The owner will need to submit a land use application and acquire a Land Use Agreement from BPA, along for any portion of the owner's future development plans that will lie within BPA's transmission line or access road easement.

Thank you for the opportunity to review this application. If you have any questions regarding this request or need additional information, please feel free to contact me. I can be reached at (509) 544-4747 or by email at jecottrell@bpa.gov.

Sincerely,

Joseph E. Cottrell II

Joseph E. Cottrell II
BPA Field Realty Specialist

2015 South Ely Street
Kennewick, WA 99337
Customer Service 509-586-9111
Business 509-586-6012
FAX 509-586-7663
www.kid.org

June 15, 2022

Steve Donovan
City of Kennewick/Development Services Division
PO Box 6108
Kennewick, WA 99336

Subject: Review Comments for CPA-2022-0006/SEPA ED-2022-0016

Dear Mr. Donovan:

The Kennewick Irrigation District has received your Comprehensive Plan Amendment and SEPA documents submitted by Ron Wu/Red Tail Multifamily Land Development, LLC, 2082 Michelson, 4th Floor, Irvine, CA 92612, represented by Bob Garrison/Murow Development Consultants, 1151 Duryeah Ave, Irvine, CA 92614, to change the land use designation of 13.76 acres located at 8224 Bob Olson Parkway from Commercial (C) to High Density Residential (HDR).

1. This parcel is within the Kennewick Irrigation District (KID) boundaries, but is not considered irrigable lands; therefore, the Kennewick Irrigation District does not assess them. However, in October of 2014, the KID Board of Directors reserved a water allocation for this property, providing KID the option and ability to become the irrigation purveyor if KID determined it was in the best interest to do so. KID intends to work with the Applicant to provide an allocation of KID irrigation water.
2. Irrigation water is available for this development. An application must be made to KID to obtain the water allocation. Please contact Lori Gibson at lgibson@kid.org for more information and to obtain a "Water Allotment Allocation Application".
    a. This property is within the Southridge Master Plan Benefit Area. Compliance with the Southridge Master Irrigation Facilities Plan and KID Resolution No. 2016-14 will be required if KID irrigation water is used.
        i. Please contact KID Engineering Department for more details and determined connection point.
3. Please note that permanent structures are not allowed within irrigation easements.
4. Please protect all existing irrigation facilities.

If you have any questions regarding these comments, please contact me at the address/phone number listed above.

Sincerely,

Chris D. Sittman
CAD Specialist

cc: LB\correspondence\File 01-08-28
Applicant via mail – Ron Wu/Red Tail Multifamily Land Development, LLC, 2082 Michelson, 4th Floor, Irvine, CA 92612
Bob Garrison/Murow Development Consultants, 1151 Duryeah Ave, Irvine, CA 92614

From: Bob Garrison
To: Marie Mosley; Evelyn Lusignan; Anthony Muai; Steve Donovan
Cc: Grant Young; Teri Hash; Ron Wu; Malcolm Sun; Tyler White; Nick Wright; Kelly Nguyen
Subject: 8/10/22 - Meeting Minutes - 8248 & 8224 Bob Olson Pkwy - CPA"s 2022-0004 & 06
Date: Friday, August 19, 2022 4:39:00 PM
Attachments: Kennewick-8428 & 8224 Bob Olson Pkwy - City Mgr Mtg Mins 081022.pdf
Tri-Cities Business News Apt project brings needed units to Kennewick (Jan 2021).pdf
Tri-Cities Business News Housing Shortage in Tri-Cities (April 2022).pdf
NPR Housing shortages - U.S. News Article (July 2022).pdf

Marie - As a follow up to our meeting with you, Evelyn, Anthony, and Steve on August 10th in which we discussed the City's decision to postpone our CPA's 2022-04 & 06 from the August 15th Planning Commission hearing to October 17th, we are submitting to you and your team our Meeting Minutes that recap the discussions of that meeting. We have also attached articles from the Tri-Cities Business News and NPR that identify the housing shortage in the Tri-Cities area and specifically Kennewick.

We would appreciate it if you would provide these attachments including the Meeting Minutes to the Council Members for their review.

Please let me know if you have any questions or concerns.

Thank you and we look forward to catching up with you in the coming weeks to further discuss.

Bob

Bob Garrison
Director of Consulting Services

1151 Duryea Ave, Irvine, CA 92614
Direct: (949)398-8349 | Cell: (949)648-1525
www.murowdc.com | bgarrison@murowdc.com

Please note our new website and my email address

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MUROW DEVELOPMENT CONSULTANTS

Meeting Minutes
8224 Bob Olson Parkway (CPA 2022-0006) & 8428 Bob Olson Pkwy (CPA 2022-0004), Kennewick, WA
August 10, 2022

Attendees: Marie Mosley (MM), Evelyn Lusignan (EL), Anthony Muai (AM), Steve Donovan (SD) – City of Kennewick; Grant Young (GY), Teri Hash (TH) – Bauder Young (Property Owners); Nick Wright (NW) Property Broker; Ron Wu (RW), Malcolm Sun (MS), Tyler White (TW) – Red Tail Multifamily; Bob Garrison (BG), Kelly Nguyen (KN) – Murow Development Consultants

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BG requested MM to provide reasoning for postponing the above referenced properties (CPA's) from the scheduled Planning Commission hearing on 8/15/22.

MM stated that the Comp Plan Amendment process was set up to look at the entire city comprehensively and specifically to look at Land Use in the future. She went on to say that Council Members had questioned the amount of Commercial land use that was in the CPA process to convert to Residential land use.

MM noted that to support the process a study had been started with a 3rd party consultant to do a report identifying what amount of retail would be needed in the future. MM stated that "the numbers will speak for themselves."

The project team presented slides (Attached) showing the 48 acres of zoned retail, 8 acres on 8428 Bob Olson Parkway, and 40 acres directly across on the south side of Bob Olson Parkway that would still be available should the conversion of 8224 & 8428 Bob Olson Parkway to residential use be approved.

BG/NW noted that both of the above referenced properties have been on the market since 2015 and there have been no actual offers from any commercial developers/businesses. NW went on to note that they rec'd offers from residential developers at a 10 to 1 ratio.

TH stated that the ownership team had marketed aggressively over the years to retail organizations/gatherings to secure offers, none came. TH went on to say that she had worked with the city (Terry Walsh) for several years 2015-2018 in promoting the Bauder Young commercial area to the developer of the Village at Meridian, Fred Bruning of Center Cal. They were very interested in doing a lifestyle mall on 8114 & 8428 Bobb Olson Pkwy, but nothing came of it due to lack of the fundamentals, i.e. demand ("rooftops").

GY stated that there is significant housing demand in the area, and that for retail to occur on these properties, it will take many years for this to happen. BG stated that retail requires rooftops in the area, and what both of the CPA's are proposing would support the 48 acres of retail that would remain should both of these CPA's be approved.

BG requested MM to share the study the City commissioned and MM stated that the study would be presented at a City Council workshop on September 27, 2022 (Tentative Date) and that we could hear of the results at that "workshop". BG noted the City's "workshops" were not open for public comment and therefore not really workshops, MM stated that she understood and noted that the "workshops" were for staff to clarify the direction from PC & CC.

BG asked if there is a possibility these two CPA applications will be pushed into the next cycle. MM shared the City of Kennewick will try their best to come to a decision on CPAs by November 2022 and it will not roll over to the next CPA cycle period.

_source=TCJOB&utm_campaign=CD22)

(https://4aai724b033c18zdidlyy7ing-wpengine.netdna-ssl.com/wp-content/uploads/2022/04/REC-

Developers terrace home sites on the south side of Thompson Hill, near Kennewick's Southridge High School. (Photo by Wendy Culverwell)

GMA is aggravating housing shortage in Tri-Cities, officials say

Wendy Culverwell (https://www.tricitiesbusinessnews.com/author/wendy-culverwell-2/) | April 2022

A young relative asked Jeff Losey if he should wait for the housing market to cool down before purchasing his first home.

Losey, executive director of the Home Builders Association of Tri-Cities, said he advised against waiting.

"The water level is what it is," he said, referring to current home prices. "It's not going to precipitously go down."

Losey, together with Ron Almberg, president of the Tri-City Association of Realtors, provided their insights into what's driving the Tri-City housing market during a recent episode of the Tri-City Development Council's weekly Coffee with Karl Dye program.

What is driving the market? Low interest rates, job creation and population growth. And the 1990 Washington Growth Management Act.

The Federal Reserve may be raising interest rates in a bid to control inflation, but the other factors driving down inventory and driving up demand – and prices – aren't abating, they agreed.

Young and first-time buyers are the hardest hit, but they aren't alone, said Almberg, a designated broker with Keller Williams Tri-Cities when he's not leading the industry association that represents about 850 local real estate professionals.

Older residents looking to downsize into single-level homes have few choices also.

"It's not just first-time home buyers. It's older folks. They're having a challenge too."

Fewer getting built

Losey outlined how builders secured fewer permits for new homes in 2021 than the year prior, not because demand is abating but because buildable lots are scarce in some areas.

Tri-City homebuilders secured permits to construct 1,647 homes in 2021, down 1,695 from in 2020.

He blames Washington's Growth Management Act for making it difficult to expand city limits – and services.

"The GMA is the thorn in the side of every jurisdiction. It's more expensive because you've restricted the supply," he said.

Kennewick housing starts dipped to 238 in 2021, from 290. Losey anticipates a jump in 2022 as work proceeds in the Southridge area as land is prepared along the base of Thompson Hill. A drive along Bob Olson Parkway readily affirms that land is being prepared for future subdivisions.

Pasco saw a dip too and like Kennewick, it is not for lack of demand but rather available lots. When the urban growth boundary is approved, land will be developed.

"We expect that to pick up again," he said.

Richland and West Richland were strong performers thanks to the available lots at Badger Mountain South for the former and Aho Development's Heights at Red Mountain Ranch in the latter.

The numbers

Almberg painted a difficult portrait of the Tri-City residential market for buyers.

The median home price in the Tri-Cities rose to $400,000 by the end of 2021, up 20% from the year prior.

The average list price for a three-bedroom home – the most common sold – was about $369,000 in 2021. Tellingly, three-bedroom homes sold for slightly more than their average asking price, about $374,000 on average.

Agents now advise buyers not to put in offers that are less than full price.

There is a positive aspect, though.

The Tri-Cities is not Seattle, Portland or even Boise, where homes sometimes draw headlines by selling for hundreds of thousands of dollars more than the list price.

Local homes may sell for four figures over asking, but not six.

“Buyers aren’t that desperate,” he said. “They won’t way overpay.”

The price range for homes is on the rise.

A decade ago, most homes sold in the $120,000-$330,000 range. Five years ago, the bottom end shifted up to $160,000. Today, the range is closer to $330,000 to $500,000-plus.

