



CITY OF KENNEWICK HEARING EXAMINER
James M. Driscoll, Hearing Examiner

AGENDA

**MONDAY, APRIL 12, 2021
6:00 P.M.**

CITY OF KENNEWICK – ONLINE VIRTUAL MEETING
210 W. 6TH AVE, KENNEWICK, WA 99336

Procedure for Participation

- Please register and sign in to Zoom if you wish to receive a copy of the decision when it is issued and if you plan to give testimony.
- When recognized by the Examiner, state your name, address and whether you are representing only yourself or others.
- All remarks, comments, and questions should be addressed to the Hearing Examiner and not to the audience or parties. You may offer written comments or other items (such as photographs) to the Hearing Examiner as an exhibit for the permanent record. Please provide at least three (3) copies of each item submitted: one copy for the Hearing Examiner, one for the Official Record, and one for Staff). During an Appeal Hearing, if the appellant and the applicant are different parties, then a fourth copy of all documentation is requested.

I. CALL TO ORDER

II. PROCEDURAL INFORMATION

III. PUBLIC HEARING

- A. Preliminary Plat (PP No. 20-02/PLN-2020-02594), "Apple Valley Phase 6" proposing to subdivide 41.07 acres into 97 lots and 5 tracts. The site is generally located S. of Bob Olson Parkway and W. of S. Sherman Street and previous phases of Apple Valley. The site is currently zoned Residential, Low Density (RL), the Comprehensive Plan designation is Low Density Residential. The applicant is Matt Smith, 15 SW Colorado Avenue, Suite 1, Bend, OR, 97702. The property owner is Tri-Cities Development Company LLC, 15 SW Colorado Avenue, Suite #1, Bend, Oregon 97702.

IV. ADJOURN



COMMUNITY PLANNING DEPARTMENT
STAFF REPORT AND RECOMMENDATION TO
THE HEARING EXAMINER

FILE No: PP 20-02/PLN-2020-02594

Staff Report Date: April 2, 2021

Public Hearing Date and Location: April 12, 2021, Virtual Hearing

Report Prepared By: Anthony Muai, AICP, Planning Manager

Report Reviewed By: Steve Donovan, AICP, Senior Planner

Summary Recommendation: The City of Kennewick RECOMMENDS APPROVAL with conditions of Preliminary Plat 20-02.

Summary of Proposal: A Preliminary Plat proposed to subdivide 41.07 acres into a total of 97 lots and 5 tracts.

Proposal Location: 3426 S Young Street, Parcel Number 1-1789-200-0001-011 & 1-1789-200-0001-012

Legal Description: ADJUSTED TRACT R AS DESCRIBED IN DEED RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2020-003841, DEPICTED ON BOUNDARY LINE ADJUSTMENT SURVEY NO. 5292, RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2020-002409 TOGETHER WITH ADJUSTED PARCEL E AS DESCRIBED IN DEED RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2020-003837, DEPICTED ON SAID BOUNDARY LINE ADJUSTMENT SURVEY NO. 5292 TOGETHER WITH TRACT S OF THE AMENDED PLAT OF APPLE VALLEY PHASE 3, RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2019-022102 TOGETHER WITH A PORTION OF NEW PARCEL F AS DESCRIBED IN DEED RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2019-008431, DEPICTED ON PLAT EXEMPTION SURVEY NO. 5151, RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2019-007030, LOCATED WITHIN THE NORTHWEST QUARTER OF SECTION 17 IN TOWNSHIP 8 NORTH IN RANGE 29 EAST, W.M., CITY OF KENNEWICK, BENTON COUNTY, WASHINGTON, DESCRIBED MORE PARTICULARLY AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID NORTHWEST QUARTER OF SECTION 17, MARKED WITH A 3

EXHIBIT 1

INCH BRASS CAP PER THE PLAT OF THE VILLAGE AT SOUTHRIDGE PHASE 1 RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2017-029283; THENCE SOUTH $88^{\circ}47'16''$ WEST ALONG THE SOUTH LINE OF SAID NORTHWEST QUARTER OF SECTION 17 A DISTANCE OF 2,653.96 FEET TO THE SOUTHWEST CORNER THEREOF, MARKED WITH A 1/2 INCH IRON PIPE PER BOUNDARY LINE ADJUSTMENT SURVEY NO. 4170 RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2011-001284 AND TRUE POINT OF BEGINNING;

THENCE NORTH $00^{\circ}41'22''$ WEST ALONG THE WEST LINE OF SAID NORTHWEST QUARTER OF SECTION 17, COINCIDENT WITH THE COMPOSITE WEST BOUNDARY OF SAID ADJUSTED TRACT R & ADJUSTED PARCEL E A DISTANCE OF 1,431.00 FEET TO THE NORTHERLY BOUNDARY OF SAID ADJUSTED TRACT R; THENCE ALONG SAID NORTHERLY BOUNDARY THE FOLLOWING COURSES:

THENCE NORTH $89^{\circ}18'38''$ EAST A DISTANCE OF 176.02 FEET; THENCE NORTH $00^{\circ}41'22''$ WEST A DISTANCE OF 10.28 FEET; THENCE NORTH $89^{\circ}18'38''$ EAST A DISTANCE OF 666.74 FEET TO THE EASTERLY BOUNDARY OF SAID ADJUSTED TRACT R BEING A POINT ON THE ARC OF A NON TANGENT CURVE TURNING TO THE LEFT, HAVING A RADIUS OF 823.59 FEET; THE RADIUS POINT OF WHICH BEARS NORTH $80^{\circ}12'09''$ EAST; THENCE ALONG SAID CURVE AND EASTERLY BOUNDARY, HAVING AN ARC LENGTH OF 32.30 FEET, WITH A DELTA ANGLE OF $02^{\circ}14'49''$, A CHORD BEARING OF SOUTH $10^{\circ}55'16''$ EAST, AND A CHORD LENGTH OF 32.30 FEET TO A NON TANGENT LINE; THENCE CONTINUING ALONG SAID EASTERLY BOUNDARY THE FOLLOWING COURSES:

THENCE SOUTH $17^{\circ}11'23''$ EAST ALONG SAID NON TANGENT LINE A DISTANCE OF 25.11 FEET TO A POINT OF CURVATURE WITH A TANGENT CURVE TURNING TO THE LEFT, HAVING A RADIUS OF 545.05 FEET; THENCE ALONG SAID CURVE, HAVING AN ARC LENGTH OF 95.89 FEET, WITH A DELTA ANGLE OF $10^{\circ}04'49''$, A CHORD BEARING OF SOUTH $22^{\circ}13'47''$ EAST, AND A CHORD LENGTH OF 95.77 FEET; THENCE SOUTH $27^{\circ}16'12''$ EAST A DISTANCE OF 49.79 FEET TO A POINT OF CURVATURE WITH A TANGENT CURVE TURNING TO THE RIGHT, HAVING A RADIUS OF 255.03 FEET; THENCE ALONG SAID CURVE, HAVING AN ARC LENGTH OF 78.29 FEET, WITH A DELTA ANGLE OF $17^{\circ}35'25''$, A CHORD BEARING OF SOUTH $18^{\circ}28'30''$ EAST, AND A CHORD LENGTH OF 77.99 FEET; THENCE NORTH $69^{\circ}15'47''$ WEST A DISTANCE OF 5.60 FEET; THENCE SOUTH $25^{\circ}16'54''$ WEST A DISTANCE OF 40.13 FEET; THENCE SOUTH $20^{\circ}44'13''$ WEST A DISTANCE OF 145.01 FEET; THENCE SOUTH $69^{\circ}15'47''$ EAST A DISTANCE OF 35.95 FEET TO THE COMPOSITE EASTERLY BOUNDARY OF SAID ADJUSTED TRACT R AND THE NORTHERLY BOUNDARY OF SAID NEW PARCEL F BEING A POINT ON THE ARC OF A NON TANGENT CURVE TURNING TO THE LEFT, HAVING A RADIUS OF 663.78 FEET; THE RADIUS POINT OF WHICH BEARS NORTH $20^{\circ}51'06''$ EAST; THENCE ALONG SAID CURVE AND COMPOSITE BOUNDARY, HAVING AN

EXHIBIT 1

ARC LENGTH OF 158.15 FEET, WITH A DELTA ANGLE OF 13°39'03", A CHORD BEARING OF SOUTH 75°58'26" EAST, AND A CHORD LENGTH OF 157.77 FEET; THENCE ALONG SAID NORTHERLY BOUNDARY OF NEW PARCEL F THE FOLLOWING COURSES:

THENCE NORTH 05°37'03" EAST A DISTANCE OF 20.01 FEET; THENCE SOUTH 79°44'11" EAST A DISTANCE OF 40.14 FEET TO THE INTERSECTION WITH THE BOUNDARY OF SAID TRACT S; THENCE LEAVING SAID NORTHERLY BOUNDARY AND FOLLOWING ALONG SAID BOUNDARY OF TRACT S THE FOLLOWING COURSES:

THENCE NORTH 05°37'03" EAST A DISTANCE OF 0.25 FEET TO A POINT ON THE ARC OF A NON TANGENT CURVE TURNING TO THE LEFT, HAVING A RADIUS OF 658.07 FEET; THE RADIUS POINT OF WHICH BEARS NORTH 03°52'33" EAST; THENCE ALONG SAID CURVE, HAVING AN ARC LENGTH OF 110.54 FEET, WITH A DELTA ANGLE OF 09°37'27", A CHORD BEARING OF NORTH 89°03'49" EAST, AND A CHORD LENGTH OF 110.41 FEET TO THE COMPOSITE EASTERLY BOUNDARY OF SAID TRACT S AND NORTHERLY BOUNDARY OF SAID NEW PARCEL F; THENCE SOUTH 05°44'55" EAST ALONG SAID COMPOSITE BOUNDARY A DISTANCE OF 122.01 FEET TO A POINT ON THE ARC OF A NON TANGENT CURVE TURNING TO THE RIGHT, HAVING A RADIUS OF 780.08 FEET; THE RADIUS POINT OF WHICH BEARS NORTH 05°44'55" WEST; THENCE ALONG SAID CURVE AND SAID NORTHERLY BOUNDARY OF NEW PARCEL F, HAVING AN ARC LENGTH OF 42.15 FEET, WITH A DELTA ANGLE OF 03°05'46", A CHORD BEARING OF SOUTH 85°47'58" WEST, AND A CHORD LENGTH OF 42.15 FEET; THENCE CONTINUING ALONG SAID NORTHERLY BOUNDARY OF NEW PARCEL F THE FOLLOWING COURSES:

THENCE SOUTH 02°39'09" EAST A DISTANCE OF 40.00 FEET TO A POINT ON THE ARC OF A NON TANGENT CURVE TURNING TO THE RIGHT, HAVING A RADIUS OF 820.08 FEET; THE RADIUS POINT OF WHICH BEARS NORTH 02°39'09" WEST; THENCE ALONG SAID CURVE, HAVING AN ARC LENGTH OF 10.15 FEET, WITH A DELTA ANGLE OF 00°42'33", A CHORD BEARING OF SOUTH 87°42'08" WEST, AND A CHORD LENGTH OF 10.15 FEET; THENCE SOUTH 12°10'26" EAST A DISTANCE OF 176.76 FEET; THENCE NORTH 77°49'34" EAST A DISTANCE OF 136.01 FEET; THENCE NORTH 79°20'53" EAST A DISTANCE OF 40.02 FEET; THENCE NORTH 60°39'04" EAST A DISTANCE OF 143.63 FEET; THENCE NORTH 75°00'39" EAST A DISTANCE OF 15.20 FEET TO THE INTERSECTION WITH A FUTURE PHASE BOUNDARY OF THE APPLE VALLEY DEVELOPMENT; THENCE LEAVING SAID NORTHERLY BOUNDARY AND FOLLOWING ALONG SAID FUTURE PHASE BOUNDARY THE FOLLOWING COURSES:

THENCE SOUTH 00°37'45" EAST A DISTANCE OF 206.01 FEET; THENCE SOUTH 76°39'06" EAST A DISTANCE OF 24.91 FEET; THENCE SOUTH 00°37'45" EAST A DISTANCE OF 313.29 FEET; THENCE SOUTH 01°12'44" EAST A DISTANCE OF 40.00 FEET;

EXHIBIT 1

THENCE NORTH 88°47'16" EAST A DISTANCE OF 20.32 FEET;
 THENCE SOUTH 01°12'44" EAST A DISTANCE OF 158.02 FEET
 TO THE INTERSECTION WITH THE SOUTH LINE OF SAID
 NORTHWEST QUARTER OF SECTION 17, COINCIDENT WITH
 THE COMPOSITE SOUTH BOUNDARY OF SAID NEW PARCEL F &
 SAID ADJUSTED PARCEL E; THENCE SOUTH 88°47'16" WEST
 ALONG SAID COINCIDENT LINE A DISTANCE OF 1,553.62 FEET
 TO THE POINT OF BEGINNING.

HAVING AN AREA OF 1,789,436 SQUARE FEET, 41.07 ACRES,
 MORE OR LESS.

Property Owner(s): Tri Cities Development Company, LLC
 15 SW Colorado Avenue, Suite 1
 Bend, OR 97702

Applicant: Matt Smith
 15 SW Colorado Avenue, Suite 1
 Bend, OR 97702

Engineer: PBS Engineering and Environmental Inc.
 c/o Jason Mattox
 400 Bradley Boulevard, Suite 106
 Richland, WA 99352

Surveyor: PBS Engineering and Environmental Inc.
 c/o Alex Matarazzo
 400 Bradley Boulevard, Suite 106
 Richland, WA 99352

Approval Criteria:

1. Comprehensive Plan – Land Use
2. Kennewick Municipal Code (KMC) Title 18 – Zoning
3. KMC Title 17 – Subdivisions
4. KMC Section 5.56 – Public Works Construction Standards
5. Washington State Environmental Policy Act

Preliminary Plat Key Application Processing Dates:

Pre-Application/Feasibility Meeting	N/A
Application Submittal	September 22, 2020
Determination of Completeness Issued	September 24, 2020
Notice of Application	October 7, 2020
Property Posting Sign	October 7, 2020
City Department Review Meeting	Not held due to COVID-19
SEPA Threshold Determination Issued	March 24, 2021
SEPA Appeal Period Ends	April 6, 2021
Date of Published Notice of Public Hearing	March 28, 2021
Date of Mailed Notice of Public Hearing	March 25, 2021

Exhibits:

1. Staff Report
2. Application
3. Notice of Public Hearing, 300-ft. mailing list and mailing affidavit
4. Preliminary Plat
5. Determination of Non-Significance, dated 03/24/2021
6. Soil Sampling Report: The Parks, Planned Residential Development, Kennewick, Benton County, Washington, dated April 2016
7. Geotechnical Engineering Services – Critical Areas, Apple Valley Phase 6, dated 02/24/2021
8. Traffic Impact Analysis, Apple Valley Subdivision Phase 6, dated 9/11/2020
9. Memorandum – Fire Department Memorandum, dated 04/05/2021
10. Letter from the Bonneville Power Administration, dated 10/22/2020
11. Email from Chad Brooks, Benton PUD, dated 10/20/2020
12. Letter from the Washington State Department of Transportation, dated 10/20/2020
13. Memorandum – Public Works Department, dated 10/22/2020
14. Memorandum – Traffic Engineering Division, dated 10/22/2020
15. Letter from State of Washington Department of Ecology, dated 10/20/2020
16. Letter from Kennewick Irrigation District, dated 04/02/2021
17. Letter from Kennewick School District, dated 04/05/2021
18. Letter from Applicant – Response to first review comments, dated 01/26/2021 with Traffic Division comments added
19. Traffic Impact Analysis Supplemental Letter, dated 01/25/2021 with Traffic Division comments added

Staff Analysis of Proposal & Discussion:

The proposed Preliminary Plat (PP 20-02) is a request for the subdivision of 41.07 acres into 97 lots and 5 tracts. The project is generally located at and west of 3426 S Young Street.

The site has a Comprehensive Plan Land-Use Designation of Low Density Residential and is zoned Residential, Low Density (RL) which has a minimum lot size requirement of 7,500 square feet.