“There’s a huge change,” Almberg said.

Interest rates

With inflation approaching 8% in early April, homebuilders anticipate the Fed will take a series of steps to bring it under control.

Robert Dietz, NAHB’s chief economist, outlined his expectations in his e-newsletter, Eye on the Economy, in March.

“The economic projections provided by the (Federal Reserve) indicate that markets may expect six additional 25 basis-point increases through the end of 2022,” he wrote.

Losey warned buyers – and others – to be mindful that the cost to borrow will go up.

“Absolutely, rates are going up,” Losey said. “If you want to get that pool, you’d better do it now.”

Almberg said when the Federal Reserved approved a rate hike of 0.25 percentage points in March – its first in more than three years – it shaved $40,000 off the buying power of a typical buyer.

Affordability

According to Losey, the Tri-City housing market is increasingly unaffordable.

Only 20% of families in the community have the income to afford a median new home price of $569,000. Statewide, only 24% can.

And he notes that for every $1,000 in added cost in the Tri-Cities, another 80 families are moved out.

That matters a lot to the Tri-Cities, which has traditionally marketed itself as an affordable place to live.

Almberg said one unintended consequence is the community is building out – with people choosing to commute to Tri-City jobs from homes in Prosser, Connell and in his own case, Benton City.

Rising gas prices may dent the trend, but he said he's noticed builders are moving further out. He said he moved to Benton City about seven years ago because he wanted new construction. But the alfalfa field next door now has 42 homes on it.

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Jason Zook of Smile A Mile Painting is developing an infill apartment complex at 3120 W. Fourth Ave., Kennewick. (Photo by Wendy Culverwell)

In-fill apartment project brings needed units to central Kennewick

Wendy Culverwell (https://www.tricitiesbusinessnews.com/author/wendy-culverwell-2/) | January 2021

Jason Zook is best known in the Tri-Cities for Smile A Mile Painting, a residential and commercial painting business with operations in the Tri-Cities and Central Oregon.

Exhibit A-13

Jason Zook

But Zook has a background in construction and has always built projects for himself, something he treats as a hobby.

“I know the steps from the concept on paper to design through sweeping the carpet and making sure all the water is flowing in the right direction,” he said.

His latest project is a three-story, 26-unit apartment project at 3120 W. Fourth Ave. in the heart of Kennewick. Demand drove the investment in the $3.1 million project. The vacancy rate for Kennewick was just 1.2%, according to the most recent survey by the University of Washington’s Runstad Center for Real Estate.

Pasco and Richland were similarly tight, at 0.5% and 1.7%, respectively, for all unit types.

“I have other apartments in town. I’m always getting calls. There’s just a shortage of housing,” he said.

The unnamed Zook project will be the first new multifamily construction in the neighborhood and will offer units at market rates, about $900 to $1,100 per unit.

“I can basically build the newest and nicest in the neighborhood because it’s 2020. Everything else is ’70s and ’80s,” he said in December.

Zook said the property was ready-made for a smallish, no-frills apartment project.

The one-acre property had single-family home on it but was zoned for apartments and had utilities at the site. The city was eager to see denser residential development, he said.

Zook demolished the home and upgraded the utilities to support the added demand.

The project consists of two-bedroom, one-bathroom apartments. Zook said he is targeting the middle market. Units will have laminate flooring, carpeted bedrooms, “nice” cabinets and some hard surfaces.

It is unlike most apartment development in the Tri-Cities, which tends to cater to higher income demographics with riverside locations and luxury touches such as granite countertops and clubhouses with recreational amenities including pools.

Zook said the site is too constrained for a clubhouse. While the project is unsubsidized, he is committed to keeping rents in the midrange.

“We’re really excited about offering a new unit at this level because unfortunately there’s a lot of people out there whose only options are older units,” he said. “Rent has gone through the ceiling for them.”

Exhibit A-13

He is targeting a summer occupancy and is taking reservations now. Zook and his wife intend to hold onto the complex as an investment and will manage it themselves.

Zook grew up building single-family homes with his father in The Redmond/Bend/Madras region of Central Oregon. He began in 2003 and ran into the teeth of the Great Recession a few years later. Bend led the nation for foreclosures when the housing bubble collapsed. Projects dried up so he turned to painting.

There was so much demand from customers wanting to change the color of their homes that he focused on that instead of building.

He has about 20 employees in Redmond and more in the Tri-Cities because it is a larger market.

“We are looking to other markets for expansion,” he said.

Call Preferred Rentals, 509-579-9393, for leasing information.

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ECONOMY

There's a massive housing shortage across the U.S. Here's how bad it is where you live

July 14, 2022 · 5:00 AM ET

CHRIS ARNOLD | ROBERT BENINCASA | JACQUELINE GANUN | HAIDEE CHU

4-Minute Listen

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Contractors work on the roof of a house under construction in Louisville, Ky. A new study shows the U.S. is 3.8 million homes short of meeting housing needs.

Luke Sharrett/Bloomberg via Getty Images

Danielle and Colin Lloyd spent the past year trying to buy a house in Atlanta, which went about as you'd expect these days.

"There is just nothing in this whole area, just nothing," says Danielle. The couple was looking for a place with at least a small yard and space for their three young kids.

"The prices were just ridiculous," says Colin. "People were just bidding much higher than what the house was listed for."

Exhibit A-13

Danielle and Colin Lloyd spent much of the past year looking at homes in Atlanta but couldn't find anything they could afford.

Danielle and Colin Lloyd

"I only cried twice," Danielle chimes in.

Meanwhile, their landlord was about to raise their rent by $450 a month, which also was caused by the same problem — not enough homes to rent or buy.

"We're seeing a shortage, or housing underproduction, in all corners of the U.S.," says Mike Kingsella, the CEO of Up for Growth, which on Thursday released a study about the problem. The nonprofit research group is made up of affordable housing and industry groups.

"America's fallen 3.8 million homes short of meeting housing needs," he says. "And that's both rental housing and ownership."

Sponsor Message

Exhibit A-13

Home prices are up more than 30% over the past couple of years, making homeownership unaffordable for millions of Americans. Rents are rising sharply too. The biggest culprit is this historic housing shortage. Strong demand and low supply mean higher prices.

Part of the problem goes back to the last housing crash, which happened around 2008. After that, many homebuilders went out of business, and economists say we didn't build enough for a decade.

So Up for Growth's study took a look at what's happening in 800 cities and towns.

How severe are housing shortages in your area?

Housing shortages have remained problematic or worsened in hundreds of metro areas around the U.S. in the past decade, according to nonprofit research group Up for Growth.

Search in table

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RANK	METRO AREA	2012-2014 STATUS	2017-2019 STATUS	ESTIMATED AVAILABLE UNITS	<% SHORTAGE	% SURPLUS>
1	Oxnard-Thousand Oaks-Ventura, CA	Shortage	Shortage got worse	31,310 units short	–11%	
2	Laredo, TX	Shortage	Shortage got worse	9,011 units short	–11%	
3	Gainesville, GA	Shortage	Shortage got worse	7,107 units short	–10%	
4	Riverside-San Bernardino-Ontario, CA	Shortage	Shortage got worse	138,137 units short	–9%	
5	McAllen-Edinburg-Mission, TX	Shortage	Shortage but recovering	22,887 units short	–9%	
6	Los Angeles-Long Beach-Anaheim, CA	Shortage	Shortage got worse	392,132 units short	–8%	
7	Brownsville-Harlingen, TX	Shortage	Shortage got worse	11,077 units short	–8%	
8	Miami-Fort Lauderdale-Pompano Beach, FL	Shortage	Shortage got worse	178,592 units short	–8%	
9	Salem, OR	Shortage	Shortage got worse	9,484 units short	–8%	
10	San Jose-Sunnyvale-Santa Clara, CA	Shortage	Shortage got worse	49,582 units short	–7%	
	Washington-					

Exhibit A-13

11	Washington-Arlington-Alexandria, DC-VA-MD-WV	Shortage	Shortage got worse	151,463 units short	–7%
12	Salinas, CA	Shortage	Shortage got worse	8,308 units short	–7%
13	Salt Lake City, UT	Shortage	Shortage got worse	27,851 units short	–7%
14	San Antonio-New Braunfels, TX	Shortage	Shortage got worse	54,812 units short	–7%
15	Modesto, CA	Shortage	Shortage got worse	11,859 units short	–7%
16	East Stroudsburg, PA	Shortage	Shortage got worse	4,094 units short	–6%
17	Portland-Vancouver-Hillsboro, OR-WA	Shortage	Shortage got worse	59,017 units short	–6%
18	Ogden-Clearfield, UT	Shortage	Shortage got worse	12,408 units short	–6%
19	San Francisco-Oakland-Berkeley, CA	Shortage	Shortage got worse	111,445 units short	–6%
20	Kennewick-Richland, WA	Shortage	Shortage got worse	5,347 units short	–6%

"In Los Angeles, for instance, which is the most underproduced metro in the country, it's lacking 8.4% — nearly 400,000 homes missing across the region," Kingsella says. In other words, given the population of Los Angeles, there should be that many more units to meet the demand.

It's not just LA. In hundreds of big cities and small towns, from Boston to Boise, there's a housing shortage. But Kingsella says this is a solvable problem: "It doesn't have to be this way, is a key message coming out of this report."

Perhaps the biggest issue, he says, is that states and towns desperately need to change their zoning rules.

Changing outdated zoning rules is key

In Atlanta, Ernest Brown heads up the local chapter of housing advocacy organization YIMBY Action.

Ernest Brown heads up the Atlanta chapter of YIMBY Action, a housing advocacy organization. He says much of Atlanta is zoned for either big apartment towers downtown or single family homes. "There's nothing in between," he says. "We're really focused on what about those other options."

Ernest Brown

"The YIMBY movement, which stands for 'yes in my backyard,' is kind of poking fun at the idea of NIMBY, 'not in my backyard,'" he says, referring to the long-standing issue of existing homeowners objecting to efforts to bring more affordable housing to their neighborhoods. Often they worry about greater density changing the character of the neighborhood or causing traffic and parking problems.

Brown says many places like Atlanta have outdated zoning rules that allow for either big apartment buildings downtown or single family homes on big lots — and nothing in between. He says that this results in a "missing middle" of more affordable town houses or smaller starter homes closer together.

Brown hears people complaining all the time about not being able to afford a house. He tries to get them to go to zoning meetings and call their representatives.

"They actually want to hear from you, particularly at the local level," he says. Brown says what he likes about the housing issue is that if you get involved, you're not just yelling into the wind about far-off federal politicians in Washington. Big changes have to happen at the state and local levels, he says.

"I have the phone number and regularly chat with my council person."