A Preliminary Plat (KMC 17.10) is the first step in a subdivision process for subdivisions with more than nine (9) lots and is an approval for overall lot layout and compliance with land use regulations. A Final Plat is required to create lots for preliminary plats and is the last phase in the subdivision process, and must be recorded prior to the creation of individual lots. Final plat approval is based on the Preliminary Plat conditions of approval. A civil permit with a detailed review of street, utility and stormwater construction standards, and street and utility construction or bonding for incomplete work is required prior the final plat approval. Additionally, the City of Kennewick's Residential Design Standards apply to this project.

Property History:

The subject property was annexed into the City in April 18, 2006 and was zoned according to the Southridge Sub-Area Plan via Ordinance 5142.

Density/Lot Size:

Per the Table of Residential Development Standards (KMC 18.12.010 A.2) the Residential, Low Density (RL) zoning district has no maximum density requirement but the minimum lot size is 7,500 square feet.

The proposed development has a minimum residential lot area of 7,506 square feet, a maximum residential lot area of 22,127 square feet, with an overall lot average of 10,783 square feet.

Staff Comment: The preliminary plat as proposed meets the Residential Development Standards contained in KMC 18.12.010(A.2), and is subject to the Residential Design Standards.

Traffic:

See attached Memorandum – Traffic Engineering Division, dated 10/22/20, see Exhibit 14.

Storm Water:

Residential sub-divisions storm drainage systems to be dedicated to the public shall be designed 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. Detention ponds (control outlet) may be used only where it can be clearly demonstrated that infiltration, or retention, are not feasible per City of Kennewick Standard Specifications Section 5-9.02, see Exhibit 13.

Streets & Utilities:

See Exhibits 13 and 14 in regard to specific road and utility construction requirements.

Parks:

Apple Valley Phase 6 is located in the Park Service Area 1 (West). Park impact fees (PIF) will be assessed at the time of building permit and will be due prior to the issuance of a certificate of occupancy for each lot. The 2021 PIF for a single-family residence in Park Service Area 1 is \$977.00.

Critical Areas:

The site contains slopes greater than 15% and Erosion Hazard Areas. The submitted Geotechnical Report, see Exhibit 7, will need to be adhered to during development.

Additionally, the site is designated as an Aquifer Recharge Area and the developer is required to adhere to the requirements of KMC Chapter 18.60 – Critical Areas – Critical Aquifer Recharge Areas.

Schools:

The boundary schools for the proposed development are Sagecrest Elementary (Bussing Zone), Chinook Middle School (Bussing Zone) and Southridge High School (Walking Zone).

Surrounding Property:

The adjacent properties consist of single family residences and vacant property. The land use designations for the surrounding properties are Medium Density Residential and Low Density Residential.

Staff Comment: It is staff's opinion that the proposed Preliminary Plat will be harmonious with the existing uses on the adjacent properties.

Provisions for Public Health, Safety, and Welfare:

The proposed development will be constructed to City of Kennewick Residential Design Standards and the applicable requirement of the Kennewick Municipal Code.

Staff Comment: It is staff's opinion that appropriate provisions have been made for, but not limited to, the public health, safety, and general welfare, for open spaces, drainage ways,

streets or roads, alleys, public sidewalks, utility easements and other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation areas, playgrounds, schools and school grounds, and the proposed subdivision has considered all other relevant facts and other planning features that assure safe walking conditions for students who walk to and from school.

Comprehensive Plan:

Staff is of the opinion that this request is consistent with and generally conforms to the City's Comprehensive Plan, and it will implement, goals and policies of the Comprehensive Plan. Particularly the following:

RESIDENTIAL GOAL 1: "Provide for attractive, walkable, and well-designed residential neighborhoods, with differing densities and compatible with neighboring areas."

POLICY 1: "Maintain residential zoning regulations that offer a similar graduation in building scale and bulk."

POLICY 5: "Encourage adequate pedestrian connections with nearby neighborhood and transit facilities in all residential site development."

Staff Comment: The proposed Preliminary Plat is consistent with the Comprehensive Plan Land Use and complies with development standards for Residential Low Density (RL) zoning district. Similar housing types and lot layouts are in the in the general area of the proposed development.

RESIDENTIAL GOAL 2: "Provide appropriate public facilities supporting residential areas."

POLICY1: "Ensure provision of parks, schools, drainage, transit, water, sanitation, infrastructure and pedestrian in new residential developments."

POLICY 2: "Encourage irrigation service throughout residential areas, when available, to support and maintain healthy landscaping."

POLICY 3: "Deny residential developments if concurrency is not met for transportation, water, and sewer, or appropriately condition."

Staff Comment: The proposed development will be constructed with the required infrastructure improvements that meet applicable standards.

The City of Kennewick hereby RECOMMENDS that Preliminary Plat 20-02 be APPROVED with the following conditions:

1. Comply with City of Kennewick regulatory controls, policies and codes, including the Residential Design Standards.
2. A landscape plan must be submitted for approval of all common areas, open spaces and rights-of-way not left in a natural state, listing the number, location, and species of trees, sizes of plant material, and ground cover prior to final plat approval. The landscape plan shall be prepared by a licensed landscape architect or licensed landscape installer drawn to a legible scale.
3. Provide a bond or cash deposit for incomplete landscaping prior to final plat approval.
4. Prior to final plat approval, a maintenance agreement shall be submitted for the future maintenance of the proposed tracts.
5. All fees required by the City shall be paid prior to approval of the final plat.
6. Comply with the applicable requirements of Kennewick Municipal Code Chapters 18.60 – Critical Areas – Critical Aquifer Recharge Areas and 18.62 – Critical Areas – Geologically Hazardous Areas.
7. Comply with the Fire Department Memorandum. (Exhibit 9)
8. Comply with the email submitted by the Benton Public Utility District. (Exhibit 11)

EXHIBIT 1

9. Comply with the Memorandum – Public Works Department. (Exhibit 13)
10. Comply with the Memorandum – Traffic Engineering Division comments. (Exhibit 14)
11. Comply with the Traffic Engineering Division comments on Letter from Applicant – Response to first review comments, dated 01/26/2021. (Exhibit 18)
12. Comply with Traffic Impact Analysis Supplemental Letter, dated 01/25/2021 including Traffic Engineering Division comments. (Exhibit 19)
13. Provide dust control method(s) such as hydro seeding for all areas of the site that are disturbed.
14. The Preliminary Plat (PP 20-02) expires 5 years from the approval date. The City may grant an extension, but any extension application must be applied for before the approved preliminary plat expires.

Report prepared by and contact person:
Anthony Muai, Planning Manager
anthony.muai@ci.kennewick.wa.us 509-585-4386



Department only

PP 20 - 02 / PLN- 2020-02594 Fee \$2160.00**Preliminary Plat Application**Date: 09/16/2020 Name Of Plat Apple Valley - Phase 6Area Of Plat: 41.07 Acres Zoning: RL #/Lots: 97 lots and 5 tractsMin. Lot Size: 7,506 Square Feet Average Lot Size: 10,783 Square Feet (Lots 1-96)Proposed Land Use: Single Family Residential SubdivisionGeneral Location: West of Sherman Street, South of Bob Olson ParkwayParent Parcel Numbers: 117892000001011 and 117892000001012Applicant Name: Matt SmithAddress: 15 SW Colorado Avenue, Suite 1City, State, Zip: Bend, OR 97702Phone Number: (541) 382-6691 E-mail matt@wspi.netOwner's Name: Tri-Cities Development Company, LLC - Matt SmithAddress: 15 SW Colorado Avenue, Suite 1City, State, Zip: Bend, OR 97702Phone Number: (541) 382-6691 E-mail matt@wspi.netSurveyor's Name: Alex MatarazzoAddress: 400 Bradley Boulevard, Suite 106City, State, Zip: Richland, WA 99352Phone Number: (509) 942-1600 E-mail alex.matarazzo@pbsusa.comEngineer's Name: Jason MattoxAddress: 400 Bradley Boulevard, Suite 106City, State, Zip: Richland, WA 99352Phone Number: (509) 942-1600 E-mail jason.mattox@pbsusa.com

Plat Will Be Served By: (Check Those Which Apply)

Telephone Co:	Verizon	☒	Other	<u>None to the applicant's knowledge</u>	
Water System:	Well	☐	Private	☐	City ☒
Sewer System:	Septic	☐	City	☒	
Natural Gas:	Yes	☒	No	☐	
Cable Tv:	Yes	☒	No	☐	

Irrigation District: Kennewick Irrigation District Power: PUD Benton

I certify that the information given above is true and complete to the best of my knowledge.

SIGNATURE OF APPLICANT: _____

[Signature]
Matt Smith, V.P. Tri Cities Development Co., LLC

This preliminary plat is being submitted with my consent.

SIGNATURE OF OWNER: _____

[Signature]
Matt Smith V.P. Tri Cities Development Co., LLC

Received by: _____ Date: _____ Fee paid: _____

SEPA Checklist

ESA Supplement

Ownership Report

Date Received Stamp



NOTIFICATION OF MAILING

I, Melinda Dirker, on 3/25, 2021
Put in the mail drop 48
Mailed 48 copies of NOPH/map
for PP 20-02
to prop. owners per list provided
as shown on the attached list.

37


Signature



Community Planning Department

210 West 6th Avenue

Kennewick, WA 99336

Phone: (509) 585-4280

cedinfo@ci.kennewick.wa.us

NOTICE OF PUBLIC HEARING – APRIL 12, 2021, 6:00 P.M.

Proposal: Matt Smith, submitted a preliminary plat application to subdivide a 41.07-acre lot into 97 lots and 5 tracts, located south of Bob Olson Pkwy and west of S. Sherman St. and previous phases of Apple Valley. The Comprehensive Plan designation for the site is Low Density Residential. The site is zoned Residential, Low (RL) and is subject to Residential Design Standards. The file number is PP 20-02/PLN-2020-02594.

Open Record Hearing: The City of Kennewick's Hearing Examiner will conduct an open record hearing at 6:00 p.m. on **April 12, 2021**. In response to the COVID-19 emergency, the hearing will be conducted via an online meeting platform. Testimony will be taken at this meeting. To participate in the meeting use the link found at www.go2kennewick.com/HearingExaminer.

Submitting Written Comments

- Comments may be submitted online at <http://www.go2kennewick.com/HearingExaminer> no later than 4:30 p.m. on Friday, April 9, 2021 to be included in the Hearing Examiners packet for the record.
- Comments may also be mailed to 210 W. 6th Ave., Kennewick, WA 99336 or emailed to anthony.muai@ci.kennewick.wa.us no later than 4:30 p.m. on Friday, April 9, 2021 to be included in the Hearing Examiners packet for the record.

Commenting at the Meeting

- If you wish to comment during the Public Hearing, please register at <http://www.go2kennewick.com/HearingExaminer>. Registrations must be received by 4:00 p.m. on Monday, March 8th.

Environmental Documents and/or Studies Applicable to this Proposal: A Determination of Non-significance, ED 20-29/PLN-2020-02732 was issued on March 24, 2021.

Determination of Completeness: The application was determined to be complete for the purposes of processing on October 6, 2020.

Project Permits Associated with this Proposal: Civil

Preliminary Determination of Regulations Used for Project Mitigation: Title 18 (Zoning), Title 17 (Subdivision), Title 4 (Administrative Procedures) of the Kennewick Municipal Code and the land use policies in the Kennewick Comprehensive Plan.

Estimated Date of Decision: Within 10 business days of the Hearing Date of April 12, 2021.

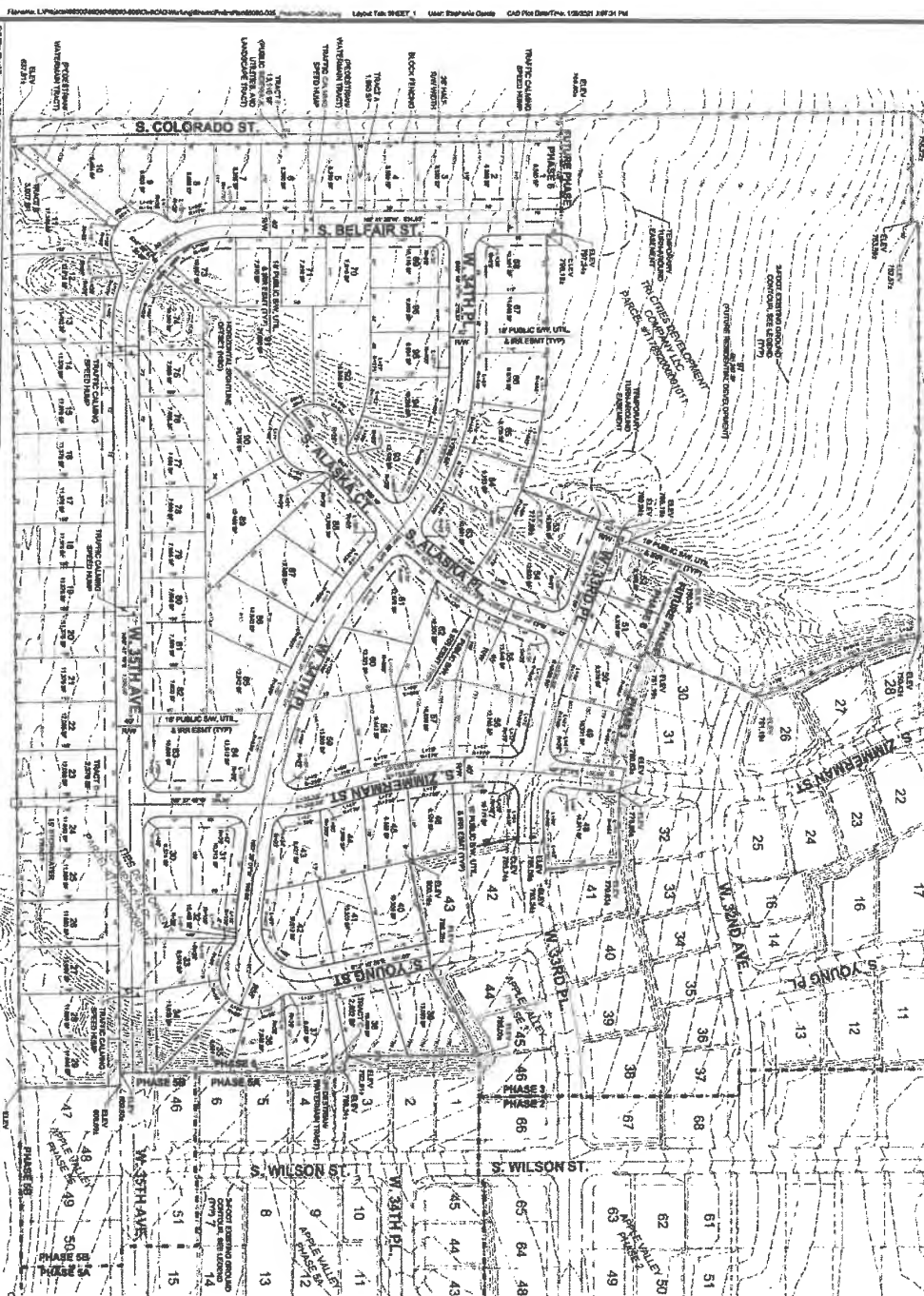
To Receive Notification of the Decision: Contact the Development Services Division at 210 W. 6th Avenue, Kennewick, WA 99336 or via telephone at (509) 585-4280.

Appeal: Any person aggrieved by the decision of the Kennewick Hearing Examiner on this proposal may appeal to the Superior Court of Benton County within twenty-one (21) days of the date of decision.

Anthony Muai, Planning Manager

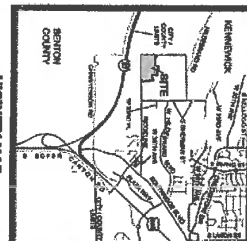
The City of Kennewick welcomes full participation in public meetings by all citizens and does not discriminate on the basis of disability, pursuant to the requirements of the American with Disabilities Act of 1990, pub. L 101-336. No qualified individual with a disability shall be excluded or denied the benefit of participating in such meetings. If you wish to use auxiliary aids or require assistance to comment at this public meeting, please contact the City of Kennewick, Anthony Muai, Development Services Department at (509) 585-4386 or TDD (509) 585-4425 or through the Washington Relay Service Center TTY at #711 at least ten days prior to the date of the meeting to make arrangements for special needs.

Located in The NW 1/4 Of Sec. 17, T. 8 N., R. 29 E., W. 4 M.

[illegible][illegible]

APPLICANT DEVELOPER: TRICREST DEVELOPMENT CO. LTD.	ENGINEER: 400 BRADLEY BLVD, S.W. ALBUQUERQUE, NM 87102 PHONE: (505) 942-1600
ATTN: MATT SMITH 10000 CHANDLER AVENUE SUITE 1 BEND, OR 97702 (541) 325-8551	
SURVEYOR: FBS ATTN: ALAN MATTARAZZO, PLS 4000 S. 10TH AVE, SUITE 106 PHOENIX, AZ 85040 PHONE: (602) 942-1600	

NOT TO BEAL



PRELIMINARY
SUBJECT TO AGENCY REVIEW
NOT FOR CONSTRUCTION

Part 1 of 2

PRELIMINARY PLAT FOR:
APPLE VALLEY - PHASE 6
A SUBDIVISION LOCATED IN THE CITY OF KENNEWICK, WASHINGTON



FOR Engineering and
Environmental
• GE Bushy, Ltd. 200 120
Hudson, WA 97037
509.342.1020
www.ge.com

Exhibit 3

5960®

Easy Peel® Address Labels
Bend along line to expose Pop-up Edge®Go to avery.com/templates
Use Avery Template 5960

37
ANDREW & ELIZABETH FISHER
3318 S YOUNG ST
KENNEWICK WA 99338

37
ERIC A & KATHY L OTHEIM
7044 W 33RD PL
KENNEWICK WA 99338

37
KYLE M & KAREN E ALLMANN
7087 W 32ND AVE
KENNEWICK WA 99338

37
ARVID K & DEBORAH J LARSON
7032 W 33RD PL
KENNEWICK WA 99338

37
KEZIAH D WATSON
7039 W 32ND AVENUE
KENNEWICK WA 99338

37
THOMAS K QUESTAD
7080 W 32ND AVE
KENNEWICK WA 99338

37
RUVIM V BEREZOVSKIY
7008 W 33RD PLACE
KENNEWICK WA 99338

37
RUBEN & CAMPOS NOHELY L
RUVALCABA
814 S FIR STREET
KENNEWICK WA 99338

37
ERIC & TERESA D LOFTUS
CULVERHOUSE
315 E 10TH PL
KENNEWICK WA 99337

37
BREK RICHARD & ABBIE CARTER
TOLMAN
3306 S YOUNG ST
KENNEWICK WA 99338

37
JASON LEE POTTER
7031 W 33RD PL
KENNEWICK WA 99338

37
DINDO S & VOVILYN V PANGILAN
7051 W 32ND AVENUE
KENNEWICK WA 99338

37
ELIZABETH CARRASCO
7020 W 33RD PLACE
KENNEWICK WA 99338

37
MEKENZIE & TARVER JACOB
HEMSTREET
3155 S ZIMMERMAN ST
KENNEWICK WA 99338

37
GREGORY A & SANDRA L HURST
7040 W 32ND AVENUE
KENNEWICK WA 99338

37
GARY & JULIE LOIACONO
3143 S ZIMMERMAN STREET
KENNEWICK WA 99338

37
RYAN D WINGFIELD
7028 W 32ND AVE
KENNEWICK WA 99338

37
SAMUEL MEDRANO & ALVARADO IRMA
ALVARADO
424 S PENN PL
KENNEWICK WA 99336

37
TRI CITIES DEVELOPMENT COMPANY
LLC
15 SW COLORADO STE 1
BEND OR 97702

37
J F & GLADYS MOORE
3514 S SHERMAN ST
KENNEWICK WA 99337-0000

37
TITAN HOMES LLC
6001 W DESCHUTES AVE STE 611
KENNEWICK WA 99336-4810

37
FARRELL C & DEBRA ROSS
7019 W 33RD PL
KENNEWICK WA 99338

37
SHANE T DAVIS
7007 W 33RD PL
KENNEWICK WA 99338

37
NEDIM & EMIN A MESAN
7104 W 31ST PL
KENNEWICK WA 99338

37
ALEXANDER Y KOROTKOV
7001 W 33RD PLACE
KENNEWICK WA 99338

37
THOMAS W & BEVERLY A WALTHER
3128 S ZIMMERMAN STREET
KENNEWICK WA 99338

37
SHAWN L & SHELBY N FOSTER
3131 S ZIMMERMAN ST KENNEWICK
WA 99338

37
BRYSON & MEGAN A CASALE
3128 S YOUNG PL
KENNEWICK WA 99338

Exhibit 3

Allez à avery.ca/gabarits
|| Utilisez la Gabarit Avenir 5960 ||

Étiquettes d'adresse Easy Peel®
|| Rouliez à la hauteur afin de révéler le rebord Pop-Up® ||

Pat: avery.com/patents
|| 20 ||

37
ROBERT HABLADO
3116 S ZIMMERMAN ST
KENNEWICK WA 99338

37
ANTHONY D & JACQUELINE J HORN
6971 W 33RD PL
KENNEWICK WA 99337

37
WILLIAM DALE & KATHRYN ANN
COSTIN
3119 S ZIMMERMAN STREET
KENNEWICK WA 99338

37
ADAM A & ROSEANNE M OGREN
7001 W 32ND AVE
KENNEWICK WA 99338

37
TAMMY LYNN & PATRICK JEFFREY
STOFLET
3251 S WILSON STREET
KENNEWICK WA 99337

37
TOBIAS STARCHER
6947 W 33RD PL
KENNEWICK WA 99338

37
JAMES M & TINA M MERRILL
3104 S ZIMMERMAN ST
KENNEWICK WA 99338

37
REECE M & MELISSA A MOORE
3227 S WILSON ST
KENNEWICK WA 99338

37
KIETH ADAM HOBART
PO BOX 3452
PASCO WA 99302

37
MK PROPERTY MANAGEMENT LLC
PO BOX 3230
PASCO WA 99302

37
TRUSTEES JAY E & CHARLENE M
MUELLER
3230 S WILSON PLACE
KENNEWICK WA 99338

37
WARREN H & KIM SHARON WITT
6851 W 33RD PLACE
KENNEWICK WA 99338

37
SOUTHRIDGE VILLAGE LLC
PO BOX 7225
KENNEWICK WA 99336

37
ERIC P & CHING-RU BERTRAND
6827 W 33RD PLACE
KENNEWICK WA 99338

37
DUARTE MARIANO & GOMEZ
TERESAGOMEZ
3253 S WILSON PL
KENNEWIK WA 99338

37
JARIN JONES
3229 S WILSON PL
KENNEWICK WA 99338

37
STEVEN & JAVONNA GEDDES
3306 S VAN BURCH STREET
KENNEWICK WA 99338

37
GENE N & KERRY R ST DENIS
3258 S VAN BUREN ST
KENNEWICK WA 99338

37
JAYCEE STRUCTURE LLC
1505 NE VILLAGE ST
FAIRFIELD OR 97024

37

37
JASON MATTOX
PBS ENGINEERING & ENVIRONMENTAL
6115 BURDEN BLVD #E
PASCO WA 00301-8930

37

37

37

Go to avery.com/templates
|| Use Avery Template 5960 ||

Easy Peel® Address Labels
|| Bend along line to expose Pop-Up Edge® ||

5960®
|| AVERY® ||

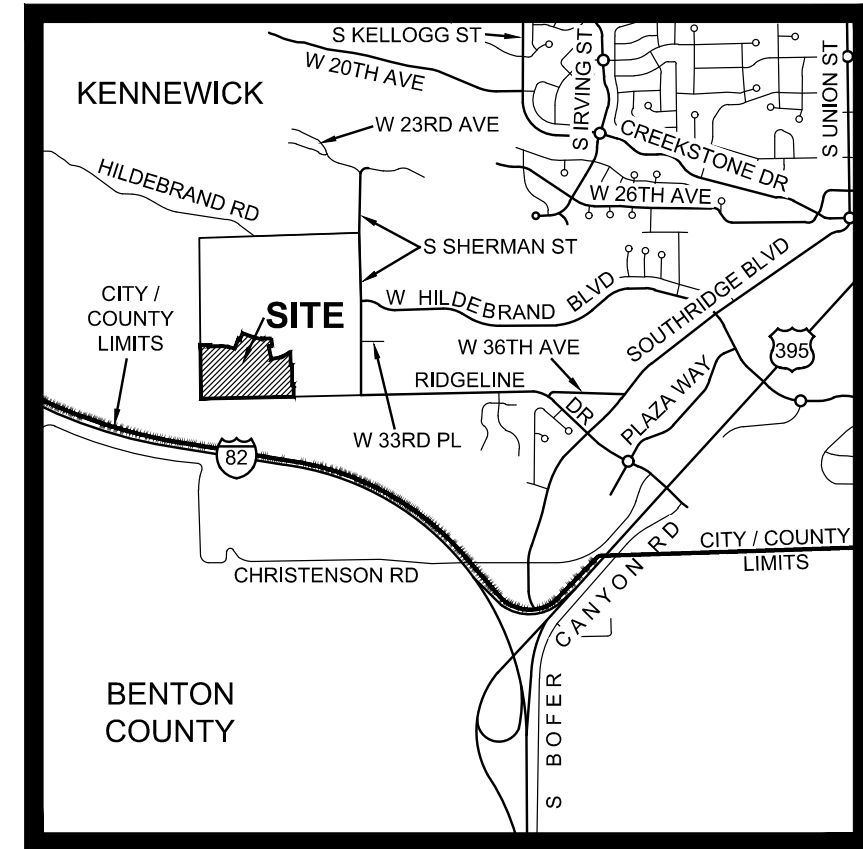
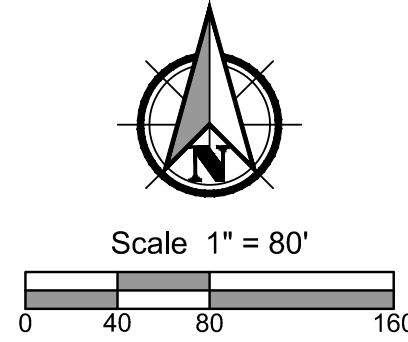
APPLE VALLEY - PHASE 6

PRELIMINARY PLAT

Located In The NW 1/4 Of Sec. 17, T. 8 N., R. 29 E., W.M.

BASIS OF BEARINGS:
NORTH 88°03'17" EAST ALONG THE NORTH
LINE OF THE NORTHEAST 1/4 OF SECTION
17, T. 8 N. R. 29 E. W.M., PER SURVEY IN
BOOK 1 OF SURVEYS AT PAGE 4595.

BASIS OF ELEVATION:
CITY OF KENNEWICK POINT "K0926"
HAVING AN ELEVATION OF 744.62.



VICINITY MAP
NOT TO SCALE

APPLICANT/DEVELOPER: TRI-CITIES DEVELOPMENT CO. LLC
ATTN: MATT SMITH
15 SW COLORADO AVENUE
SUITE 1
BEND, OR 97702
(541) 382-6691

ENGINEER: PBS
ATTN: JASON MATTOX, PE
400 BRADLEY BLVD, SUITE 106
RICHLAND, WA 99352
PHONE: (509) 942-1600

SURVEYOR: PBS
ATTN: ALEX MATARAZZO, PLS
400 BRADLEY BLVD, SUITE 106
RICHLAND, WA 99352
PHONE: (509) 942-1600

LEGEND

- EL FOUND IRON PIPE/BRASS CAP
- ELEV ELEVATION
- INTX INTERSECTION
- PG. PAGE
- R/W RIGHT-OF-WAY
- SF SQUARE FEET
- TYP TYPICAL
- SW, IRR & UTIL ESMT SIDEWALK, IRRIGATION & UTILITY EASEMENT (OR A COMBINATION THEREOF)
- VOL. VOLUME
- SECTION LINE OR SUB-SECTION LINE
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT
- EXISTING GROUND CONTOUR AS DERIVED FROM AERIAL PHOTOGRAPHY PROVIDED BY GEOTERRA ON FEBRUARY 20, 2015, RAISED TO NAVD 88 AND COMBINED WITH COMPLETED PHASE FINISH GRADES
- PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY CENTERLINE
- PROPOSED LOT BOUNDARY
- PROPOSED PHASE LINE

LAND USE TABLE	
SITE AREA:	41.07 ACRES
TOTAL LOT COUNT:	97 LOTS + 5 TRACTS
SINGLE FAMILY RESIDENTIAL LOTS:	96 LOTS (LOTS 1-96)
FUTURE RESIDENTIAL LOT:	11.05 ACRES (LOT 97)
MINIMUM RESIDENTIAL LOT AREA:	7,556 SF (LOT 75)
MAXIMUM RESIDENTIAL LOT AREA:	21,890 SF (LOT 91)
OVERALL AVG. LOT AREA:	10,770 SF (LOTS 1-96)
RIGHT OF WAY DEDICATION:	251,345 SF (5.77 ACRES)
TRACTS A, B, C, D, E:	22,647 (0.52 ACRES)
TRACTS A,B,C USE:	PEDESTRIAN ACCESS AND WATER MAIN TRACT
TRACT D USE:	STORM WATER TRACT
TRACTS E USE:	PUBLIC SIDEWALK, UTILITIES, AND LANDSCAPE TRACT

PRELIMINARY PLAT FOR:

APPLE VALLEY - PHASE 6

A SUBDIVISION LOCATED IN THE CITY OF KENNEWICK, WASHINGTON

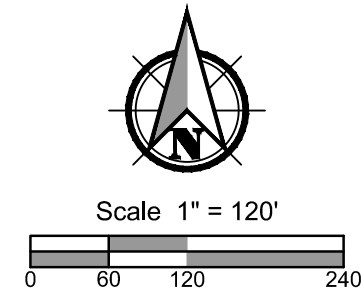
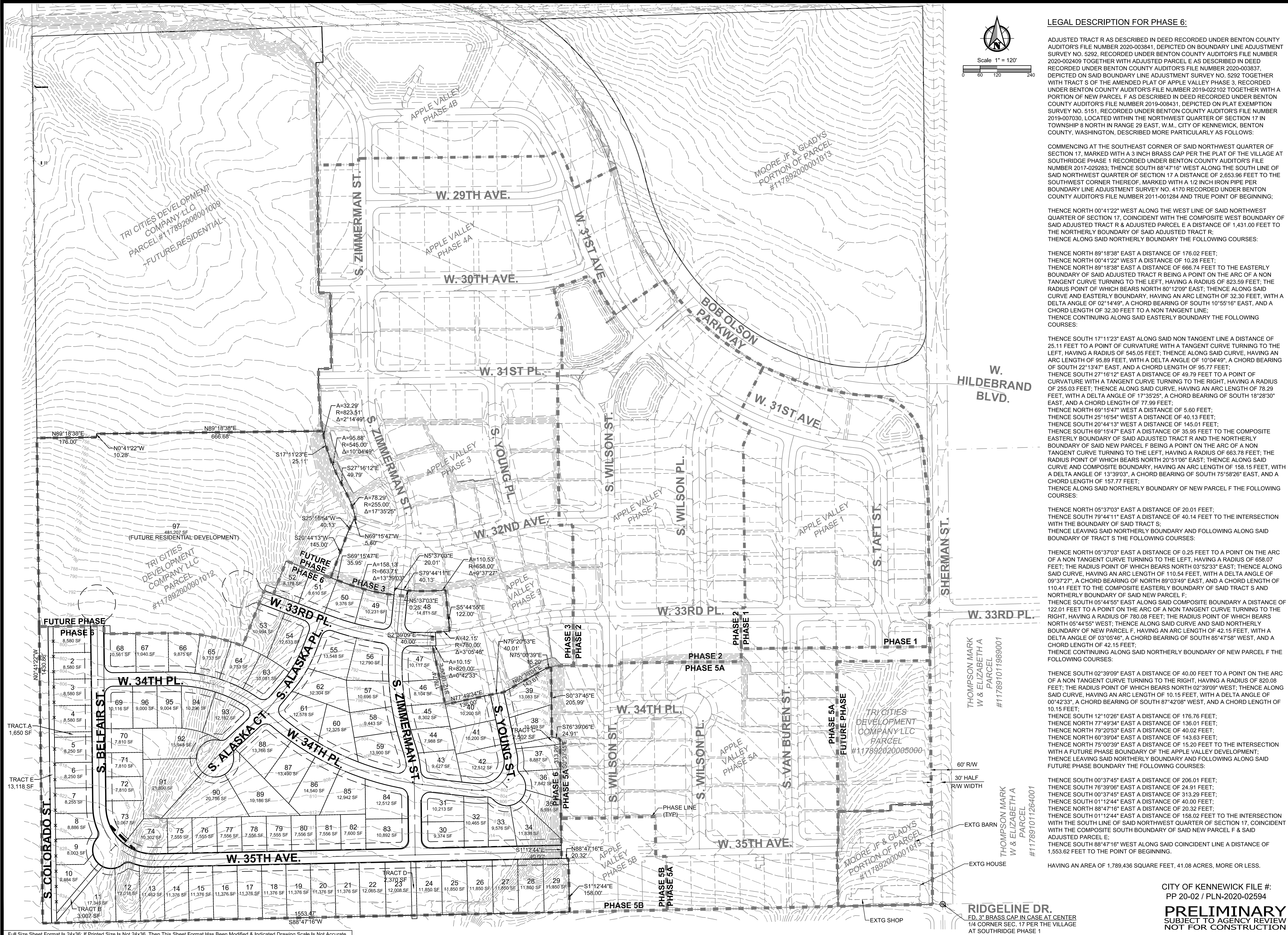