On this economists agree: We need more housing

There is some debate about just how bad the shortage is in terms of the number of homes the U.S. needs. Mark Zandi, the chief economist of Moody's Analytics, estimates the shortfall is closer to 1.6 million homes. He was not a part of this study.

"It's very difficult to know precisely what the shortage is," Zandi says. "But the bottom line is, no matter what the estimate is, it's a lot of homes that we're undersupplied." And he adds there's no doubt that many more homes need to be built to ensure that housing becomes more affordable, whether it's rental housing or homeownership.

You don't have to convince Andrea Iaroc of that. She works for nonprofit art museums and lived in Seattle for many years, where buying a house has long been very expensive. "It was just too much for me," she says.

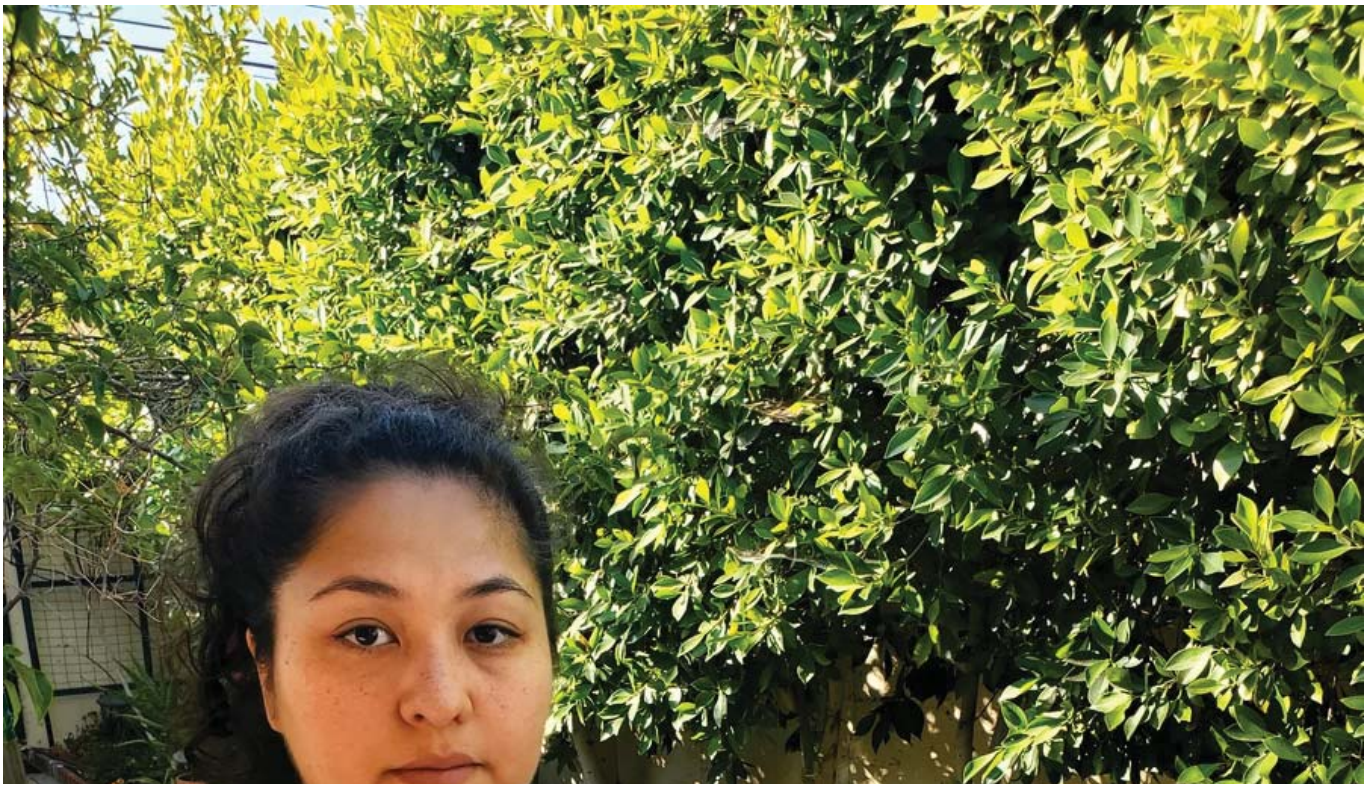

Exhibit A-13

Andrea Iaroc at the home she rents in Los Angeles. She says she may leave the U.S. and move to Colombia, where she has family, so she can afford to buy a house.

Andrea Iaroc

In 2019, she moved to Los Angeles: "I thought, 'OK, let me see what it looks like over here.'" But she still couldn't afford to buy a home. Iaroc has family in Colombia. So now she's seriously considering moving there and trying to work remotely, consulting for museums in the United States.

"I have some of my friends who are digital nomads, and they've done that," she says. "That used to be maybe Plan B. Now it's become Plan A."

Some cities and states are making changes

"I see firsthand the building political will mounting to take on and tackle this challenge," says Up for Growth's Kingsella. He points to California, Oregon and Maine,

Exhibit A-13

which all recently passed laws to end single family zoning by allowing for the construction of more than one home per parcel of land — for example, an in-law apartment over a garage or a backyard cottage. Kingsella expects more states to take similar actions in coming years as one way to help boost the supply of rental units.

Drive until you qualify

In other parts of the country, though, including Atlanta, such zoning reforms are still being voted down.

Danielle and Colin Lloyd did what many Americans have done over the years: look much farther away to find a place they can afford to buy. It's often called "drive until you qualify." And they just bought a house in Walnut Grove, Georgia.

"I told somebody at church, and she was like, 'Oh, my goodness, you all moved to Egypt — you're so far out!'" says Danielle.

The Lloyds finally found a home they could afford in Walnut Grove, Ga., for $409,000. They moved in two weeks ago.

Danielle and Colin Lloyd

It's about an hour from where they used to live and work in Atlanta. They can both mostly work remotely, so they're not too worried about the commute.

They just moved in a couple of weeks ago. And they are feeling a little apprehensive about being an African American family moving from the city into a tiny rural town that is nearly 90% white, according to census data. There's a bit of a culture clash too.

"Moving to country Georgia where there's an ammo shop down the street, it's like a constant in your face," Danielle says.

But the couple says the neighbors seem friendly. There are other families with kids. So they're feeling hopeful.

"I love the idea of like when the kids are a little older saying, 'Yeah, go play at your friend's house.'" Danielle imagines what it will be like watching them run over to the neighbor's place: "I can see them, like, at the corner, you know. 'I'll watch you ride over there,'" she says. "I love that."

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From: Marie Mosley
To: "Bob Garrison"; Evelyn Lusignan; Anthony Muai; Steve Donovan
Cc: Grant Young; Teri Hash; Ron Wu; Malcolm Sun; Tyler White; Nick Wright; Kelly Nguyen
Subject: RE: 8/10/22 - Meeting Minutes - 8248 & 8224 Bob Olson Pkwy - CPA"s 2022-0004 & 06
Date: Thursday, August 25, 2022 8:44:49 AM
Attachments: image001.png
image002.png
image008.png

Thank you Bob for asking to meet with City staff on August 10th. I wasn't aware that you were taking meeting minutes, but rather I had the impression that this was an informal meeting to discuss the City's Comprehensive Plan Amendment Annual Update process. I want to clarify that the meeting minutes you have provided are your meeting minutes, not our meeting minutes or the collective group meeting minutes. I appreciate your attempt to capture the essence of our meeting, however I do not believe these capture our entire discussion.

I agreed to meet with you to discuss the role of staff in the Comprehensive Plan decision making process that will ultimately result in a recommendation that Staff will make to the Planning Commission. It is important for the City to review the overall land use in a comprehensive manner, in an effort to provide the appropriate mix and location of land use at this time and into the future for our community. As we mentioned, staff will make a recommendation to the Planning Commission. The Planning Commission will then hold the required public hearing where you will have an opportunity to present your proposal and rationale to the Planning Commission. The Planning Commission will ultimately make a recommendation to the City Council. The City Council will review all the information and then make a decision regarding the Comprehensive Plan proposed amendments.

We have appreciated working closely with Teri, Grant and Nick for many years as they have been developing in the Southridge area. They, (along with several other developers) and the City worked together on an agreement that led to the design, funding and construction of Bob Olson Parkway. We have also coordinated with them on potential opportunities and discussed how we can help implement the vision for the Southridge area, which included a mix of Commercial and Residential development. In an effort, and in partnership with developers to implement the vision, the City has invested millions of taxpayer dollars in some of our main arterials (Clearwater/Bob Olson Parkway) and it is important that we take the time to do the due diligence our community and Council would expect. One of the reasons staff is recommending that your CPA (along with a few others) be postponed is to conclude the third party study relating to Commercial Land Use in our City. Until we review the results of the study, we cannot make an informed recommendation on the CPA's that propose moving Commercial to Residential land use adjacent to these major arterials. I appreciate your understanding of City staff's role and responsibility in the Comprehensive Plan Annual Amendment update process.

Marie Mosley
City of Kennewick
City Manager
O: 509.585.4238 | C: 509.440.3994
marie.mosley@ci.kennewick.wa.us

From: Bob Garrison <bgarrison@murowdc.com>
Sent: Friday, August 19, 2022 4:38 PM
To: Marie Mosley <Marie.Mosley@ci.kennewick.wa.us>; Evelyn Lusignan <Evelyn.Lusignan@ci.kennewick.wa.us>; Anthony Muai <anthony.muai@ci.kennewick.wa.us>; Steve Donovan <Steve.Donovan@ci.kennewick.wa.us>
Cc: Grant Young <granteyoung@gmail.com>; Teri Hash <yourkeytohomes@gmail.com>; Ron Wu <Rwu@rtacq.com>; Malcolm Sun <Msun@rtacq.com>; Tyler White <twhite@rtacq.com>; Nick Wright <nwright@younginv.com>; Kelly Nguyen <knguyen@murowdc.com>
Subject: 8/10/22 - Meeting Minutes - 8248 & 8224 Bob Olson Pkwy - CPA's 2022-0004 & 06

Marie - As a follow up to our meeting with you, Evelyn, Anthony, and Steve on August 10th in which we discussed the City's decision to postpone our CPA's 2022-04 & 06 from the August 15th Planning Commission hearing to October 17th, we are submitting to you and your team our Meeting Minutes that recap the discussions of that meeting. We have also attached articles from the Tri-Cities Business News and NPR that identify the housing shortage in the Tri-Cities area and specifically Kennewick.

We would appreciate it if you would provide these attachments including the Meeting Minutes to the Council Members for their review.

Please let me know if you have any questions or concerns.

Thank you and we look forward to catching up with you in the coming weeks to further discuss.