DESIGNED:
SG

CHECKED:
JLM

JANUARY 2021
66090.005

Filepath: L:\Projects\66090\66090-005\CAD\Working\Sheets\Plan\Plate000-005_Prelim\PlateC-002.dwg User: Stephanie Garcia Layout Tab: SHEET 2 CAD Plot Date/Time: 1/26/2021 3:09:44 PM



LEGAL DESCRIPTION FOR PHASE 6:

ADJUSTED TRACT R AS DESCRIBED IN DEED RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2020-003841, DEPICTED ON BOUNDARY LINE ADJUSTMENT SURVEY NO. 5292, RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2020-002409 TOGETHER WITH ADJUSTED PARCEL E AS DESCRIBED IN DEED RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2020-003837, DEPICTED ON SAID BOUNDARY LINE ADJUSTMENT SURVEY NO. 5292 TOGETHER WITH TRACT S OF THE AMENDED PLAT OF APPLE VALLEY PHASE 3, RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2019-022102 TOGETHER WITH A PORTION OF NEW PARCEL F AS DESCRIBED IN DEED RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2019-008431, DEPICTED ON PLAT EXEMPTION SURVEY NO. 5151, RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2019-007030, LOCATED WITHIN THE NORTHWEST QUARTER OF SECTION 17 IN TOWNSHIP 8 NORTH IN RANGE 29 EAST, W.M., CITY OF KENNEWICK, BENTON COUNTY, WASHINGTON, DESCRIBED MORE PARTICULARLY AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID NORTHWEST QUARTER OF SECTION 17, MARKED WITH A 3 INCH BRASS CAP PER THE PLAT OF THE VILLAGE AT SOUTHRIDGE PHASE 1 RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2017-029283; THENCE SOUTH 88°47'16" WEST ALONG THE SOUTH LINE OF SAID NORTHWEST QUARTER OF SECTION 17 A DISTANCE OF 2,653.96 FEET TO THE SOUTHWEST CORNER THEREOF, MARKED WITH A 1/2 INCH IRON PIPE PER BOUNDARY LINE ADJUSTMENT SURVEY NO. 4170 RECORDED UNDER BENTON COUNTY AUDITOR'S FILE NUMBER 2011-001284 AND TRUE POINT OF BEGINNING;

THENCE NORTH 00°41'22" WEST ALONG THE WEST LINE OF SAID NORTHWEST QUARTER OF SECTION 17, COINCIDENT WITH THE COMPOSITE WEST BOUNDARY OF SAID ADJUSTED TRACT R & ADJUSTED PARCEL E A DISTANCE OF 1,431.00 FEET TO THE NORTHERLY BOUNDARY OF SAID ADJUSTED TRACT R; THENCE ALONG SAID NORTHERLY BOUNDARY THE FOLLOWING COURSES:

THENCE NORTH 89°18'38" EAST A DISTANCE OF 176.02 FEET; THENCE NORTH 00°41'22" WEST A DISTANCE OF 10.28 FEET; THENCE NORTH 89°18'38" EAST A DISTANCE OF 666.74 FEET TO THE EASTERLY BOUNDARY OF SAID ADJUSTED TRACT R BEING A POINT ON THE ARC OF A NON TANGENT CURVE TURNING TO THE LEFT, HAVING A RADIUS OF 823.59 FEET; THE RADIUS POINT OF WHICH BEARS NORTH 80°12'09" EAST; THENCE ALONG SAID CURVE AND EASTERLY BOUNDARY, HAVING AN ARC LENGTH OF 32.30 FEET, WITH A DELTA ANGLE OF 02°14'49", A CHORD BEARING OF SOUTH 10°55'16" EAST, AND A CHORD LENGTH OF 32.30 FEET TO A NON TANGENT LINE; THENCE CONTINUING ALONG SAID EASTERLY BOUNDARY THE FOLLOWING COURSES:

THENCE SOUTH 17°11'23" EAST ALONG SAID NON TANGENT LINE A DISTANCE OF 25.11 FEET TO A POINT OF CURVATURE WITH A TANGENT CURVE TURNING TO THE LEFT, HAVING A RADIUS OF 545.05 FEET; THENCE ALONG SAID CURVE, HAVING AN ARC LENGTH OF 95.89 FEET, WITH A DELTA ANGLE OF 10°04'49", A CHORD BEARING OF SOUTH 22°13'47" EAST, AND A CHORD LENGTH OF 95.77 FEET; THENCE SOUTH 27°16'12" EAST A DISTANCE OF 49.79 FEET TO A POINT OF CURVATURE WITH A TANGENT CURVE TURNING TO THE RIGHT, HAVING A RADIUS OF 255.03 FEET; THENCE ALONG SAID CURVE, HAVING AN ARC LENGTH OF 78.29 FEET, WITH A DELTA ANGLE OF 17°35'25", A CHORD BEARING OF SOUTH 18°28'30" EAST, AND A CHORD LENGTH OF 77.99 FEET; THENCE NORTH 69°15'47" WEST A DISTANCE OF 5.60 FEET; THENCE SOUTH 25°16'54" WEST A DISTANCE OF 40.13 FEET; THENCE SOUTH 20°44'13" WEST A DISTANCE OF 145.01 FEET; THENCE SOUTH 69°15'47" EAST A DISTANCE OF 35.35 FEET TO THE COMPOSITE EASTERLY BOUNDARY OF SAID ADJUSTED TRACT R AND THE NORTHERLY BOUNDARY OF SAID NEW PARCEL F BEING A POINT ON THE ARC OF A NON TANGENT CURVE TURNING TO THE LEFT, HAVING A RADIUS OF 663.78 FEET; THE RADIUS POINT OF WHICH BEARS NORTH 20°51'06" EAST; THENCE ALONG SAID CURVE AND COMPOSITE BOUNDARY, HAVING AN ARC LENGTH OF 158.15 FEET, WITH A DELTA ANGLE OF 13°39'03", A CHORD BEARING OF SOUTH 75°58'26" EAST, AND A CHORD LENGTH OF 157.77 FEET; THENCE ALONG SAID NORTHERLY BOUNDARY OF NEW PARCEL F THE FOLLOWING COURSES:

THENCE NORTH 05°37'03" EAST A DISTANCE OF 20.01 FEET; THENCE SOUTH 79°44'11" EAST A DISTANCE OF 40.14 FEET TO THE INTERSECTION WITH THE BOUNDARY OF SAID TRACT S; THENCE LEAVING SAID NORTHERLY BOUNDARY AND FOLLOWING ALONG SAID BOUNDARY OF TRACT S THE FOLLOWING COURSES:

THENCE NORTH 05°37'03" EAST A DISTANCE OF 0.25 FEET TO A POINT ON THE ARC OF A NON TANGENT CURVE TURNING TO THE LEFT, HAVING A RADIUS OF 658.07 FEET; THE RADIUS POINT OF WHICH BEARS NORTH 03°52'33" EAST; THENCE ALONG SAID CURVE, HAVING AN ARC LENGTH OF 110.54 FEET, WITH A DELTA ANGLE OF 09°37'27", A CHORD BEARING OF NORTH 89°03'49" EAST, AND A CHORD LENGTH OF 110.41 FEET TO THE COMPOSITE EASTERLY BOUNDARY OF SAID TRACT S AND NORTHERLY BOUNDARY OF SAID NEW PARCEL F; THENCE SOUTH 05°44'55" EAST ALONG SAID COMPOSITE BOUNDARY A DISTANCE OF 122.01 FEET TO A POINT ON THE ARC OF A NON TANGENT CURVE TURNING TO THE RIGHT, HAVING A RADIUS OF 780.08 FEET; THE RADIUS POINT OF WHICH BEARS NORTH 05°44'55" WEST; THENCE ALONG SAID CURVE AND SAID NORTHERLY BOUNDARY OF NEW PARCEL F, HAVING AN ARC LENGTH OF 42.15 FEET, WITH A DELTA ANGLE OF 03°05'46", A CHORD BEARING OF SOUTH 85°47'58" WEST, AND A CHORD LENGTH OF 42.15 FEET; THENCE CONTINUING ALONG SAID NORTHERLY BOUNDARY OF NEW PARCEL F THE FOLLOWING COURSES:

THENCE SOUTH 02°39'09" EAST A DISTANCE OF 40.00 FEET TO A POINT ON THE ARC OF A NON TANGENT CURVE TURNING TO THE RIGHT, HAVING A RADIUS OF 820.08 FEET; THE RADIUS POINT OF WHICH BEARS NORTH 02°39'09" WEST; THENCE ALONG SAID CURVE, HAVING AN ARC LENGTH OF 10.15 FEET, WITH A DELTA ANGLE OF 00°42'33", A CHORD BEARING OF SOUTH 87°42'08" WEST, AND A CHORD LENGTH OF 10.15 FEET; THENCE SOUTH 12°10'26" EAST A DISTANCE OF 176.76 FEET; THENCE NORTH 77°49'34" EAST A DISTANCE OF 136.01 FEET; THENCE NORTH 79°20'53" EAST A DISTANCE OF 40.02 FEET; THENCE NORTH 60°39'04" EAST A DISTANCE OF 143.63 FEET; THENCE NORTH 75°00'39" EAST A DISTANCE OF 15.20 FEET TO THE INTERSECTION WITH A FUTURE PHASE BOUNDARY OF THE APPLE VALLEY DEVELOPMENT; THENCE LEAVING SAID NORTHERLY BOUNDARY AND FOLLOWING ALONG SAID FUTURE PHASE BOUNDARY THE FOLLOWING COURSES:

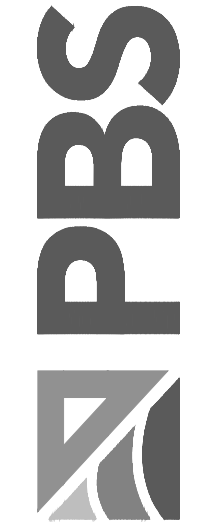
THENCE SOUTH 00°37'45" EAST A DISTANCE OF 206.01 FEET; THENCE SOUTH 76°39'06" EAST A DISTANCE OF 24.91 FEET; THENCE SOUTH 00°37'45" EAST A DISTANCE OF 313.29 FEET; THENCE SOUTH 01°12'44" EAST A DISTANCE OF 40.00 FEET; THENCE NORTH 88°47'16" EAST A DISTANCE OF 20.32 FEET; THENCE SOUTH 01°12'44" EAST A DISTANCE OF 158.02 FEET TO THE INTERSECTION WITH THE SOUTH LINE OF SAID NORTHWEST QUARTER OF SECTION 17, COINCIDENT WITH THE COMPOSITE SOUTH BOUNDARY OF SAID NEW PARCEL F & SAID ADJUSTED PARCEL E; THENCE SOUTH 88°47'16" WEST ALONG SAID COINCIDENT LINE A DISTANCE OF 1,553.62 FEET TO THE POINT OF BEGINNING.

HAVING AN AREA OF 1,789,436 SQUARE FEET, 41.08 ACRES, MORE OR LESS.

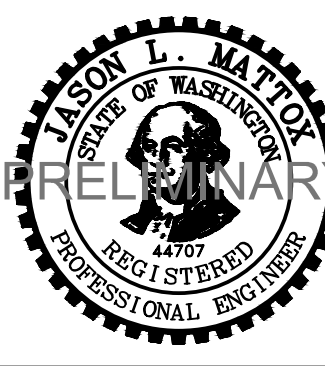
CITY OF KENNEWICK FILE #: PP 20-02 / PLN-2020-02594

PRELIMINARY
SUBJECT TO AGENCY REVIEW
NOT FOR CONSTRUCTION

PBS Engineering and
Environmental Inc.
106
Richards, WA 98352
509.942.1600
pbsusa.com



PRELIMINARY PLAT FOR:
APPLE VALLEY - PHASE 6
A SUBDIVISION LOCATED IN THE CITY OF KENNEWICK, WASHINGTON



DESIGNED:
SG
CHECKED:
JLM
JANUARY 2021
66090.005



Exhibit A-5
Community Planning Department

210 West 6th Avenue
Kennewick, WA 99336
Phone: (509) 585-4280
cedinfo@ci.kennewick.wa.us

DETERMINATION OF NON-SIGNIFICANCE

FILE/PROJECT NUMBER: ED 20-29/PLN-2020-02732 & PP 20-02/PLN-2020-02594

DESCRIPTION OF PROPOSAL: 41.07 acre 97 lot preliminary plat

PROPONENT: Matt Smith

LOCATION OF PROPOSAL, INCLUDING STREET ADDRESS, IF ANY: generally south of Bob Olson Pkwy and west of S. Sherman St.

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.

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

- ☒ 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:

- ☒ No conditions.
☐ See attached condition(s).

Date: March 24, 2021

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 emailed to Benton Clean Air Authority, Confederated Tribes of Umatilla Indian Reservation, Department of Ecology SEPA Register, Department of Fish & Wildlife, Department of Natural Resources, Washington State Department of Transportation.

Soil Sampling Report For: The Parks, Planned Residential Development Kennewick, Benton County, Washington

April 2016

Prepared for
HDJ Design Group
Walla Walla, WA

Prepared by
EAS: Environmental Assessment Services, LLC
Richland, Washington



This page intentionally left blank.

Table of Contents

1.0	Introduction	1
1.1	Project Background	1
1.2	Terms and Conditions	1
1.3	Limitations and Exceptions of Assessment	1
1.4	Methodology Used	1
2.0	Development of Sampling Strategy and Laboratory Analyses	2
2.1	Sampling Strategy	2
2.2	Laboratory Analyses	2
3.0	Decontamination of Field Sampling Equipment	3
3.1	Pre-Sampling Decontamination	3
3.2	Decontamination of Sampling Equipment During Field Sampling	3
4.0	Sample Collection, Documentation, Storage and Shipping	4
4.1	Sample Collection	4
4.2	Sample Documentation	5
4.3	Sample Storage	5
4.4	Sample Shipment	5
5.0	Review of Analytical Results	7
5.1	Analytical Results	7
6.0	Conclusions	8
7.0	References	9

List of Figures

Figure 1: Site Map (Google Earth, 2015)

Figure 2: Sampling Location Map (Google Earth, 2015)

List of Appendices

Appendix A - Washington Department of Ecology Project Correspondence

Appendix B - Statement of Work for: The Parks Environmental Property Work,
Kennewick, WA

Appendix C - Analytical Results and Sample Container Certificates of Compliance

This page intentionally left blank

1.0 Introduction

Environmental Assessment Services, LLC (EAS) was contracted by the Jason Mattox, PE, with HDJ Design Group to provide soil sampling and analytical services for The Parks, a Planned Residential Development (PRD), located in the south part of Kennewick, Benton County, Washington (refer to Figure 1: Site Map).