Bob

Bob Garrison
Director of Consulting Services

1151 Duryea Ave, Irvine, CA 92614
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www.murowdc.com | bgarrison@murowdc.com

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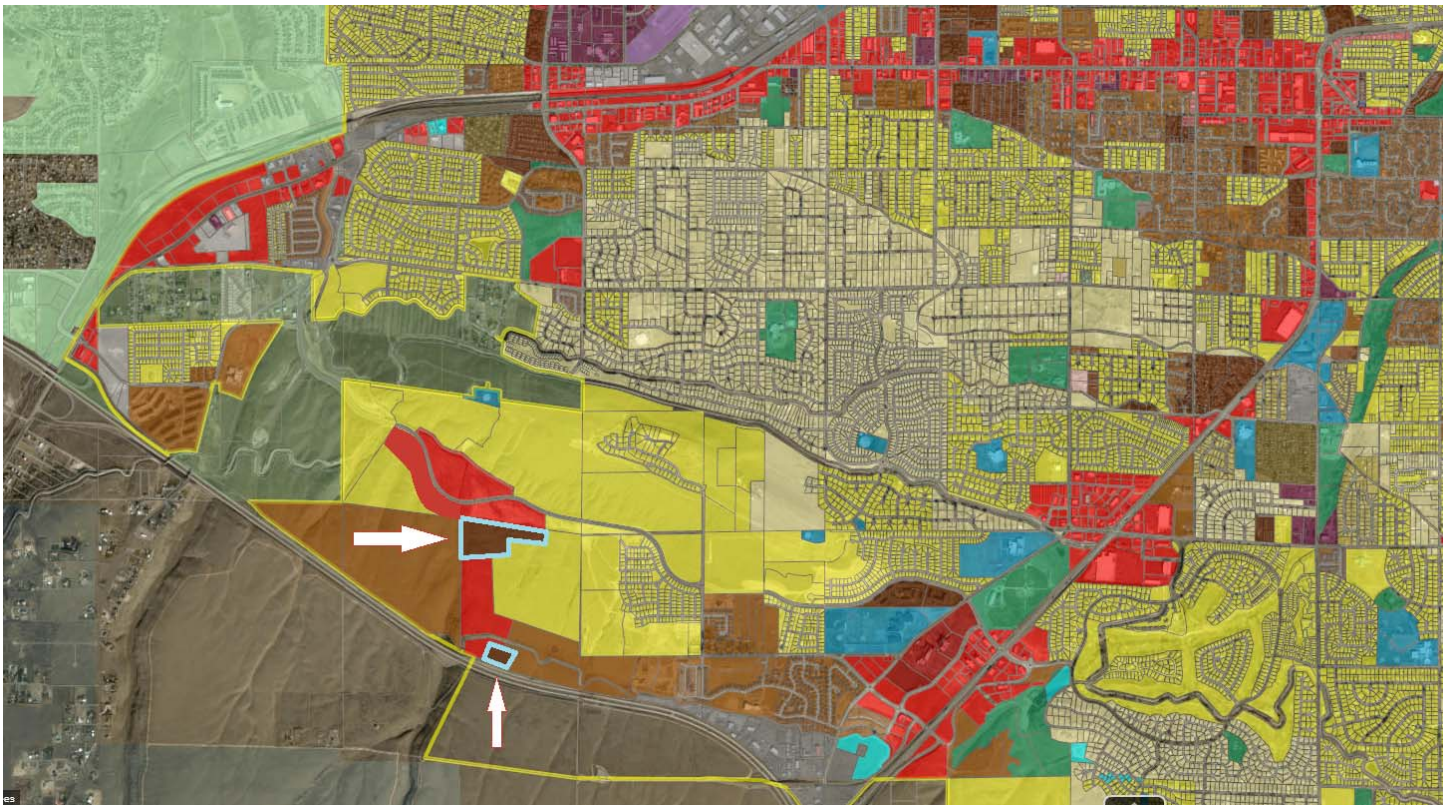
Steve Donovan

From: Nick Wright <nwright@younginv.com>
Sent: Thursday, August 25, 2022 8:10 AM
To: Bob Garrison
Cc: Marie Mosley; Evelyn Lusignan; Anthony Muai; Steve Donovan; Grant Young; Teri Hash; Ron Wu; Malcolm Sun; Tyler White; Kelly Nguyen
Subject: Re: 8/10/22 - Meeting Minutes - 8248 & 8224 Bob Olson Pkwy - CPA's 2022-0004 & 06

Marie,

I would also like to follow up on Bob's email. Per our investigation into the City's zoning map, it appears that there are only two undeveloped parcels in the entire City of Kennewick that are zoned high density residential, totaling 29.5 acres. (See the map below – parcels are highlighted in blue). As you can see, both of these parcels are currently landlocked and the intent of the property owners is unclear.



In researching the MLS, I have found only one listing for multi-family land in Kennewick: a 4.5 acre *medium density* parcel near the Canyon Lake area (max 13 units per acre). We strongly believe that demand far outstrips supply of multi-family parcels, while the opposite is true of commercial parcels.

As you will see in the articles that Bob sent you (I have reattached them for your convenience), there is a huge housing shortage in Kennewick - we hope that staff and the City Council will not only take a look at available commercial land, but also focus on the extraordinary demand for residential dwellings in the coming years. And given municipalities' focus on preventing urban sprawl, we're confident the two rezone applications we have pending with Kenniwick are consistent with the long-term interest of the City.

Thanks again for your consideration Marie. We hope this information will be shared to Council alongside the commercial land report. Thanks!

N I C K W R I G H T
Young Asset Management LLC
Kelly Right Real Estate

nwright@younginv.com
younginv.com
Phone: *509-845-9411*

On Wed, Aug 24, 2022 at 3:27 PM Bob Garrison <bgarrison@murowdc.com> wrote:

Marie - Good afternoon and I hope all is well. I am following up with you on the email I sent you last Friday (see email chain below) to make sure that you rec'd it.

Please let me know, thank you,

Bob

Bob Garrison
Director of Consulting Services

MUROW DEVELOPMENT CONSULTANTS

1151 Duryea Ave, Irvine, CA 92614
Direct: (949)398-8349 | Cell: (949)648-1525
www.murowdc.com | bgarrison@murowdc.com

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On Fri, Aug 19, 2022 at 4:37 PM Bob Garrison <bgarrison@murowdc.com> wrote:

Marie - As a follow up to our meeting with you, Evelyn, Anthony, and Steve on August 10th in which we discussed the City's decision to postpone our CPA's 2022-04 & 06 from the August 15th Planning Commission hearing to October 17th, we are submitting to you and your team our Meeting Minutes that recap the discussions of that meeting. We have also attached articles from the Tri-Cities Business News and NPR that identify the housing shortage in the Tri-Cities area and specifically Kennewick.

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Bob Garrison
Director of Consulting Services

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Leading the Way

MEMORANDUM

DATE: October 10, 2022

TO: Kennewick Planning Commission

FROM: Emily Estes-Cross, Economic Development Director

SUBJECT: CPA-2022-0001, CPA-2022-0004, and CPA-2022-0006

This evaluation of Comprehensive Plan Amendments CPA-2022-0001, CPA-2022-0004, and CPA-2022-0006 is comprised of economic implications and a commercial land constraint analysis generalizable to all three proposed amendments, and concludes with comments specific to each site.

Should commercial growth occur as projected through 2040, a meager surplus of 62 acres of commercially zoned and 33 acres of industrially zoned land demonstrates a land constraint vulnerability for City of Kennewick economic development objectives. Redesignation of current employment lands, parcels used for commercial industries that contribute to our economy and accommodate jobs, will limit development opportunities in the City of Kennewick.

An Employment Lands Inventory (ELI) (attached) used to inform future infrastructure investment and make data-driven decisions on zoning and land use, shows Kennewick will need 552 acres of commercial land and 426 acres of industrially zoned land to accommodate commercial growth through 2040. Demand projections are based on historical trends in the Tri-Cities Metropolitan Statistical Area (MSA), indicating Kennewick's employment will increase by 14,000 jobs between now and 2040. Facility square footage and land acreage to accommodate growth is unique to each industry (healthcare, retail, professional services, manufacturing, etc.)

According to the developable lands analysis contained in the ELI, as of September 2022, Kennewick has a commercial land supply of 614 acres and an industrial land supply of 459 acres. Commercial land supply is calculated by adding 667 acres vacant and 72 acres underutilized commercially zoned land, reduced by a market factor rate of 15% for vacant and 35% for underutilized land (land remains undeveloped due to market factors outside of the city's control). Industrial land supply is based on 492 vacant and 63 acres underutilized industrial zoned land, reduced by the same market factor rates. Reducing the projected surplus

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Leading the Way

of 62 acres commercially zoned and 33 acres of industrially zoned land prematurely restricts target industry recruitment possibilities through 2040.

Several factors drive recruitment of target industries. First, we seek out the services our citizens and existing business want or need, which have also been identified as gaps in neighborhood or marketplace services. For instance, citywide needs include daycare centers for current residents and the 3,380 units approved through the pre-plat process. As residential units develop to the west and commercial follows, gaps in grocery stores and neighborhood amenities are evident. Facilitated by West Clearwater Avenue and Bob Olson Parkway, neighbors in west Kennewick have easy access to Richland for the purchase of needed services, resulting in economic leakage. A second factor of marketability is the number of completed and occupied residential units and the mix of complimentary industry that motivate a business to locate. Grocery stores, for example, will not break ground on speculation of development.

A third and significant commercial recruitment consideration is availability of properly zoned property and access to infrastructure. To locate or expand, prospective businesses seek commercially-designated land with existing access and visibility from primary arterials, in proximity to utility connections, and accessible by multimodal transportation. While the City of Kennewick invests in such infrastructure to plan for and accommodate commercial growth, it's under the premise the ongoing maintenance costs of roads, utilities, and greenways will be offset by retail sales tax generated.

While housing is also undoubtedly recognized as supportive to economic development, redesignating commercial zoning to residential is potentially trading one problem for another. A rental housing market study conducted in March 2022 showed the Tri-Cities regional vacancy rate has remained below 5% since 2017, and was 3.6% as of first quarter 2022. The market vacancy is forecast to increase to 4.0% in 2023 considering the moderate number of new multifamily projects in the development pipeline (317 traditional units and 700 micro units), and does not consider construction of single family homes. Rezoning the commercial land intended to support jobs and services for residential development reduces the opportunities and access to quality of life amenities for the workforce we're recruiting and endeavoring to retain in Kennewick. Comprehensive housing solutions that don't involve creating a shortage of commercial employment lands to the long-term detriment of the economy should be sought. Furthermore, the City's threshold for eliminating employable lands as a precedent for future Comprehensive Plan Amendments should be considered.