1.1 Project Background

The need for the soil sampling and analyses is driven by correspondence to Mr. Wes Romine with Kennewick Development Services, from Ms. Gwen Clear with Washington State Department of Ecology (Ecology), dated December 1, 2015 and included in Appendix A to this report. Based upon the historical agricultural use of the subject property, Ecology recommended “that soils be sampled and analyzed for lead and arsenic, and for organochlorine pesticides.” Ecology also stated that if these contaminants were found at concentrations above the Model Toxics Control (MTCA) cleanup levels that the potential buyers be notified of such.

1.2 Terms and Conditions

EAS personnel conducted the soil sampling per procedures specified in Statement of Work for: The Parks Environmental Property Work, Kennewick, WA, included as Appendix B to this report. Soils were analyzed by OnSite Environmental Inc. in Redmond, WA, an Ecology accredited laboratory for the prescribed analyses.

This work was performed for the sole use of Mr. Jason Mattox, PE, HDJ Design Group, and their representatives. No other party should rely on the information contained herein without the prior written consent of EAS.

1.3 Limitations and Exceptions of Assessment

The assessment involved no exceptions or limitations to the project scope of work or EAS’s standard operating procedures.

1.4 Methodology Used

EAS’s soil sampling methodology included:

- Development of sampling strategy and laboratory analyses;
- Decontamination of field sampling equipment;
- Sample collection, documentation, storage and shipping;
- Review of analytical results; and
- Report Preparation.

2.0 Development of Sampling Strategy and Laboratory Analyses

2.1 Sampling Strategy

Gwen Clear with Ecology was contacted by phone on January 19, 2016 to discuss a sampling strategy for the project. She indicated that grab samples from depths of six (6) inches and twelve (12) inches below ground surface (bgs) were preferred, over a grid-like pattern over the subject property. EAS developed the project SOW based upon this guidance, establishing 13 pre-determined (approximate) sampling points stratified as shown in Figure 2 of the SOW and including a field duplicate sample for each sampling depth (6" and 12" bgs).

2.2 Laboratory Analyses

The constituents of potential concern (COPCs) – lead, arsenic and organochlorine pesticides – were confirmed with Ms. Clear (Ecology). OnSite Environmental Inc., an Ecology accredited environmental lab, was contracted to conduct the analytical testing for the COPCs using EPA Method 8081B for organochlorine pesticides and EPA Method 6010C for lead and arsenic. OnSite Environmental Inc. provided pre-cleaned certified 8 oz. sample containers, chain-of-custody forms and sample labels for the samples. Copies of the Certificate of Compliance for the sample containers are included with the laboratory analytical results in Appendix C to this report.

3.0 Decontamination of Field Sampling Equipment

3.1 Pre-Sampling Decontamination

All field sampling equipment including spade, soil auger and stainless steel trowels were pre-cleaned at EAS facilities and allowed to air dry at least 24 hours prior to use. The equipment was cleaned in an Alconox™ solution and rinsed three (3) times in deionized water with a purity of 18.2 megohms. The equipment was wrapped in aluminum foil for transport to the field.

3.2 Decontamination of Sampling Equipment During Field Sampling

The spade and soil trowels were decontaminated in the field after collection of each sample. Field decontamination entailed a “rough” wash in tap water, followed by washing the equipment with a brush in an Alconox™ solution and the rinsing three (3) times in deionized water with a purity of 18.1 megohms. The items were allowed to air dry then wrapped in foil prior to each use.

4.0 Sample Collection, Documentation, Storage and Shipping

4.1 Sample Collection

Soil samples were collected from thirteen (13) pre-determined locations (refer to Figure 2). The global position system (gps) coordinates for each location are provided in Table 1 below. Each soil pit was dug to a depth of six (6) inches bgs and a grab sample was collected and placed in a certified clean 8 oz. glass sample container with a Teflon lid. The soil pit was then excavated to a total depth of twelve (12) inches bgs where another grab sample was collected and placed in a certified clean 8 oz. sample container. A field duplicate sample was collected for each sampling depth (6 " bgs and 12" bgs). Each grab sample was collected by using a decontaminated stainless steel soil-sampling trowel.

Table 1: Soil Sample Collection Location

Sampling Point	Latitude	Longitude	Sample Nos.	Sample Depth (bgs)
1	46°11'02.0" N	119°13'16.5" W	Parks-SS-01-06	6 inches
			Parks-SS-01-12	12 inches
2	46°11'02.0" N	119°13'03.7" W	Parks-SS-02-06	6 inches
			Parks-SS-02-12	12 inches
3	46°11'02.0" N	119°12'47.5" W	Parks-SS-03-06	6 inches
			Parks-SS-03-12	12 inches
4	46°10'57.0" N	119°13'10.0" W	Parks-SS-04-06	6 inches
			Parks-SS-04-12	12 inches
5	46°10'57.0" N	119°12'56.0" W	Parks-SS-05-06	6 inches
			Parks-SS-05-12	12 inches
6	46°10'52.6" N	119°13'16.5" W	Parks-SS-06-06	6 inches
			Parks-SS-06-12	12 inches
7	46°10'52.6" N	119°13'05.0" W	Parks-SS-07-06	6 inches
			Parks-SS-07-06A	6 inches
			Parks-SS-07-12	12 inches
8	46°10'48.0" N	119°12'47.5" W	Parks-SS-08-06	6 inches
			Parks-SS-08-12	12 inches
9	46°10'48.0" N	119°13'09.0" W	Parks-SS-09-06	6 inches
			Parks-SS-09-12	12 inches
			Parks-SS-09-12A	12 inches
10	46°10'48.8" N	119°12'54.0" W	Parks-SS-10-06	6 inches
			Parks-SS-10-12	12 inches

11	46°10'43.0" N	119°13'17.5" W	Parks-SS-11-06	6 inches
			Parks-SS-11-12	12 inches
12	46°10'42.0" N	119°13'05.0" W	Parks-SS-12-06	6 inches
			Parks-SS-12-12	12 inches
13	46°10'43.0" N	119°12'46.4" W	Parks-SS-13-06	6 inches
			Parks-SS-13-12	12 inches

4.2 Sample Documentation

Sample labels were prepared for each soil sample and applied to the sample container upon sample collection. Per the project SOW, each sample was labeled with the client name (EAS), project number (7033-12 Parks), sample identification number (e.g., Parks-SS-01-06), date and time, analyses (EPA 8081B, As, Pb) and preservative ($\leq 6^{\circ}\text{C}$). Sample labels were secured to the sample container by applying clear tape over the label. The sample information for each sample (sample number, date/time, analyses, and name of EAS staff collecting the sample) was recorded in the EAS project field notebook. The gps coordinates for each sample location were also recorded in the field notebook.

4.3 Sample Storage

Soil samples were placed into a sample cooler for temporary storage once the sample label was completed and attached and the sample documentation was completed in the field notebook. Sufficient ice was placed in the cooler to maintain the sample temperatures at $\leq 6^{\circ}\text{C}$. Upon return to EAS facilities, the samples were stored in a locked refrigerator in the EAS laboratory overnight until prepared for shipment the next day.

4.4 Sample Shipment

Each sample was recorded on a Chain of Custody (CoC) form. Information recorded included our company name (EAS), project number (7033-12 Parks), project manager (D. Phipps), sampled by (D. Phipps), sample number (e.g., Parks-SS-01-06), date and time sampled, matrix (soil), number of containers, analyses (EPA 8081B for organochlorine pesticides & EPA 6010C for As & Pb) and box checked to indicate turnaround time. The CoC was signed and dated to relinquish the samples to the lab. The original CoC was placed in a plastic ziplock bag and packed in the cooler with the samples for that specific cooler and CoC. A copy of the CoC is included in Appendix C of this report.

Each sample container was packed in bubble wrap to ensure sample integrity to the lab. The samples were placed into two shipping coolers; each with sufficient ice to ensure that the samples arrived at the laboratory at a temperature of $\leq 6^{\circ}\text{C}$ and the CoC for that specific cooler. Packaging tape was wrapped completely around each cooler at two locations to ensure that the hinges were covered.

CoC security tape was placed on each cooler so that the integrity of the cooler and its contents could be verified upon receipt at the analytical laboratory.

The sample coolers were shipped overnight by a commercial air-freight company on March 3, 2016 and were delivered to the analytical laboratory, OnSite Environmental in Redmond, WA on March 4, 2016.

5.0 Review of Analytical Results

The COPCs for this sampling effort included the following:

- Organochlorine pesticides
- Arsenic (As)
- Lead (Pb)

EPA Method 8081B was used for detection of organochlorine pesticides and EPA Method 6010C was used for detection of As & Pb.

5.1 Analytical Results

The analytical results for each of the 28 soil samples collected and submitted to OnSite Environmental Inc. for the project are presented in Appendix C of this report. Arsenic (As) was not detected in any of the samples. Lead (Pb) was detected in all of the samples with concentrations ranging from 6.7 mg/kg (parts per million – ppm) to 13 mg/kg (ppm). Heptachlor epoxide (an organochlorine pesticide) was detected in sample number Parks-SS-08-12 at 7.8 µg/kg (parts per billion – ppb).

Model Toxics Control Act (MTCA) Regulation and Statute (WDOE Publication No. 94-06, Revised 2013) was reviewed to determine the cleanup levels for lead and heptachlor epoxide. Table 740-1 Method A Soil Cleanup Levels for Unrestricted Land Use list a **cleanup level of 250 mg/kg (ppm) for lead.**

Heptachlor epoxide is not listed in this table; it is listed in Table 749-2 Priority Contaminants of Ecological Concern for Sites that Qualify for the Simplified Terrestrial Ecological Evaluation Procedure with a cleanup level of 0.6 mg/kg (ppm) and in Table 749-3 Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants & Animals (for wildlife) with a **cleanup level of 0.4 mg/kg (ppm), which equates to 400 ppb.**

Lead concentrations for the soil samples collected and analyzed for The Parks property ranged from 6.7 to 13 ppm, well below the MTCA Level A Cleanup level of 250 ppm for lead.

Heptachlor epoxide was detected in one sample, Parks-SS-08-12, at a concentration of 7.8 ppb, well below the most conservative MTCA Cleanup level of 400 ppb for the pesticide.

6.0 Conclusions

Per Ecology recommendations, soils were sampled at 13 pre-determined (approximate) sampling points stratified over the site and analyzed for lead, arsenic and organochlorine pesticides. As noted in the previous section, lead (Pb) and heptachlor epoxide (an organochlorine pesticide) were detected in soil samples collected from the site.

Lead was detected in all of the soil samples collected from the site. Concentrations ranged from 6.7 to 13 ppm, well below the MTCA Level A Cleanup level of 250 ppm for lead.

Heptachlor epoxide was detected in one sample, Parks-SS-08-12, at a concentration of 7.8 ppb, well below the most conservative MTCA Cleanup level of 400 ppb for the pesticide.

All detections of lead and heptachlor epoxide were well below their associated MTCA Cleanup levels and warrant no further action.

There is no indication that soils on the site contain residual concentrations of pesticides, arsenic or lead that are above MTCA cleanup levels.

7.0 References

Google® Earth Aerial Photographs 2015

Washington State Department of Ecology, Model Toxics Control Act Regulation and Statute, Washington Department of Ecology, Revised 2013, Publication No. 94-06

This page intentionally left blank.

Figures

This page intentionally left blank



Figure 1: Site Map (Google Earth, 2015) The sampled property area is located in the south part of Kennewick, Washington, to the north of Interstate 82 and west of Hwy 395.



Figure 2 – Sampling Location Map (Google Earth, 2015) The approximate locations of the 13 sampling locations are represented with the orange triangles in the photo.

Appendices

This page intentionally left blank

Appendix A - Washington Department of Ecology Project Correspondence

This page intentionally left blank



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

1250 W Alder St • Union Gap, WA 98903-0009 • (509) 575-2490

December 1, 2015

Wes Romine
Kennewick Development Services
P.O. Box 6108
Kennewick, WA 99336

Re: PLN-2015-01863 and PLN-2015-01862

Dear Mr. Romine:

Thank you for the opportunity to comment on the notice of application for The Parks, a Planned Residential Development to develop approximately 137.4 ac into 553 residential units in 10 phases, proposed by Chad Bettesworth of Pahlisch Homes. We have reviewed the application and have the following comment.

TOXICS CLEAN-UP

Based upon the historical agricultural use of this land, there is a possibility the soil contains residual concentrations of pesticides. Ecology recommends that the soils be sampled and analyzed for lead and arsenic, and for organochlorine pesticides. If these contaminants are found at concentrations above the Model Toxics Control Act cleanup levels Ecology recommends that potential buyers be notified of their occurrence.

If you have any questions or would like to respond to these Toxics Clean-up comments, please contact **Valerie Bound** at (509) 454-7886 or email at valerie.bound@ecy.wa.gov.

WATER QUALITY

Project with Potential to Discharge Off-Site

The NPDES Construction Stormwater General Permit from the Washington State Department of Ecology is required if there is a potential for stormwater discharge from a construction site with disturbed ground. This permit requires that the SEPA checklist fully disclose anticipated activities including building, road construction and utility placements. Obtaining a permit is a minimum of a 38 day process and may take up to 60 days if the original SEPA does not disclose all proposed activities.



Mr. Romine
December 1, 2015
Page 2

The permit requires that Stormwater Pollution Prevention Plan (Erosion Sediment Control Plan) is prepared and implemented for all permitted construction sites. These control measures must be able to prevent soil from being carried into surface water (this includes storm drains) by stormwater runoff. Permit coverage and erosion control measures must be in place prior to any clearing, grading or construction.

More information on the stormwater program may be found on Ecology's stormwater website at: <http://www.ecy.wa.gov/programs/wq/stormwater/construction/>. Please submit an application or contact **Ray Latham** at the Department of Ecology, (509) 575-2807, with questions about this permit.

Sincerely,



Gwen Clear
Environmental Review Coordinator
Central Regional Office
(509) 575-2012
crosepacoordinator@ecy.wa.gov

**Appendix B – Statement of Work for: The
Parks Environmental Property Work,
Kennewick, WA**

This page intentionally left blank

Statement of Work for: The Parks Environmental Property Work, Kennewick, WA

Summary of Tasks

The following tasks are included in the statement of work (SOW) for The Parks Environmental Property Work (EPW):

1. Visual assessment of potential wetland areas to determine which areas will need to have a wetland delineation, assessment and rating
2. Delineation, assessment and rating of any wetlands on the subject property area
3. Soil sampling and analysis for Arsenic (As), Lead (Pb), and organochlorine pesticides

The Parks EPW area entails approximately 158 acres of undeveloped land in southeast Kennewick (refer to Figure 1).

Wetlands

Washington Department of Ecology (Ecology) in correspondence to Kennewick Development Services dated December 7, 2015 indicated that there are ravines on the subject property that may contain wetlands. Ecology also noted there is a pond on the property that will need to have the existing wetland functions evaluated to determine buffer zones and origin and history of the pond investigated to determine if it is a jurisdictional wetland under local, state or federal law.

Visual Assessment of Potential Wetlands

Staff will walk over the site and note all locations (e.g., ravines, ditches, ponds, seeps, etc.) that potentially contain wetlands and warrant further evaluation. A field-check for hydric soils and/or saturation will be conducted using a push probe to a depth of ~20 inches or refusal due to rock bottom. Areas that are potential wetlands will be flagged for future delineation. Areas that are checked but determined not to be wetlands will be noted in an EPW field notebook along with characteristics observed and used to make the determination.

Delineation, Assessment and Rating of Wetlands

All wetlands on the subject property will be delineated following procedures outlined in Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), U.S. Army Corps of Engineers (September 2008). The approximate border of any wetlands on the site will be flagged to aid surveyors in mapping the areas in the near future. All wetlands on the subject property will be rated following

procedures outlined in Washington State Wetland Rating System For Eastern Washington, 2014 Update.

Soil Sampling

Soil sampling will be conducted at 13 pre-determined (approximate) sampling points stratified as shown on Figure 2. Two grab samples, approximately an 8 oz jar full each, will be collected from each of the 13 sampling points. Samples will be collected from approximately 6 inches below ground surface (bgs) and from approximately 12 inches bgs. Field duplicate samples will be collected from two of the predetermined sampling points for quality assurance purposes; one from a depth of 6 inches and the other from a depth of 12 inches. Soil samples will be obtained by using a hand-held soil auger. Soils will be placed into a decontaminated stainless steel bowl that is lined with clean aluminum foil for each sample. Soil samples will be shipped to a Washington State Department of Ecology accredited environmental laboratory for analyses.

Decontamination

The soil auger, stainless steel sampling bowls, and any scoops, trowels, etc. that may be used for the soil sampling will be pre-cleaned at EAS facilities and allowed to air dry at least 24 hours prior to use but no longer than two weeks before use. All sampling equipment that may contact the sample material will be cleaned in an Alconox™ solution and rinsed three (3) times in deionized water with a purity of 10 megohms or greater. This same procedure will be used to clean all soil sampling equipment after completion of the sampling.

The soil auger will be decontaminated in the field after each sample collection. Field decontamination will entail a “rough” wash in tap water, followed by washing the auger with a brush in Alconox and water, followed by rinsing three (3) times in deionized water.

Sample Documentation

All soil samples will be placed in certified clean 8 oz. jars and labeled with the following information:

- Client name (EAS)
- Project number (7033-12Parks)
- Sample ID (e.g., Parks-SS-01-06); where SS = soil sample, 01 = sampling point, and 06 = sampling depth in inches bgs.
- Date and time
- Analysis (EPA 8081B, As, Pb)
- Preservative ($\leq 6^{\circ}\text{C}$)

Sample labels will be secured with clear tape. Sample information will also be recorded in the EPW field notebook along with location coordinates acquired from a hand-held global positioning system (GPS) for each sample location.

Sample Storage

Samples will be placed into a sample cooler with sufficient ice to ensure that the sample is maintained at a temperature of ≤ 6 °C. Samples may be temporarily stored in a designated refrigerator in the EAS laboratory until shipment if not shipped the same day collected.

Sample Shipment

All samples to be shipped for analyses will be documented on a Chain of Custody (CoC) form. The following information will be listed on the CoC:

- Company (EAS)
- Project number (7033-12Parks)
- Project manager (D. Phipps)
- Sampled by (D. Phipps)
- Sample Identification (e.g., Parks-SS-01-06)
- Date & time sampled
- Matrix (soil)
- Number of containers
- Analyses (EPA 8081B & EPA 6010C/200.7 for As & Pb)
- Box checked to indicate turnaround time in working days

The CoC will be signed and dated to relinquish samples to the lab. The original CoC will accompany the samples and the carbon copy retained by EAS for the project file.

Samples will be packed in bubble wrap and/or other protective material to ensure sample integrity to the lab. Samples will be placed in a cooler with the CoC and sufficient ice to ensure that the samples arrive to the laboratory at a temperature of ≤ 6 °C. Tape will be wrapped around the cooler, including any hinges, at least two times to ensure that the cooler does not come open during transit. A CoC security tape will be placed on the cooler by the sampler and integrity will be verified by the receiving laboratory technician to ensure that it was not compromised during shipping.

Reporting

A project report will be prepared to document the wetland findings (including Washington state wetland ratings for all wetlands on the site) and to document the soil sampling locations and analytical results. The analytical results will be compared to Model Toxics Control Act (MTCA) clean-up levels for each analyte to determine if further investigation and potentially clean-up actions are needed.

This page intentionally left blank.

Appendix C – Analytical Results and Sample Container Certificates of Compliance

This page intentionally left blank



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

March 15, 2016

Deborah Phipps
Environmental Assessment Services
350 Hills Street, #12
Richland, WA 99354

Re: Analytical Data for Project 7033-12 PARKS
Laboratory Reference No. 1603-054

Dear Deborah:

Enclosed are the analytical results and associated quality control data for samples submitted on March 4, 2016.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DeB" followed by a stylized flourish.

David Baumeister
Project Manager

Enclosures

Date of Report: March 15, 2016
Samples Submitted: March 4, 2016
Laboratory Reference: 1603-054
Project: 7033-12 PARKS

Case Narrative

Samples were collected on March 2, 2016 and received by the laboratory on March 4, 2016. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-01-06					
Laboratory ID:	03-054-01					
alpha-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	11	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	56	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	69	53-107				
DCB	87	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-01-12					
Laboratory ID:	03-054-02					
alpha-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	11	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	56	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	70	53-107				
DCB	87	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-02-06					
Laboratory ID:	03-054-03					
alpha-BHC	ND	5.9	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.9	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.9	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.9	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.9	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.9	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.9	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	12	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	12	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	12	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.9	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	12	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	12	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	12	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	12	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	12	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	12	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	12	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	12	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	12	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	59	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	64	53-107				
DCB	76	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-02-12					
Laboratory ID:	03-054-04					
alpha-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	11	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	56	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	66	53-107				
DCB	85	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:		PARKS-SS-03-06				
Laboratory ID:		03-054-05				
alpha-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	11	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	56	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	75	53-107				
DCB	93	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-03-12					
Laboratory ID:	03-054-06					
alpha-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	11	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	56	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	75	53-107				
DCB	95	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-04-06					
Laboratory ID:	03-054-07					
alpha-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	11	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	56	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	75	53-107				
DCB	94	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-04-12					
Laboratory ID:	03-054-08					
alpha-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	11	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	56	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	68	53-107				
DCB	90	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-05-06					
Laboratory ID:	03-054-09					
alpha-BHC	ND	5.7	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.7	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.7	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.7	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.7	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.7	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.7	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.7	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	11	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	57	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	64	53-107				
DCB	78	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-05-12					
Laboratory ID:	03-054-10					
alpha-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	11	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	56	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	75	53-107				
DCB	93	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-06-06					
Laboratory ID:	03-054-11					
alpha-BHC	ND	5.9	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.9	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.9	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.9	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.9	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.9	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.9	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	12	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	12	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	12	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.9	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	12	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	12	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	12	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	12	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	12	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	12	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	12	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	12	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	12	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	59	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	72	53-107				
DCB	92	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-06-12					
Laboratory ID:	03-054-12					
alpha-BHC	ND	5.8	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.8	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.8	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.8	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.8	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.8	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.8	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	12	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	12	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	12	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.8	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	12	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	12	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	12	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	12	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	12	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	12	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	12	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	12	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	12	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	58	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	74	53-107				
DCB	93	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-07-06					
Laboratory ID:	03-054-13					
alpha-BHC	ND	5.7	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.7	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.7	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.7	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.7	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.7	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.7	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.7	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	11	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	57	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	77	53-107				
DCB	97	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:		PARKS-SS-07-06A				
Laboratory ID:		03-054-14				
alpha-BHC	ND	5.7	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.7	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.7	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.7	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.7	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.7	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.7	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.7	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	11	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	57	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	75	53-107				
DCB	93	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-07-12					
Laboratory ID:	03-054-15					
alpha-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.6	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.6	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	11	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	11	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	11	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	56	EPA 8081B	3-9-16	3-9-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	76	53-107				
DCB	97	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B
 QUALITY CONTROL**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0309S1					
alpha-BHC	ND	5.0	EPA 8081B	3-9-16	3-9-16	
gamma-BHC	ND	5.0	EPA 8081B	3-9-16	3-9-16	
beta-BHC	ND	5.0	EPA 8081B	3-9-16	3-9-16	
delta-BHC	ND	5.0	EPA 8081B	3-9-16	3-9-16	
Heptachlor	ND	5.0	EPA 8081B	3-9-16	3-9-16	
Aldrin	ND	5.0	EPA 8081B	3-9-16	3-9-16	
Heptachlor Epoxide	ND	5.0	EPA 8081B	3-9-16	3-9-16	
gamma-Chlordane	ND	10	EPA 8081B	3-9-16	3-9-16	
alpha-Chlordane	ND	10	EPA 8081B	3-9-16	3-9-16	
4,4'-DDE	ND	10	EPA 8081B	3-9-16	3-9-16	
Endosulfan I	ND	5.0	EPA 8081B	3-9-16	3-9-16	
Dieldrin	ND	10	EPA 8081B	3-9-16	3-9-16	
Endrin	ND	10	EPA 8081B	3-9-16	3-9-16	
4,4'-DDD	ND	10	EPA 8081B	3-9-16	3-9-16	
Endosulfan II	ND	10	EPA 8081B	3-9-16	3-9-16	
4,4'-DDT	ND	10	EPA 8081B	3-9-16	3-9-16	
Endrin Aldehyde	ND	10	EPA 8081B	3-9-16	3-9-16	
Methoxychlor	ND	10	EPA 8081B	3-9-16	3-9-16	
Endosulfan Sulfate	ND	10	EPA 8081B	3-9-16	3-9-16	
Endrin Ketone	ND	10	EPA 8081B	3-9-16	3-9-16	
Toxaphene	ND	50	EPA 8081B	3-9-16	3-9-16	
Surrogate:	Percent Recovery	Control Limits				
TCMX	78	53-107				
DCB	96	59-121				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES								
Laboratory ID:	03-054-15							
	MS	MSD	MS	MSD	MS	MSD		
gamma-BHC	45.8	45.3	50.0	50.0	ND	92 91	41-116	1 12
Heptachlor	40.9	39.7	50.0	50.0	ND	82 79	41-115	3 13
Aldrin	43.6	41.6	50.0	50.0	ND	87 83	44-118	5 15
Dieldrin	101	98.2	125	125	ND	80 79	38-121	3 13
Endrin	101	98.9	125	125	ND	81 79	46-118	2 15
4,4'-DDT	101	92.5	125	125	ND	81 74	34-117	9 21
Surrogate:								
TCMX					75 73	53-107		
DCB					96 95	59-121		

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**TOTAL METALS
 EPA 6010C**

Matrix: Soil
 Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-054-01					
Client ID:	PARKS-SS-01-06					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	12	5.6	6010C	3-11-16	3-14-16	
Lab ID:	03-054-02					
Client ID:	PARKS-SS-01-12					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	9.5	5.6	6010C	3-11-16	3-14-16	
Lab ID:	03-054-03					
Client ID:	PARKS-SS-02-06					
Arsenic	ND	12	6010C	3-11-16	3-14-16	
Lead	8.2	5.9	6010C	3-11-16	3-14-16	
Lab ID:	03-054-04					
Client ID:	PARKS-SS-02-12					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	7.5	5.6	6010C	3-11-16	3-14-16	
Lab ID:	03-054-05					
Client ID:	PARKS-SS-03-06					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	13	5.6	6010C	3-11-16	3-14-16	
Lab ID:	03-054-06					
Client ID:	PARKS-SS-03-12					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	9.0	5.6	6010C	3-11-16	3-14-16	

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-054
 Project: 7033-12 PARKS

**TOTAL METALS
 EPA 6010C**

Matrix: Soil
 Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-054-07					
Client ID:	PARKS-SS-04-06					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	7.9	5.6	6010C	3-11-16	3-14-16	
Lab ID:	03-054-08					
Client ID:	PARKS-SS-04-12					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	8.7	5.6	6010C	3-11-16	3-14-16	
Lab ID:	03-054-09					
Client ID:	PARKS-SS-05-06					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	8.9	5.7	6010C	3-11-16	3-14-16	
Lab ID:	03-054-10					
Client ID:	PARKS-SS-05-12					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	7.9	5.6	6010C	3-11-16	3-14-16	
Lab ID:	03-054-11					
Client ID:	PARKS-SS-06-06					
Arsenic	ND	12	6010C	3-11-16	3-14-16	
Lead	9.3	5.9	6010C	3-11-16	3-14-16	
Lab ID:	03-054-12					
Client ID:	PARKS-SS-06-12					
Arsenic	ND	12	6010C	3-11-16	3-14-16	
Lead	8.7	5.8	6010C	3-11-16	3-14-16	

Date of Report: March 15, 2016
Samples Submitted: March 4, 2016
Laboratory Reference: 1603-054
Project: 7033-12 PARKS

**TOTAL METALS
EPA 6010C**

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-054-13					
Client ID:	PARKS-SS-07-06					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	9.1	5.7	6010C	3-11-16	3-14-16	
Lab ID:	03-054-14					
Client ID:	PARKS-SS-07-06A					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	8.8	5.7	6010C	3-11-16	3-14-16	
Lab ID:	03-054-15					
Client ID:	PARKS-SS-07-12					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	8.9	5.6	6010C	3-11-16	3-14-16	

Date of Report: March 15, 2016
Samples Submitted: March 4, 2016
Laboratory Reference: 1603-054
Project: 7033-12 PARKS

**TOTAL METALS
EPA 6010C
METHOD BLANK QUALITY CONTROL**

Date Extracted: 3-11-16
Date Analyzed: 3-11&14-16

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0311SM3

Analyte	Method	Result	PQL
Arsenic	6010C	ND	10
Lead	6010C	ND	5.0

Date of Report: March 15, 2016
Samples Submitted: March 4, 2016
Laboratory Reference: 1603-054
Project: 7033-12 PARKS

**TOTAL METALS
EPA 6010C
DUPLICATE QUALITY CONTROL**

Date Extracted: 3-11-16
Date Analyzed: 3-11&14-16

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-096-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	ND	ND	NA	10	
Lead	ND	ND	NA	5.0	

Date of Report: March 15, 2016
Samples Submitted: March 4, 2016
Laboratory Reference: 1603-054
Project: 7033-12 PARKS

**TOTAL METALS
EPA 6010C
MS/MSD QUALITY CONTROL**

Date Extracted: 3-11-16
Date Analyzed: 3-11&14-16

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 03-096-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	91.0	91	93.4	93	3	
Lead	250	226	90	225	90	0	

Date of Report: March 15, 2016
Samples Submitted: March 4, 2016
Laboratory Reference: 1603-054
Project: 7033-12 PARKS

% MOISTURE

Date Analyzed: 3-9-16

Client ID	Lab ID	% Moisture
PARKS-SS-01-06	03-054-01	11
PARKS-SS-01-12	03-054-02	11
PARKS-SS-02-06	03-054-03	15
PARKS-SS-02-12	03-054-04	11
PARKS-SS-03-06	03-054-05	10
PARKS-SS-03-12	03-054-06	10
PARKS-SS-04-06	03-054-07	10
PARKS-SS-04-12	03-054-08	11
PARKS-SS-05-06	03-054-09	12
PARKS-SS-05-12	03-054-10	11
PARKS-SS-06-06	03-054-11	15
PARKS-SS-06-12	03-054-12	14
PARKS-SS-07-06	03-054-13	12
PARKS-SS-07-06A	03-054-14	12
PARKS-SS-07-12	03-054-15	10



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a Sulfuric acid/Silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference



**Onsite
Environmental Inc.**

Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Exhibit 6

Chain of Custody

Page 2 of 2

**Turnaround Request
(in working days)**

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☒ Standard (7 Days)
(TPH analysis 5 Days)

☐ _____ (other)

Laboratory Number:

03-054

Company: **EAS**
Project Number: **4033-12 PAKS**
Project Name: **PAKS Soil Sampling**
Project Manager: **Deborah Phipps**
Sampled by: **Deborah Phipps**

Lab ID

Sample Identification

Date Sampled

Time Sampled

Matrix

Number of Containers

NWTPH-HCID

NWTPH-Gx/BTEX

NWTPH-Gx

NWTPH-Dx

Volatiles 8260C

Halogenated Volatiles 8260C

Semivolatiles 8270D/SIM

(with low-level PAHs)

PAHs 8270D/SIM (low-level)

PCBs 8082A

Organochlorine Pesticides 8081B

Organophosphorus Pesticides 8270D/SIM

Chlorinated Acid Herbicides 8151A

Total RCRA Metals

Total MTCA Metals

TCLP Metals

HEM (oil and grease) 1664A

6010 (As, Pb)

% Moisture

11 PAKS-SS-06-06 3/2/16 1430 Soil
12 PAKS-SS-06-12 1440
13 PAKS-SS-07-06 1325
14 PAKS-SS-07-06A 1325
15 PAKS-SS-07-12 3/2/16 1335 Soil

Handwritten signature and date 3/3/2016

Signature

Company

Date

Time

Comments/Special Instructions

Relinquished

Received

Relinquished

Received

Relinquished

Received

Reviewed/Date

Reviewed/Date

Chromatograms with final report ☐

Data Package: Standard ☐ Level III ☐ Level IV ☐

Electronic Data Deliverables (EDDs) ☐



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

March 15, 2016

Deborah Phipps
Environmental Assessment Services
350 Hills Street, #12
Richland, WA 99354

Re: Analytical Data for Project 7033-12 PARKS
Laboratory Reference No. 1603-053

Dear Deborah:

Enclosed are the analytical results and associated quality control data for samples submitted on March 4, 2016.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DeB" followed by a stylized flourish.