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CPA-2022-0001

The proposed amendment to change the land use designation of 25.41 acres from Commercial to High Density Residential at 11358 W. Clearwater Avenue would hamper economic development efforts to attract a grocery store and neighborhood services to support existing households and 1,961 residential units in the pipeline west of Highway 395 and north of 10th Avenue, in the proximity of West Clearwater. Aside from Costco, which requires a membership, the closest grocery store is in Richland. Retail sales tax generated in Richland does not support City of Kennewick infrastructure. Furthermore, if the amendment is approved, the less than 10 contiguous acres of commercially zoned land remaining in the vicinity would limit development opportunities.

CPA-2022-0004 and CPA-2022-0006

Combined, the proposed amendments at 8428 Bob Olson Parkway (11.29 acres of Commercial) and 8224 Bob Olson Parkway (13.76 acres of Commercial) to High Density Residential is problematic for two reasons. First, rezoning 25 acres of 30 undeveloped acres fronting a major arterial significantly eliminates the likelihood of attracting a lifestyle development (grocery, restaurant, and daily services) for nearby residential neighborhoods, a consideration in the original commercial zoning designation of the 30-acre swath. Approval of the amendments would prematurely reduce the citywide inventory of large contiguous parcels with existing access for sizeable commercial development opportunities through 2040.

Second, the City expanded its original conception of Bob Olson Parkway from a 2-lane to 4-lane road, and invested in 9 linear miles of greenway to attract frontage commercial development, under the premise retail sales tax generated would help offset ongoing maintenance costs. With existing homes and an additional 1,028 residential units in the pipeline west of Highway 395 and south of 10th Avenue, neighbors are being pushed to Richland to purchase services. The result is economic leakage with no cost recovery for the ongoing irrigation, vegetation management, and care of more than 600 trees along Bob Olson Parkway.

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Exhibit A-16

City of Kennewick Employment Lands Inventory

Economic Development Strategic Plan

October 11, 2022

Prepared by:

CAI
COMMUNITY ATTRIBUTES INC

Prepared for:

KENNEWICK WASHINGTON

FINDINGS & IMPLICATIONS

This Employment Lands Inventory (ELI) analyzes key conditions for development opportunities in the City of Kennewick. Findings from the ELI will complement the Existing Conditions and Landscape Assessment to support the framework for a future Economic Development Strategic Plan. Findings from the ELI are described below.

General Findings

- A significant portion of employment lands in Kennewick have some level of development capacity (from 37-42%). However, nearly two-thirds of this developable land is located in peripheral areas outside of downtown and does not fall in Kennewick's two federally-designated opportunity zones. (**Exhibits 8 & 9**)
- Kennewick's developable land is comprised of a mixture of large, vacant parcels or large aggregations of vacant parcels near the eastern, southern, and western City limits, while there are smaller vacant, partially vacant, or underutilized sites around Vista Field, the West Highlands, Downtown, and along SR-395. (**Exhibit 7**)
- An assessment of employment land demand based on an increased capture of regional growth in certain target industries found that there is a 95 acre surplus of developable employment land supply that is sufficient to meet the estimated demand for the period 2020-2040 for both commercial and industrial use (**Exhibit 15**).

Business Development

- The distribution of developable land across different zoning categories has implications for the ability to attract certain target industries. For instance, the majority of employment land development capacity is commercial- or mixed-use-zoned (57%) (**Exhibit 10**). This may limit the extent to which certain industrial and production uses could be attracted to the area. The draft landscape assessment indicates that the city and its regional partners primarily target production industries that rely on industrial sites: energy, food processing, logistics/warehousing, distribution, and construction. Higher income jobs are in wholesale trade, public administration, and professional services and much of the existing and forecast employment is connected to institutional uses (health, education, government, and professional services). The final landscape assessment will point to target industries and how the land use categories are aligned or incongruent with city targets for industry and occupation growth.
- Over a third of the City's employment lands current use is retail (33%) - an industry that continues to experience significant transformation related to the worldwide COVID-19 pandemic impacts. (**Exhibit 4**)

Infrastructure

- The decentralized location of much of the City's developable employment lands and redevelopment locations has implications for transportation and other infrastructure service provision, alignment will be needed between the programming of transportation resources and the developable lands.
- In addition, a number of the vacant and underutilized sites are located further away from major transportation corridors and envisioning development on these sites may require significant transportation and utility investment prior to realizing marketability among prospective developers.

Specific Locations of Interest

- **Bob Olson Parkway Site:** 73 acres of vacant land, zoned Community Commercial. The site is currently surrounded by vacant land and is somewhat constrained by steep slopes and erosion hazard areas.
- **Industrially-Zoned UGA Additions:** A large, vacant 223-acre site is located south of I-82, and a smaller site located east of the sewer treatment facility. The timeline and locations for utility service are being explored.
- **Portion of Rivershore Redevelopment Zone:** 35 acres adjacent to Pioneer Memorial Bridge (Blue Bridge). The vacant portion of this site is 32.3 acres.
- **Port of Kennewick Columbia Gardens and Clover Island Properties:** Contains some existing redevelopment activity for a winery and other uses. Much of this area is owned by the Port of Kennewick.
- **Port of Kennewick Vista Field Redevelopment:** 102 acres of land zoned urban mixed use. A portion or the redevelopment already underway is dedicated to single family residential development.

INTRODUCTION

Background and Purpose

The City of Kennewick has undertaken significant efforts to date to develop a coherent roadmap for economic development, including a 2012 economic development strategic plan, a 2016 industrial land assessment, a 2019 economic development marketing plan, the City's 2021 Comprehensive Plan, as well as a 2014 study on recruitment and workforce development for target industries. The City now desires to consolidate these plans into a holistic economic development framework, building upon previous strategies, the City's capabilities, and current economic considerations. Completion of the economic development strategy is organized into two phases. The first phase encompasses a detailed employment lands inventory and the second phase

provides an analysis of existing conditions and landscape assessment. This report presents analysis and findings for the employment lands inventory.

Methods and Data

Employment land sites were identified through parcel-level Geographic Information Systems (GIS) analysis. Benton County Assessor data forms the basis of the employment land study, providing parcel-based data including zoning, ownership, land use, and improvements within the City of Kennewick and within the Urban Growth Area (UGA). Development readiness or developable lands assessments include a detailed analysis of existing uses and ratios of improvement value to parcel area, confirmed in some cases using ortho-imagery or additional data sources.

Organization of this Report

The remainder of this report is organized as follows:

- **Employment Lands Methodology.** A detailed description of employment land analysis methodology.
- **Zoning and Land Use.** A summary of all City of Kennewick and unincorporated UGA parcels by zone and current use.
- **Developable Land Supply.** A detailed summary of developable employment lands within the City of Kennewick and the unincorporated UGA.
- **Employment Land Demand.** A detailed overview of employment forecast, assumptions, land demand estimates, and a reconciliation of demand with supply.

Employment Lands Methodology

The Employment Lands Inventory (ELI) is an analysis and characterization of the supply - or inventory - of employment lands in the City of Kennewick and its unincorporated UGA, including number of parcels, parcel acreage, parcel sizes, vacancy, underutilization, development status, and any environmental or other constraints.

The ELI covers all commercial, industrial, and mixed use zoned parcels in the City of Kennewick and the incorporated UGA. It also covers unincorporated UGA Benton County parcels zoned light industrial and general commercial.

Categories of Developable Land

To better assess the City of Kennewick's developable lands, available parcels are organized into the following categories.

- **Developed:** An employment land parcel that has built, permanent structures and existing economic activities.
- **Physically Vacant:** An employment land parcel that is either unbuilt (no permanent structures), or whose structures are valued at less than $.01 per square foot of parcel area.
- **Partially Vacant:** An employment land parcel acres that, while developed, retains a contiguous, undeveloped, and buildable portion greater than 0.5 acre in size. Remaining buildable area on these parcels is estimated.
- **Potentially Underutilized:** An employment land parcel whose physical improvements are valued at or less than $3 per square foot of parcel area.

In addition, developable properties that are in current use as surface parking lots have been flagged in the data.

Zoning and Land Use

Overall, across both the incorporated and unincorporated Kennewick UGA, there are a total of 3,052 parcel acres of employment lands on 2,042 parcels. The greatest concentration of employment acreage is located within Kennewick's Commercial, Community zone (34%). Large concentrations are also located within the Industrial, Light (22%), and Commercial, Regional (15%) zones.

Exhibit 1. Kennewick Employment Lands by Zone, Incorporated & Unincorporated UGA, 2022

Zoning Code	Zoning Description	Parcels	Acres	Share of Acres
CC	Commercial, Community	788	1,034.4	34%
CR	Commercial, Regional	154	459.1	15%
IL	Industrial, Light	238	666.6	22%
UMU	Urban Mixed-Use	270	242.5	8%
CG	Commercial, General	150	182.8	6%
IH	Industrial, Heavy	96	177.6	6%
CO	Commercial, Office	100	69.7	2%
BP	Business Park	36	40.8	1%
CAR	Commercial, Auto Row	75	32.8	1%
CN	Commercial, Neighborhood	33	23.5	1%
CC-L	Commercial, Community - Limited	10	22.9	1%
CR-L	Commercial, Regional - Limited	23	20.2	1%
CM	Commercial, Marina	39	15.8	1%
CG-L	Commercial, General - Limited	2	2.4	0%
CO-L	Commercial, Office - Limited	1	0.5	0%
GenCom	General Commercial (Benton)	2	16.6	1%
LtInd	Light Industrial (Benton)	25	43.6	1%
Total		**2,042**	**3,051.7**	**100%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.
Note: All zones except GenCom and LtInd are City of Kennewick zones, while GenCom and LtInd are Benton County UGA zones.

In aggregate, nearly two-thirds of Kennewick's employment lands parcel acreage is zoned some type of commercial (1,921 acres), 888 acres of land are in industrial zones, and 242 acres are in a mixed-use zone. (**Exhibit 2**)

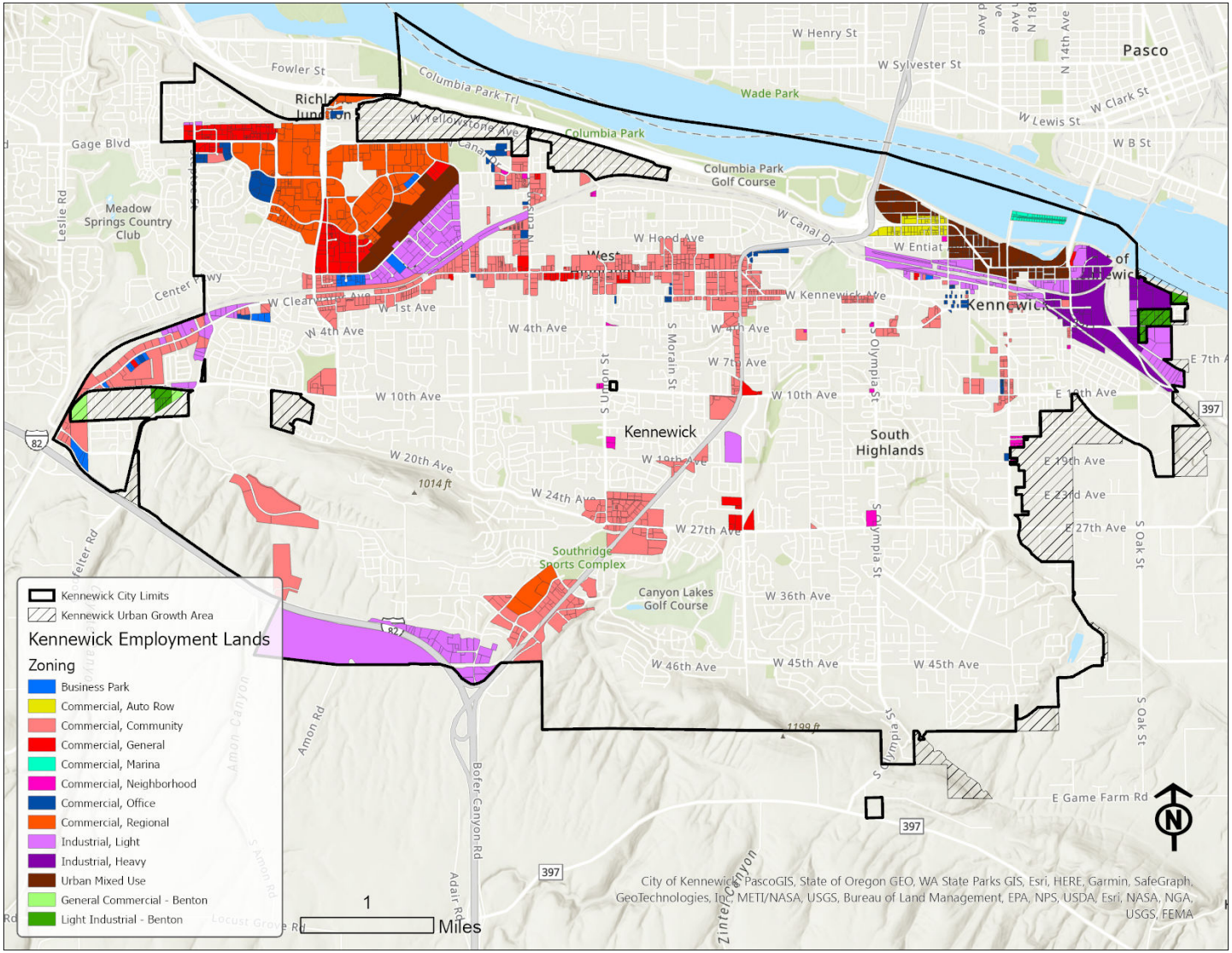
Exhibit 2. Kennewick Employment Lands Zones by Type, Incorporated & Unincorporated UGA, 2022

Zoning Code	Zoning Description	Parcels	Acres	Share of Acres
Commercial Zones		**1,413**	**1,921.4**	**63%**
CC	Commercial, Community	788	1,034.4	34%
CR	Commercial, Regional	154	459.1	15%
CG	Commercial, General	150	182.8	6%
CO	Commercial, Office	100	69.7	2%
BP	Business Park	36	40.8	1%
CAR	Commercial, Auto Row	75	32.8	1%
CN	Commercial, Neighborhood	33	23.5	1%
CC-L	Commercial, Community - Limited	10	22.9	1%
CR-L	Commercial, Regional - Limited	23	20.2	1%
GenCom (Benton)	UGA General Commercial	2	16.6	1%
CM	Commercial, Marina	39	15.8	1%
CG-L	Commercial, General - Limited	2	2.4	0%
CO-L	Commercial, Office - Limited	1	0.5	0%
Industrial Zones		**359**	**887.8**	**29%**
IL	Industrial, Light	238	666.6	22%
IH	Industrial, Heavy	96	177.6	6%
LtInd (Benton)	UGA Light Industrial	25	43.6	1%
Mixed-Use Zone				
UMU	Urban Mixed-Use	270	242.5	8%
Total		**2,042**	**3,051.7**	**100%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.

Most of the 178 acres of land zoned heavy industrial are located in the Downtown/Waterfront Opportunity Zone, while the 845 combined acres of light industrial zoning are located in the Downtown/Waterfont zone, southeast of Vista Field, and at the intersection of I-82 and SR-395 at the southern border of the City. The sizable commercial zones follow major transportation corridors with a concentration of zoned land in the Vista Field Opportunity Zone. (**Exhibit 3**)

Exhibit 3. Kennewick Employment Lands by Zone, Incorporated and Unincorporated UGA, 2022



Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.

Existing land uses are the activities that are currently located on each parcel according to use codes assigned by the Benton County Assessor's office. The largest share of existing active land uses is all retail uses combined with over 33% of the total (by area). This is followed by all services combined (20%) and manufacturing (8%). The 370 acres of undeveloped land on 54 parcels represents around 12% of total employment lands – though it should be noted that the acreage of undeveloped land per the assessor's use codes differ substantially from land assessed as vacant in this analysis.

Exhibit 4. Existing Land Uses with More than 40 Acres on Kennewick Employment Lands, 2022

Land Use Description	Parcels	Acres	Share of Acres
Retail Other	408	626.2	20.5%
Retail General Merchandise	94	257.6	8.4%
Manufacturing Other	89	252.1	8.3%
Service Professional	177	173.5	5.7%
Service Miscellaneous	139	168.0	5.5%
Undeveloped*	54	369.7	12.1%
Service Business	118	148.1	4.9%
Transportation Aircraft**	3	80.8	2.6%
Retail Eating	91	72.2	2.4%
Service Contruction	45	66.3	2.2%
Service Repair	82	62.6	2.0%
Retail Auto	61	61.8	2.0%
Recreational	10	53.3	1.7%
Other Residential	25	52.4	1.7%
Transportation Parking	64	40.3	1.3%
All Other	*582*	*567.0*	18.6%
Total	**2,042**	**3,051.7**	**107.5%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.
*Notes: *Undeveloped land is defined differently in subsequent analysis of developable lands. Undeveloped land here is defined by the Benton County Assessor land uses. **Transportation Aircraft land use is an outdated code that refers to the former Vista Field parcels.*

Developable Land Supply

Unlocking economic development growth potential requires a detailed inventory of available land supply that may be available for development. As of September 2022, 1,009 acres of the 3,052 acres of employment land in the City of Kennewick, were physically vacant employment land (commercial or industrial), and another 374 acres comprised partially vacant or potentially underutilized parcels (Exhibit 5).

Exhibit 5. Kennewick Developable Employment Lands by Status, Incorporated & Unincorporated UGA, 2022

Developability Status	Parcels	Acres	Share of Acres
Developed	1,450	1,668.3	55%
Physically Vacant	464	1,009.4	33%
Partially Vacant	23	239.5	8%
Potentially Underutilized	105	134.6	4%
Totals	**2,042**	**3,051.7**	**100%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.
Note: Partially Vacant includes 102 acres in the Vista Field redevelopment and refers to both developed and developable area of each parcel.

In total, there are an estimated 1,383 acres of developable employment lands as of this writing. There are 1,139 acres of developable employment lands within the Kennewick UGA when you exclude the approximately 102 acres of the Vista Field redevelopment, the developed portion of partially vacant parcels, and 54 acres of currently active surface parking lots. (**Exhibit 6**) This figure represents 37% of the total Kennewick employment lands base. Additional analysis is underway to understand how this aligns with existing and future land demand.

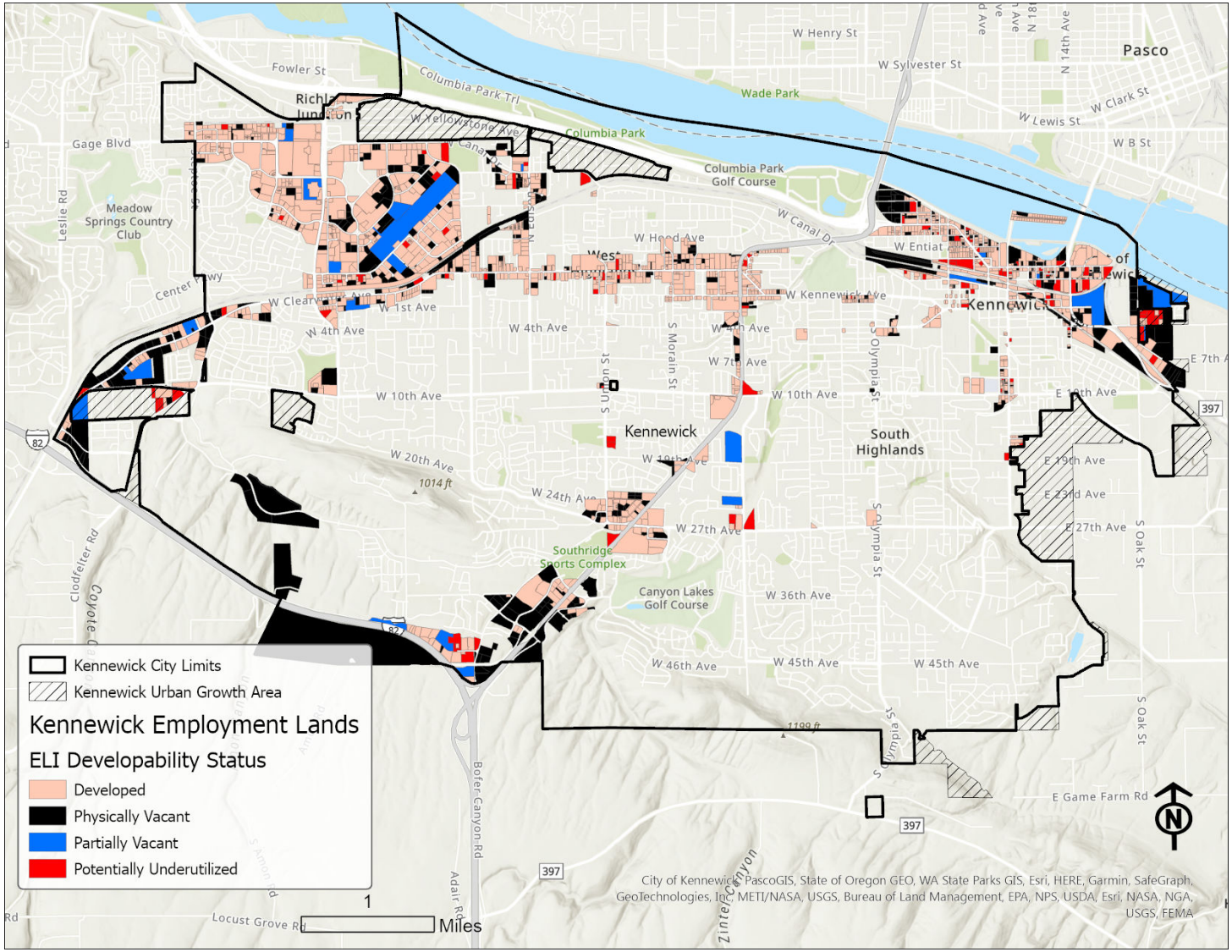
Exhibit 6. Kennewick Developable Employment Lands Detail by Status, Incorporated & Unincorporated UGA, 2022

Developability Status	Parcels	Acres	% of Developable Lands* (By Area)	% of All Employment Lands (By Area)
Physically Vacant	464	1,009.4	78%	33%
Partially Vacant	23	150.1	12%	5%
Potentially Underutilized	105	134.6	10%	4%
Subtotal	**592**	**1,294.2**	**100%**	**42%**
Less Planned Vista Field Development	(6)	(102.1)		
Less Portion in Active Surface Parking Lots	(54)	(53.5)		
Total	**532**	**1,138.5**	**88%**	**37%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022. Note: Partially Vacant acres are comprised of the developable portion of partially vacant parcels only.