David Baumeister
Project Manager

Enclosures

Date of Report: March 15, 2016
Samples Submitted: March 4, 2016
Laboratory Reference: 1603-053
Project: 7033-12 PARKS

Case Narrative

Samples were collected on March 2, 2016 and received by the laboratory on March 4, 2016. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-08-06					
Laboratory ID:	03-053-01					
alpha-BHC	ND	5.6	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	5.6	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	5.6	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	5.6	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	5.6	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	5.6	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	5.6	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	5.6	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	11	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	56	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	60	53-107				
DCB	74	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-08-12					
Laboratory ID:	03-053-02					
alpha-BHC	ND	5.6	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	5.6	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	5.6	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	5.6	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	5.6	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	5.6	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	7.8	5.6	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	5.6	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	11	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	56	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	62	53-107				
DCB	74	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-09-06					
Laboratory ID:	03-053-03					
alpha-BHC	ND	6.1	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	6.1	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	6.1	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	6.1	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	6.1	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	6.1	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	6.1	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	12	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	12	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	12	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	6.1	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	12	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	12	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	12	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	12	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	12	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	12	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	12	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	12	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	12	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	61	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	64	53-107				
DCB	78	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-09-12					
Laboratory ID:	03-053-04					
alpha-BHC	ND	6.1	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	6.1	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	6.1	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	6.1	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	6.1	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	6.1	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	6.1	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	12	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	12	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	12	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	6.1	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	12	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	12	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	12	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	12	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	12	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	12	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	12	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	12	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	12	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	61	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	72	53-107				
DCB	91	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:		PARKS-SS-09-12A				
Laboratory ID:		03-053-05				
alpha-BHC	ND	6.1	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	6.1	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	6.1	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	6.1	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	6.1	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	6.1	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	6.1	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	12	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	12	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	12	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	6.1	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	12	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	12	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	12	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	12	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	12	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	12	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	12	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	12	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	12	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	61	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	74	53-107				
DCB	95	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-10-06					
Laboratory ID:	03-053-06					
alpha-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	5.7	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	11	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	57	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	70	53-107				
DCB	92	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-10-12					
Laboratory ID:	03-053-07					
alpha-BHC	ND	5.6	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	5.6	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	5.6	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	5.6	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	5.6	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	5.6	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	5.6	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	5.6	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	11	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	56	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	70	53-107				
DCB	90	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-11-06					
Laboratory ID:	03-053-08					
alpha-BHC	ND	5.3	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	5.3	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	5.3	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	5.3	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	5.3	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	5.3	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	5.3	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	5.3	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	11	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	53	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	69	53-107				
DCB	84	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-11-12					
Laboratory ID:	03-053-09					
alpha-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	5.7	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	11	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	57	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	69	53-107				
DCB	88	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-12-06					
Laboratory ID:	03-053-10					
alpha-BHC	ND	5.8	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	5.8	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	5.8	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	5.8	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	5.8	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	5.8	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	5.8	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	12	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	12	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	12	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	5.8	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	12	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	12	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	12	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	12	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	12	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	12	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	12	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	12	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	12	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	58	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	68	53-107				
DCB	85	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:		PARKS-SS-12-12				
Laboratory ID:		03-053-11				
alpha-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	5.7	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	11	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	57	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	70	53-107				
DCB	88	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-13-06					
Laboratory ID:	03-053-12					
alpha-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	5.7	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	11	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	57	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	66	53-107				
DCB	83	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PARKS-SS-13-12					
Laboratory ID:	03-053-13					
alpha-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	5.7	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	5.7	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	11	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	11	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	11	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	11	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	11	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	57	EPA 8081B	3-8-16	3-8-16	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	68	53-107				
DCB	85	59-121				

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**ORGANOCHLORINE
 PESTICIDES EPA 8081B
 QUALITY CONTROL**

Matrix: Soil
 Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0308S1					
alpha-BHC	ND	5.0	EPA 8081B	3-8-16	3-8-16	
gamma-BHC	ND	5.0	EPA 8081B	3-8-16	3-8-16	
beta-BHC	ND	5.0	EPA 8081B	3-8-16	3-8-16	
delta-BHC	ND	5.0	EPA 8081B	3-8-16	3-8-16	
Heptachlor	ND	5.0	EPA 8081B	3-8-16	3-8-16	
Aldrin	ND	5.0	EPA 8081B	3-8-16	3-8-16	
Heptachlor Epoxide	ND	5.0	EPA 8081B	3-8-16	3-8-16	
gamma-Chlordane	ND	10	EPA 8081B	3-8-16	3-8-16	
alpha-Chlordane	ND	10	EPA 8081B	3-8-16	3-8-16	
4,4'-DDE	ND	10	EPA 8081B	3-8-16	3-8-16	
Endosulfan I	ND	5.0	EPA 8081B	3-8-16	3-8-16	
Dieldrin	ND	10	EPA 8081B	3-8-16	3-8-16	
Endrin	ND	10	EPA 8081B	3-8-16	3-8-16	
4,4'-DDD	ND	10	EPA 8081B	3-8-16	3-8-16	
Endosulfan II	ND	10	EPA 8081B	3-8-16	3-8-16	
4,4'-DDT	ND	10	EPA 8081B	3-8-16	3-8-16	
Endrin Aldehyde	ND	10	EPA 8081B	3-8-16	3-8-16	
Methoxychlor	ND	10	EPA 8081B	3-8-16	3-8-16	
Endosulfan Sulfate	ND	10	EPA 8081B	3-8-16	3-8-16	
Endrin Ketone	ND	10	EPA 8081B	3-8-16	3-8-16	
Toxaphene	ND	50	EPA 8081B	3-8-16	3-8-16	
Surrogate:	Percent Recovery	Control Limits				
TCMX	87	53-107				
DCB	105	59-121				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES								
Laboratory ID:	03-053-01							
	MS	MSD	MS	MSD	MS	MSD		
gamma-BHC	38.2	36.8	50.0	50.0	ND	76 74	41-116	4 12
Heptachlor	34.9	33.8	50.0	50.0	ND	70 68	41-115	3 13
Aldrin	37.5	36.2	50.0	50.0	ND	75 72	44-118	4 15
Dieldrin	86.4	83.7	125	125	ND	69 67	38-121	3 13
Endrin	89.0	86.9	125	125	ND	71 69	46-118	2 15
4,4'-DDT	92.6	90.3	125	125	ND	74 72	34-117	3 21
Surrogate:								
TCMX					66 64	53-107		
DCB					79 76	59-121		

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**TOTAL METALS
 EPA 6010C**

Matrix: Soil
 Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
---------	--------	-----	------------	---------------	---------------	-------

Lab ID: 03-053-01

Client ID: PARKS-SS-08-06

Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	11	5.6	6010C	3-11-16	3-14-16	

Lab ID: 03-053-02

Client ID: PARKS-SS-08-12

Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	11	5.6	6010C	3-11-16	3-14-16	

Lab ID: 03-053-03

Client ID: PARKS-SS-09-06

Arsenic	ND	12	6010C	3-11-16	3-14-16	
Lead	9.8	6.1	6010C	3-11-16	3-14-16	

Lab ID: 03-053-04

Client ID: PARKS-SS-09-12

Arsenic	ND	12	6010C	3-11-16	3-14-16	
Lead	9.4	6.1	6010C	3-11-16	3-14-16	

Lab ID: 03-053-05

Client ID: PARKS-SS-09-12A

Arsenic	ND	12	6010C	3-11-16	3-14-16	
Lead	9.4	6.1	6010C	3-11-16	3-14-16	

Lab ID: 03-053-06

Client ID: PARKS-SS-10-06

Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	11	5.7	6010C	3-11-16	3-14-16	

Date of Report: March 15, 2016
 Samples Submitted: March 4, 2016
 Laboratory Reference: 1603-053
 Project: 7033-12 PARKS

**TOTAL METALS
 EPA 6010C**

Matrix: Soil
 Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-053-07					
Client ID:	PARKS-SS-10-12					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	9.6	5.6	6010C	3-11-16	3-14-16	
Lab ID:	03-053-08					
Client ID:	PARKS-SS-11-06					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	10	5.3	6010C	3-11-16	3-14-16	
Lab ID:	03-053-09					
Client ID:	PARKS-SS-11-12					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	11	5.7	6010C	3-11-16	3-14-16	
Lab ID:	03-053-10					
Client ID:	PARKS-SS-12-06					
Arsenic	ND	12	6010C	3-11-16	3-14-16	
Lead	9.3	5.8	6010C	3-11-16	3-14-16	
Lab ID:	03-053-11					
Client ID:	PARKS-SS-12-12					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	9.9	5.7	6010C	3-11-16	3-14-16	
Lab ID:	03-053-12					
Client ID:	PARKS-SS-13-06					
Arsenic	ND	11	6010C	3-11-16	3-14-16	
Lead	9.9	5.7	6010C	3-11-16	3-14-16	

Date of Report: March 15, 2016
Samples Submitted: March 4, 2016
Laboratory Reference: 1603-053
Project: 7033-12 PARKS

**TOTAL METALS
EPA 6010C**

Matrix: Soil
Units: mg/kg (ppm)

				Date	Date	
Analyte	Result	PQL	EPA Method	Prepared	Analyzed	Flags
Lab ID:	03-053-13					
Client ID:	PARKS-SS-13-12					
Arsenic	ND	11	6010C	3-11-16	3-11-16	
Lead	6.7	5.7	6010C	3-11-16	3-11-16	

Date of Report: March 15, 2016
Samples Submitted: March 4, 2016
Laboratory Reference: 1603-053
Project: 7033-12 PARKS

**TOTAL METALS
EPA 6010C
METHOD BLANK QUALITY CONTROL**

Date Extracted: 3-11-16

Date Analyzed: 3-11-16

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: MB0311SM2

Analyte	Method	Result	PQL
Arsenic	6010C	ND	10
Lead	6010C	ND	5.0

Date of Report: March 15, 2016
Samples Submitted: March 4, 2016
Laboratory Reference: 1603-053
Project: 7033-12 PARKS

**TOTAL METALS
EPA 6010C
DUPLICATE QUALITY CONTROL**

Date Extracted: 3-11-16

Date Analyzed: 3-11-16

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 03-053-13

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	ND	ND	NA	10	
Lead	5.90	8.00	30	5.0	C

Date of Report: March 15, 2016
Samples Submitted: March 4, 2016
Laboratory Reference: 1603-053
Project: 7033-12 PARKS

**TOTAL METALS
EPA 6010C
MS/MSD QUALITY CONTROL**

Date Extracted: 3-11-16

Date Analyzed: 3-11-16

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 03-053-13

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	100	100	98.2	98	2	
Lead	250	238	93	237	92	1	

Date of Report: March 15, 2016
Samples Submitted: March 4, 2016
Laboratory Reference: 1603-053
Project: 7033-12 PARKS

% MOISTURE

Date Analyzed: 3-8-16

Client ID	Lab ID	% Moisture
PARKS-SS-08-06	03-053-01	11
PARKS-SS-08-12	03-053-02	10
PARKS-SS-09-06	03-053-03	18
PARKS-SS-09-12	03-053-04	18
PARKS-SS-09-12A	03-053-05	18
PARKS-SS-10-06	03-053-06	12
PARKS-SS-10-12	03-053-07	11
PARKS-SS-11-06	03-053-08	6
PARKS-SS-11-12	03-053-09	12
PARKS-SS-12-06	03-053-10	13
PARKS-SS-12-12	03-053-11	13
PARKS-SS-13-06	03-053-12	13
PARKS-SS-13-12	03-053-13	12



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
 - B - The analyte indicated was also found in the blank sample.
 - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
 - E - The value reported exceeds the quantitation range and is an estimate.
 - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
 - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
 - I - Compound recovery is outside of the control limits.
 - J - The value reported was below the practical quantitation limit. The value is an estimate.
 - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
 - L - The RPD is outside of the control limits.
 - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
 - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
 - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
 - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
 - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
 - P - The RPD of the detected concentrations between the two columns is greater than 40.
 - Q - Surrogate recovery is outside of the control limits.
 - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
 - T - The sample chromatogram is not similar to a typical _____.
 - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
 - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
 - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
 - X - Sample extract treated with a mercury cleanup procedure.
 - X1 - Sample extract treated with a Sulfuric acid/Silica gel cleanup procedure.
 - Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
 - Z -
- ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference



**OnSite
Environmental Inc.**

Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Page 1 of 2

03-053

Company: **EAS**

Project Number:

7033-12 PARKS

Project Name:

PARKS SOIL SAMPLING

Project Manager:

Deborah Phipps

Sampled by:

Deborah Phipps

Turnaround Request (in working days)

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☒ Standard (7 Days)
(TPH analysis 5 Days)

☐ _____ (other)

Laboratory Number:

Number of Containers

NWTPH-HCID

NWTPH-Gx/BTEX

NWTPH-Gx

NWTPH-Dx

Volatiles 8260C

Halogenated Volatiles 8260C

Semivolatiles 8270D/SIM
(with low-level PAHs)

PAHs 8270D/SIM (low-level)

PCBs 8082A

Organochlorine Pesticides 8081B

Organophosphorus Pesticides 8270D/SIM

Chlorinated Acid Herbicides 8151A

Total RCRA Metals

Total MTCA Metals

TCLP Metals

HEM (oil and grease) 1664A

6010 (As, Pb)

% Moisture

1	PARKS-SS-08-06	3/2/16	1150	Soil																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
---	----------------	--------	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Data Package: Standard ☐ Level III ☐ Level IV ☐

Electronic Data Deliverables (EDDs) ☐ _____

Chromatograms with final report ☐

PRECLEANED CERTIFIED

Certificate of Compliance

The enclosed containers have been chemically cleaned by using the specified USEPA cleaning procedures for low level chemical analysis. Representative containers have been tested by independent certified laboratories for their appropriate use. ESS containers meet and exceed the required detection limits established by the USEPA in SPECIFICATIONS AND GUIDANCE FOR CONTAMINANT-FREE SAMPLE CONTAINERS (OSWER Directive #9240.0-05A).