The largest concentrations of developable employment land are located at the eastern, southern, and southwestern peripheries of the city (**Exhibit 7).**

Exhibit 7. Kennewick Employment Lands by Developability Status, Incorporated & Unincorporated UGA, 2022



Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.

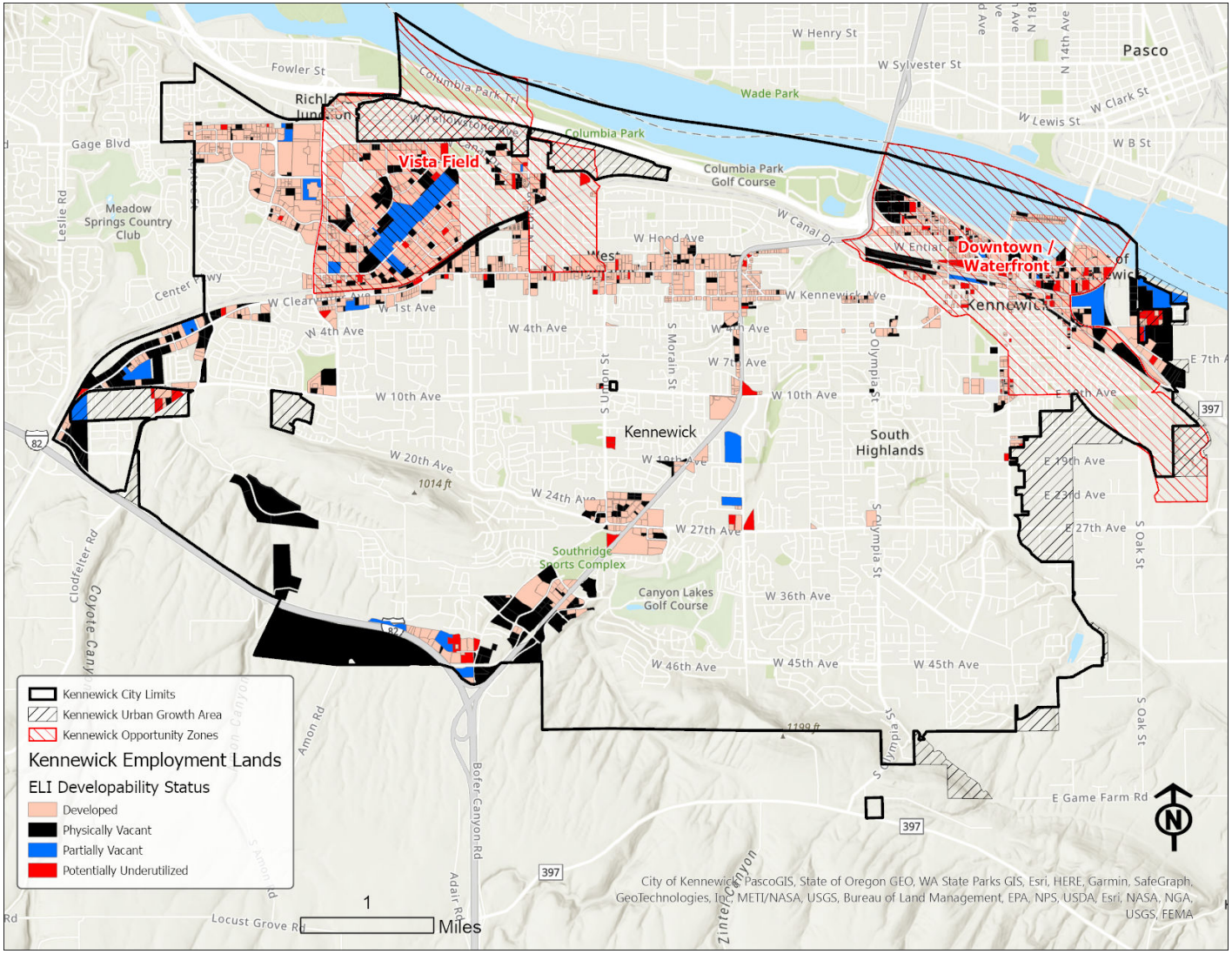
Less than one-third of this developable land is located in the central Vista Field and Downtown Opportunity Zone areas of the city (**Exhibits 8 & 9).**

Exhibit 8. Kennewick Developable Employment Lands by Opportunity Area, Incorporated & Unincorporated UGA, 2022

Opportunity Area	Parcels	Acres	% of Developable Lands* (By Area)	% of All Employment Lands (By Area)
Vista Field (Tract 109.01)**	93	206.5	16%	7%
Downtown / Waterfront (Tract 113)	198	175.8	14%	6%
Subtotal	**291**	**382.2**	**30%**	**13%**
Outside Opportunity Zones	301	911.9	70%	30%
Total	**592**	**1,294.2**	**100%**	**42%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022
*Notes: *"Developable Lands" includes physically vacant, potentially underutilized, and the developable portion of partially vacant employment lands parcels. **Almost half of the Vista Field Opportunity Zone developable acreage lies in the Vista Field redevelopment.*

Exhibit 9. Kennewick Employment Lands by Developability Status & Opportunity Zones, Incorporated & Unincorporated UGA, 2022



Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022.

Of the 579 acres of developable commercial land on 319 parcels, the largest portion is zoned Community Commercial at 412 acres or 32% of the total developable area. Industrial zones contain 43% of the developable acreage with 555 acres on 166 parcels. Light industrial zoning represents the largest portion of industrial zones and contains 464 acres or 36% of the developable land. The remaining 91 acres of developable heavy industrial zoned land represents 7% of the total. Urban mixed-use zones contain 157 acres or 12% of the developable acreage.

Exhibit 10. Kennewick Developable Employment Lands by Zone, Incorporated & Unincorporated UGA, 2022

Zoning Code	Zoning Description	Parcels	Acres	% of Developable Lands* (By Area)	% of All Employment Lands (By Area)
Commercial Zones		**319**	**579.0**	**45%**	**19%**
CC	Commercial, Community	207	412.2	32%	14%
CR	Commercial, Regional	33	76.1	6%	2%
CG	Commercial, General	25	34.5	3%	1%
BP	Business Park	15	20.6	2%	1%
CO	Commercial, Office	16	12.5	1%	0%
GenCom (Benton)	UGA General Commercial	2	10.1	1%	0%
CN	Commercial, Neighborhood	8	6.6	1%	0%
CAR	Commercial, Auto Row	12	5.0	0%	0%
CM	Commercial, Marina	1	1.5	0%	0%
Industrial Zones	**All**	**166**	**554.8**	**43%**	**18%**
IL	Industrial, Light	103	435.0	34%	14%
IH	Industrial, Heavy	48	91.3	7%	3%
LtInd (Benton)	UGA Light Industrial	15	28.5	2%	1%
Mixed-Use Zone**					
UMU	Urban Mixed-Use	**102**	**157.1**	12%	5%
Total		**587**	**1,290.9**	**100%**	**42%**

Sources: Benton County Assessor, 2022; Community Attributes Inc., 2022
*Notes: *"Developable Lands" includes physically vacant, potentially underutilized, and the developable portion of partially vacant employment lands parcels. **Includes 102 acres in the Vista Field redevelopment.*

Employment Land Demand

It is necessary to attempt to quantify the market demand for employment lands into the future to understand whether Kennewick's land supply is sufficient to meet its needs for growth, as well as potential targeting of specific industries or informing other economic development strategies.

The first step in a demand assessment involves identifying a range of forecast employment by industry sector for a twenty-year time horizon (2020-2040) and adjusting the forecast to reflect Kennewick's anticipated growth trajectory. Next, occupancy and density assumptions must be made to translate forecast employment into built space and land consumption.

Finally, assessed land demand by category (commercial and industrial) is compared with land supply from the previous section to identify any potential surplus or shortage. The following sections detail this analysis.

Employment Forecasts

A range of employment forecasts by major sector were developed for the City of Kennewick based on both historical performance at the regional level, plus anticipated growth trends for individual industries using a combination of U.S. Census Local Employer Household Dynamics (LEHD) data, and Washington Employment Security Department (ESD) data. **Exhibit 11** illustrates a baseline forecast scenario that extrapolates regional sectoral performance to the Kennewick local area. **Exhibits 12 & 13** illustrate what the forecast might look like if increased rates of capture for certain target industries in Kennewick – namely Warehousing, Transportation and Utilities (WTU), and Manufacturing – were to be achieved via successful implementation of economic development policies and programs targeting growth in these specific sectors.

Exhibit 11. Estimated City of Kennewick Employment, Baseline, 2005 - 2040

Major Sector	2005	2010	2015	2020	2025	2030	2035	2040	2020-2040 Growth
Healthcare, Education & Government	6,400	8,200	9,300	9,600	10,700	11,600	12,500	13,500	3,900
Services	8,900	10,700	9,400	9,400	11,100	11,900	12,600	13,500	4,100
Retail	5,900	6,900	6,000	6,300	7,100	7,500	7,800	8,200	1,900
Construction & Resources	2,500	2,400	2,600	3,500	4,000	4,300	4,800	5,200	1,700
Finance, Insurance & Real Estate	1,700	1,900	1,800	2,100	2,200	2,200	2,300	2,300	200
Wholesale, Transportation & Utilities	1,000	1,200	1,300	1,400	1,600	1,700	1,700	1,800	400
Manufacturing	600	700	600	600	600	600	700	700	100
Total	**27,000**	**32,000**	**31,000**	**32,900**	**37,300**	**39,800**	**42,400**	**45,200**	**12,300**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Community Attributes Inc., 2022.

Exhibit 12 assumes a minor increase in the capture of regional employment within Wholesale, Transportation and Utilities and Manufacturing sectors. For example, Kennewick's share of regional WTU employment in 2021 was estimated at 24.6%, while the share of regional Manufacturing employment was estimated at 7.4%. This scenario envisions a modestly increased 30% share of regional WTU growth, and 10% share of Manufacturing growth, through 2040.

Exhibit 12. Estimated City of Kennewick Employment, Alternative Growth Scenario 1, 2005 - 2040

Major Sector	2020-2040 Growth
Services	4,100
Healthcare, Education & Government	3,900
Retail	1,900
Construction & Resources	1,700
Finance, Insurance & Real Estate	200
Wholesale, Transportation & Utilities	800
Manufacturing	300
Total	**12,900**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Community Attributes Inc., 2022. Notes: Assumes increases in capture of regional employment within Wholesale, Transportation and Utilities and Manufacturing. Assumes 30% capture of regional WTU employment by 2040. Assumes 10% capture of regional Manufacturing employment by 2040. Assumes no changes to regional capture of other sectors compared to baseline growth projections. For 2021, Kennewick share of regional WTU employment is estimated at 24.6%. For 2021, Kennewick share of regional Manufacturing employment is estimated at 7.4%.

Exhibit 13 – the preferred scenario for this analysis - assumes more significant increases in the capture of regional employment within Wholesale, Transportation and Utilities and Manufacturing sectors via successful implementation of economic development policies and programs. This scenario envisions an increased capture of 40% of regional WTU growth, and 15% of the region's manufacturing growth through 2040.

Exhibit 13. Estimated City of Kennewick Employment, Alternative Growth Scenario 2, 2005 - 2040

Major Sector	2020-2040 Growth
Services	4,100
Healthcare, Education & Government	3,900
Retail	1,900
Construction & Resources	1,700
Wholesale, Transportation & Utilities	1,500
Finance, Insurance & Real Estate	200
Manufacturing	800
Total	**14,100**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Community Attributes Inc., 2022. Notes: Assumes increases in capture of regional employment within Wholesale, Transportation and Utilities and Manufacturing. Assumes 40% capture of regional WTU employment by 2040. Assumes 15% capture of regional Manufacturing employment by 2040. Assumes no changes to regional capture of other sectors compared to

baseline growth projections. For 2021, Kennewick share of regional WTU employment is estimated at 24.6%. For 2021, Kennewick share of regional Manufacturing employment is estimated at 7.4%.

Occupancy & Density Assumptions

In order to translate forecast employment from Scenario 2 into land demand figures, certain assumptions must be identified around occupancy – such as the use of built space per employee – and density / intensity of land use – expressed as Floor-Area Ratio, or FAR, a measure of total built floor area to parcel land area on a site. For built square footage per employee, widely-used industry standard figures were utilized ranging from higher occupancy rates (e.g., 400 square feet per employee for Services; Finance, Insurance, and Real Estate; and Healthcare, Education, and Government sectors) to lower occupancy (e.g., 1,100 sf per employee for the Warehousing, Transportation, and Utilities sector) rates. See Appendix 1 for detailed assumptions.

In addition to occupancy and density, a range of commercial to industrial land utilization ratios, and market factors, were also identified. Market factor refers to a discount rate meant to approximate lands that may not transact even if redevelopable or vacant, due to unwillingness of an owner to transact for reasons such as speculative holding, land banking, and personal use, among others.

Demand Analysis

Using the assumptions outlined above, the preferred employment forecast from Alternative Scenario 2 by major sector was translated into an estimate of demand for built space and land by major sector (**Exhibit 14**). Using commercial versus industrial land utilization rates, this demand was further segmented by type.

Exhibit 14. Kennewick Employment Growth and Employment Lands Demand (Alternative Scenario 2)

Industry	Employment Growth (2020-2040)	Emp Density (sq ft/employee)	Emp Built Space	Emp Land Demand	Com Land Demand	Ind Land Demand
Healthcare, Education & Government	3,900	400	1,560,000	89.5	67.1	22.4
Services	4,100	400	1,640,000	125.5	94.1	31.4
Retail	1,900	550	1,045,000	80.0	80.0	0.0
Construction & Resources	1,700	1,000	1,700,000	260.2	156.1	104.1
Finance, Insurance & Real Estate	200	400	80,000	4.6	3.4	1.1
Wholesale, Transportation & Utilities	1,500	1,100	1,650,000	252.5	126.3	126.3
Manufacturing	800	900	720,000	165.3	24.8	140.5
Total	**14,100**		**8,395,000**	**977.6**	**551.8**	**425.7**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Benton County Assessor, 2022; Community Attributes Inc., 2022.

The resulting estimate of total employment land demand for the period 2020 – 2040 in the City of Kennewick totals approximately 978 acres. Thus, the

current land supply, including a market factor portion assumed not to transact, of 1,073 acres, appears to be sufficient to accommodate even this high-growth scenario of the forecast demand, with a surplus of around 95 acres (**Exhibit 15**).

Exhibit 15. Kennewick Employment Land Supply and Demand Summary

	Vacant	Underutilized	Total
Commercial Land	667.3	72.1	**739.4**
Industrial Land	492.3	62.5	**554.8**
Market Factor	15%	35%	
Commercial Land Supply	567.2	46.9	**614.1**
Industrial Land Supply	418.4	40.6	**459.1**
Commercial Land Demand			**551.8**
Industrial Land Demand			**425.7**
Commercial Land Gap (surplus)			**62.2**
Industrial Land Gap (surplus)			**33.3**

Source: U.S. Census LEHD, 2022; Washington State Employment Security Department, 2022; Benton County Assessor, 2022; Community Attributes Inc., 2022. Note: Vacant includes both Physically Vacant and Partially Vacant Developable Lands. Mixed Use lands are grouped with Commercial.

APPENDIX 1

This section outlines the detailed occupancy, density, commercial use ratio, and market factor assumptions underlying the Employment Land Demand analysis section of this report.

Exhibit A1. Occupancy: Employment Density Assumptions by Major Sector (Built SF/Employee)

Employment Density Assumptions by Major Sect	
Healthcare, Education & Government	400
Services	400
Retail	550
Construction & Resources	1,000
Finance, Insurance & Real Estate	400
Wholesale, Transportation & Utilities	1,100
Manufacturing	900

These occupancy assumptions were informed by a comparative survey of space utilization by sector and / or zone, throughout the region and country:

Kitsap County Buildable Lands Study
https://www.kitsapgov.com/dcd/Pages/Buildable_Lands_Report.aspx

Commercial/Non-Industrial	300-600	*square feet per employee*
Industrial	700-1200	*square feet per employee*

Thurston County Buildable Lands Study
https://www.trpc.org/DocumentCenter/View/8542/2021-Buildable-Lands-Repor

Industrial	1,470	*square feet per employee*
Commercial	430	*square feet per employee*

Pierce County Buildable Lands Study
https://www.piercecountywa.gov/923/Buildable-Lands

Commercial	500	*square feet per employee*
Industrial/Warehouse	900	*square feet per employee*

Orlando Florisa Fiscal Impact Analysis Model (FIAM)
http://www.sfrpc.com/fiam.htm

Office - 1-Story	300	*square feet per employee*
Office - Class A	350	*square feet per employee*
Office - Med	250	*square feet per employee*
Retail - Community	600	*square feet per employee*
Restaurant - Sit Down	450	*square feet per employee*
Restaurant - Fast Food	100	*square feet per employee*
Industrial	2,500	*square feet per employee*
Warehouse	5,000	*square feet per employee*

Portland Gresham Vista Examples (Actual Developments):
https://www.portofportland.com/greshamvista

Industrial

E6 Adv. Manu	1,000	*square feet per employee*
ON Semiconductors	2,000	*square feet per employee*
Subaru Dist. Fac.	20,000	*square feet per employee*

Large Commercial

Kohls	874	*square feet per employee*
Lowes	773	*square feet per employee*
Fred Meyer	630	*square feet per employee*

Snohomish County Buildable Lands Study
https://snohomishcountywa.gov/1352/Buildable-Lands

Industry

Food Service	200	*square feet per employee*
Other Services	400	*square feet per employee*
FIRE (mini-storage)	20,000	*square feet per employee*
FIRE (other)	350	*square feet per employee*
Retail	700	*square feet per employee*
Manufacturing	500	*square feet per employee*
Wholesale, Transportation and Utilities	1,000	*square feet per employee*
Government/Education	300	*square feet per employee*

Exhibit A2. Density: Land Intensity Assumptions as Floor-Area Ratios (FAR) by Major Sector

Variable	Rate
Assumed Density (FAR)	
Healthcare, Education & Government	0.40
Services	0.30
Retail	0.30
Construction & Resources	0.15
Finance, Insurance & Real Estate	0.40
Wholesale, Transportation & Utilities	0.15
Manufacturing	0.10

Source: Assumptions based on parcel-level surveys in other Washington cities and Benton County development intensity by land use / building typology data from CoStar. Note: The only permitted maximum commercial FAR in Kennewick is .5 for the Business Park Zone. FARs for industrially-zoned land in City of Kennewick Industrial Zoned Land Assessment, 2016, by EcoNorthwest average .07 for the 20 years previous to the study.

Exhibit A3. Commercial to Industrial Land Utilization Ratio by Major Sector

Share Commercial Land Use by Major Sector	
Healthcare, Education & Government	0.75
Services	0.75
Retail	1.00
Construction & Resources	0.60
Finance, Insurance & Real Estate	0.75
Wholesale, Transportation & Utilities	0.50
Manufacturing	0.15

Source: Assumptions based on Benton County Assessor data, 2022.

Exhibit A4. Market Factor, City of Kennewick Employment Lands, 2022

Vacant	0.15
Underutilized	0.35

These market factor rates were informed by a comparative survey of other commercial and industrial market factors utilized in buildable lands studies in GMA counties in the state of Washington:

Kitsap County Buildable Lands Study

Market Factor	
Low	5%-20%
Medium	20%-35%
High	35%-50%

Thurston County Buildable Lands Study

Market Factor	
Partially Developed	10%-40%
Vacant	10%-20%

Pierce County Buildable Lands Study

Market Factor	
Vacant	15% *Bonney Lake*
Underutilized	35% *Bonney Lake*
Vacant	50% *Buckley*
Underutilized	50% *Buckley*
	30% *Fife*

Snohomish County Buildable Lands Study

Market Factor	
Vacant	15%
Underutilized	30%