EXTRACTABLE ORGANIC COMPOUNDS (PROCEDURE 1)

Analyte	Quantitation Limit (ug/L)	Alpha-Chlordane	<0.005	4-Methylphenol	<1	2-Nitroaniline	<1	Anthracene	<0.1
		Gamma-Chlordane	<0.005	N-Nitroso-di-n-propylamine	<1	Dimethylphthalate	<1	Di-n-Butylphthalate	<0.2
PESTICIDES/PCB'S		Toxaphene	<0.005	Hexachloroethane	<1	Acenaphthylene	<0.2	Fluoranthene	<0.1
Alpha-BHC	<0.005	Aroclor-1016	<0.2	Nitrobenzene	<1	2,6-Dinitrotoluene	<1	Pyrene	<0.15
Beta-BHC	<0.005	Aroclor-1221	<0.2	Isopharone	<1	3-Nitroaniline	<1	Butylbenzylphthalate	<1
Delta-BHC	<0.005	Aroclor-1232	<0.2	2-Nitrophenol	<1	Acenaphthene	<0.2	1,2'-Dichlorobenzene	<1
Gamma-BHC (Lindane)	<0.005	Aroclor-1242	<0.2	2,4-Dimethylphenol	<1	2,4-Dinitrophenol	<5	1,3'-Dichlorobenzene	<1
Heptachlor	<0.005	Aroclor-1248	<0.2	bis-(2-Chloroethoxy) methane	<1	4-Nitrophenol	<5	1,4'-Dichlorobenzene	<1
Aldrin	<0.005	Aroclor-1254	<0.2	2,4-Dichlorophenol	<1	Dibenzofuran	<1	3,3'-Dichlorobenzidine	<1
Heptachlor Epoxide	<0.005	Aroclor-1260	<0.2	1,2,4-Trichlorobenzene	<1	2,4-Dinitrotoluene	<1	Benzo[a]anthracene	<0.15
Endosulfan I	<0.005	Aroclor-1262	<0.2	Naphthalene	<0.2	Diethylphthalate	<1	Chrysene	<0.1
Dieldrin	<0.005	Aroclor-1268	<0.2	4-Chloroaniline	<1	4-Chlorophenyl-Phenylether	<1	bis-(2-Ethylhexyl) Phthalate	<1
4,4'-DDE	<0.005	SEMIVOLATILES		Hexachlorobutadiene	<1	Flourene	<0.15	Di-n-Octylphthalate	<1
Endrin	<0.005	Phenol	<1	4-Chloro-3-Methylphenol	<1	4-Nitroaniline	<1.5	Benzo[b]fluoranthene	<0.2
Endosulfan II	<0.005	bis-(2-Chloroethyl) ether	<1	2-Methylnaphthalene	<0.2	4,6-Dinitro-2-Methylphenol	<1	Benzo[k]fluoranthene	<0.15
4,4'-DDD	<0.005	bis-(2-Chloroisopropyl) ether	<1	Hexachlorocyclopentadiene	<1	N-Nitrosodiphenylamine	<1	Benzo[a]pyrene	<0.15
Endosulfan Sulfate	<0.005	2-Chlorophenol	<1	2,4,6-Trichlorophenol	<1	N-Nitrosodimethylamine	<1	Indeno[1,2,3-cd]pyrene	<0.2
4,4'-DDT	<0.005	2-Methylphenol	<1	2,4,5-Trichlorophenol	<1	4-Bromophenyl-Phenylether	<1	Dibenzo[a,h]anthracene	<0.15
Methoxychlor	<0.005	2,2'-Oxybis	<1	1,2-Diphenylhydrazene	<1	Hexachlorobenzene	<1	Benzo[g,h,i]perylene	<0.15
Endrin Ketone	<0.005	(1-Chloropropane)	<1	Carbazole	<1	Pentachlorophenol	<1	Benzoic Acid	<5
Endrin Aldehyde	<0.005			2-Chloronaphthalene	<0.15	Phenanthrene	<0.2	Benzyl Alcohol	<1
								TPH Diesel	<50.00

PURGEABLE VOLATILE ORGANIC COMPOUNDS (PROCEDURE 2)

Analyte	Quantitation Limit (ug/L)	Chlorobenzene	<0.1	1,1-Dichloroethane	<0.1	4-Isopropyltoluene	<0.1	Trichlorotrifluoroethane	<0.1
		Chloroethane	<0.1	1,2-Dichloroethane	<0.1	Methylene Chloride	<0.5	1,2,3-Trichloropropane	<0.1
Acetone	<2.0	Chloromethane	<0.1	1,1-Dichloroethene	<0.1	Naphthalene	<0.5	1,2,3-Trimethylbenzene	<0.1
Benzene	<0.1	2-Chlorotoluene	<0.1	cis-1,2-Dichloroethene	<0.1	Propylbenzene	<0.1	1,2,4-Trimethylbenzene	<0.1
Bromoform	<0.1	4-Chlorotoluene	<0.1	trans-1,2-Dichloroethene	<0.1	Styrene	<0.1	1,3,5-Trimethylbenzene	<0.1
Bromobenzene	<0.1	2,4-Chlorotoluene	<0.2	1,2-Dichloropropane	<0.1	1,1,1,2-Tetrachloroethane	<0.1	Vinyl Acetate	<0.5
Bromochloromethane	<0.1	Chloroform	<0.1	1,3-Dichloropropane	<0.1	1,1,2,2-Tetrachloroethane	<0.1	Vinyl Chloride	<0.1
Bromodichloromethane	<0.1	Dibromomethane	<0.1	2,2-Dichloropropane	<0.1	Tetrachloroethene	<0.1	Methyl-Tert-Butyl-Ether	<0.1
Bromomethane	<0.1	1,2-Dibro 3-Chloropropane	<0.1	1,1-Dichloropropene	<0.1	Toluene	<0.1	4-Methyl-2-pentanone	<0.5
n-Butylbenzene	<0.1	Dibromochloromethane	<0.1	cis-1,3-Dichloropropene	<0.1	1,2,3-Trichlorobenzene	<0.1	ethyl-tert-butylether	<0.1
n-Butylbenzene	<0.1	1,2-Dibromoethane (EDB)	<0.1	trans-1,3-Dichloropropene	<0.1	1,2,4-Trichlorobenzene	<0.1	tert-amylmethylether	<0.1
sec-Butylbenzene	<0.1	1,2-Dichlorobenzene	<0.1	Ethylbenzene	<0.1	1,1,1-Trichloroethane	<0.1	diisopropylether	<0.1
tert-Butylbenzene	<0.1	1,3-Dichlorobenzene	<0.1	2-Hexanone	<0.5	1,1,2-Trichloroethane	<0.1	tert-butanol	<0.1
Carbon Tetrachloride	<0.1	1,4-Dichlorobenzene	<0.1	Hexachlorobutadiene	<0.1	Trichloroethene	<0.1	o-xylene	<0.1
Carbon Disulfide	<0.1	Dichlorodifluoromethane	<0.1	Isopropylbenzene	<0.1	Trichlorofluoromethane	<0.1	m-xylene(1)	<0.2
								p-xylene(1)	<0.2
								TPH as Gasoline	<50.00

METALS, CYANIDE & SULFIDE COMPOUNDS (PROCEDURE 3)

Analyte	Detection Limit (ug/L)	Barium	<0.03	Iron	<3	Molybdenum	<0.5	Sodium	<6
Aluminum	<0.5	Beryllium	<0.01	Lead	<0.05	Nickel	<0.05	Thallium	<0.09
Antimony	<0.03	Cadmium	<0.03	Magnesium	<4	Potassium	<50	Zinc	<0.3
Arsenic	<0.01	Chromium	<0.06	Manganese	<0.1	Selenium	<0.5	Flouride	<100
		Copper	<0.08	Mercury	<0.2	Silver	<0.02	Nitrate + Nitrite	<50

This certificate only applies to the enclosed containers and not to any added preservative (except HCL vials). ESS uses only Analytical Grade chemicals. All ESS PrePreserved® containers include a case label with the reagent manufacturer and their lot number. Chemical C of A's can be found online using their lot number. For additional assistance or questions, call 800 233-8424 or email at: essorders@essvial.com.

ON-TIME PRODUCTS FOR ENVIRONMENTAL SAMPLING & ANALYSIS



For more information on our cleaning
& monitoring procedures, please call

1-800-233-8425

www.essvial.com

011416

PRECLEANED CERTIFIED

Certificate of Compliance

The enclosed containers have been chemically cleaned by using the specified USEPA cleaning procedures for low level chemical analysis. Representative containers have been tested by independent certified laboratories for their appropriate use. ESS containers meet and exceed the required detection limits established by the USEPA in SPECIFICATIONS AND GUIDANCE FOR CONTAMINANT-FREE SAMPLE CONTAINERS (OSWER Directive #9240.0-05A).

EXTRACTABLE ORGANIC COMPOUNDS (PROCEDURE 1)

Analyte	Quantitation Limit (ug/L)	Alpha-Chlordane	<0.005	4-Methylphenol	<1	2-Nitroaniline	<1	Anthracene	<0.1
		Gamma-Chlordane	<0.005	N-Nitroso-di-n-propylamine	<1	Dimethylphthalate	<1	Di-n-Butylphthalate	<0.2
PESTICIDES/PCB'S		Toxaphene	<0.005	Hexachloroethane	<1	Acenaphthylene	<0.2	Fluoranthene	<0.1
Alpha-BHC	<0.005	Aroclor-1016	<0.2	Nitrobenzene	<1	2,6-Dinitrotoluene	<1	Pyrene	<0.15
Beta-BHC	<0.005	Aroclor-1221	<0.2	Isophorone	<1	3-Nitroaniline	<1	Butylbenzylphthalate	<1
Delta-BHC	<0.005	Aroclor-1232	<0.2	2-Nitrophenol	<1	Acenaphthene	<0.2	1,2'-Dichlorobenzene	<1
Gamma-BHC (Lindane)	<0.005	Aroclor-1242	<0.2	2,4-Dimethylphenol	<1	2,4-Dinitrophenol	<5	1,3'-Dichlorobenzene	<1
Heptachlor	<0.005	Aroclor-1248	<0.2	bis-(2-Chloroethoxy) methane	<1	4-Nitrophenol	<5	1,4'-Dichlorobenzene	<1
Aldrin	<0.005	Aroclor-1254	<0.2	2,4-Dichlorophenol	<1	Dibenzofuran	<1	3,3'-Dichlorobenzidine	<1
Heptachlor Epoxide	<0.005	Aroclor-1260	<0.2	1,2,4-Trichlorobenzene	<1	2,4-Dinitrotoluene	<1	Benzo[a]anthracene	<0.15
Endosulfan I	<0.005	Aroclor-1262	<0.2	Naphthalene	<0.2	Diethylphthalate	<1	Chrysene	<0.1
Dieldrin	<0.005	Aroclor-1268	<0.2	4-Chloroaniline	<1	4-Chlorophenyl-Phenylether	<1	bis-(2-Ethylhexyl) Phthalate	<1
4,4'-DDE	<0.005	SEMIVOLATILES		Hexachlorobutadiene	<1	Flourene	<0.15	Di-n-Octylphthalate	<1
Endrin	<0.005	Phenol	<1	4-Chloro-3-Methylphenol	<1	4-Nitroaniline	<1.5	Benzo[b]fluoranthene	<0.2
Endosulfan II	<0.005	bis-(2-Chloroethyl) ether	<1	2-Methylnaphthalene	<0.2	4,6-Dinitro-2-Methylphenol	<1	Benzo[k]fluoranthene	<0.15
4,4'-DDD	<0.005	bis-(2-Chloroisopropyl) ether	<1	Hexachlorocyclopentadiene	<1	N-Nitrosodiphenylamine	<1	Benzo[a]pyrene	<0.15
Endosulfan Sulfate	<0.005	2-Chlorophenol	<1	2,4,6-Trichlorophenol	<1	N-Nitrosodimethylamine	<1	Indeno[1,2,3-cd]pyrene	<0.2
4,4'-DDT	<0.005	2-Methylphenol	<1	2,4,5-Trichlorophenol	<1	4-Bromophenyl-Phenylether	<1	Dibenzo[a,h]anthracene	<0.15
Methoxychlor	<0.005	2,2'-Oxybis-	<1	1,2-Diphenylhydrazene	<1	Hexachlorobenzene	<1	Benzo[g,h,i]perylene	<0.15
Endrin Ketone	<0.005	(1-Chloropropane)	<1	Carbazole	<1	Pentachlorophenol	<1	Benzoic Acid	<5
Endrin Aldehyde	<0.005			2-Chloronaphthalene	<0.15	Phenanthrene	<0.2	Benzyl Alcohol	<1
								TPH Diesel	<50.00

PURGEABLE VOLATILE ORGANIC COMPOUNDS (PROCEDURE 2)

Analyte	Quantitation Limit (ug/L)	Chlorobenzene	<0.1	1,1-Dichloroethane	<0.1	4-Isopropyltoluene	<0.1	Trichlorotrifluoroethane	<0.1
		Chloroethane	<0.1	1,2-Dichloroethane	<0.1	Methylene Chloride	<0.5	1,2,3-Trichloropropane	<0.1
Acetone	<2.0	Chloromethane	<0.1	1,1-Dichloroethene	<0.1	Naphthalene	<0.5	1,2,3-Trimethylbenzene	<0.1
Benzene	<0.1	2-Chlorotoluene	<0.1	cis-1,2-Dichloroethene	<0.1	Propylbenzene <th><0.1</th> <th>1,2,4-Trimethylbenzene</th> <th><0.1</th>	<0.1	1,2,4-Trimethylbenzene	<0.1
Bromoform	<0.1	4-Chlorotoluene	<0.1	trans-1,2-Dichloroethene	<0.1	Styrene <th><0.1</th> <th>1,3,5-Trimethylbenzene</th> <th><0.1</th>	<0.1	1,3,5-Trimethylbenzene	<0.1
Bromobenzene	<0.1	2,4-Chlorotoluene	<0.2	1,2-Dichloropropane	<0.1	1,1,1,2-Tetrachloroethane	<0.1	Vinyl Acetate	<0.5
Bromochloromethane	<0.1	Chloroform	<0.1	1,3-Dichloropropane	<0.1	1,1,2,2-Tetrachloroethane	<0.1	Vinyl Chloride	<0.1
Bromodichloromethane	<0.1	Dibromomethane	<0.1	2,2-Dichloropropane	<0.1	Tetrachloroethene	<0.1	Methyl-Tert-Butyl-Ether	<0.1
Bromomethane	<0.1	1,2-Dibro-3-Chloropropane	<0.1	1,1-Dichloropropene	<0.1	Toluene	<0.1	4-Methyl-2-pentanone	<0.5
z-Butylbenzene	<0.1	Dibromochloromethane	<0.1	cis-1,3-Dichloropropene	<0.1	1,2,3-Trichlorobenzene <th><0.1</th> <th>ethyl-tert-butylether</th> <th><0.1</th>	<0.1	ethyl-tert-butylether	<0.1
n-Butylbenzene	<0.1	1,2-Dibromoethane (EDB)	<0.1	trans-1,3-Dichloropropene	<0.1	1,2,4-Trichlorobenzene	<0.1	tert-amylmethylether	<0.1
sec-Butylbenzene	<0.1	1,2-Dichlorobenzene	<0.1	Ethylbenzene	<0.1	1,1,1-Trichloroethane	<0.1	diisopropylether	<0.1
tert-Butylbenzene	<0.1	1,3-Dichlorobenzene	<0.1	2-Hexanone	<0.5	1,1,2-Trichloroethane	<0.1	tert-butanol	<0.1
Carbon Tetrachloride	<0.1	1,4-Dichlorobenzene	<0.1	Hexachlorobutadiene	<0.1	Trichloroethene	<0.1	o-xylene	<0.1
Carbon Disulfide	<0.1	Dichlorodifluoromethane	<0.1	Isopropylbenzene	<0.1	Trichlorofluoromethane	<0.1	m-xylene[1]	<0.2
								p-xylene[1]	<0.2
								TPH as Gasoline	<50.00

METALS, CYANIDE & SULFIDE COMPOUNDS (PROCEDURE 3)

Analyte	Detection Limit (ug/L)	Barium	<0.03	Iron	<3	Molybdenum	<0.5	Sodium	<6
		Beryllium	<0.01	Lead	<0.05	Nickel	<0.05	Thallium	<0.09
Aluminum	<0.5	Cadmium	<0.03	Magnesium	<4	Potassium	<50	Zinc	<0.3
Antimony	<0.03	Chromium	<0.06	Manganese	<0.1	Selenium	<0.5	Fluoride	<100
Arsenic	<0.01	Copper	<0.08	Mercury	<0.2	Silver	<0.02	Nitrate + Nitrite	<50

This certificate only applies to the enclosed containers and not to any added preservative (except HCL vials). ESS uses only Analytical Grade chemicals. All ESS PrePreserved[®] containers include a case label with the reagent manufacturer and their lot number. Chemical C of A's can be found online using their lot number. For additional assistance or questions, call 800 233-8424 or email at: essorders@essvial.com.

ON-TIME PRODUCTS FOR ENVIRONMENTAL SAMPLING & ANALYSIS



For more information on our cleaning
& monitoring procedures, please call

1-800-233-8425

www.essvial.com

011416



February 24, 2021

Mr. Matt Smith
William Smith Properties
15 SW Colorado Avenue, Suite 1
Bend, Oregon 97702

Via email: matt@wspi.net

Regarding: Geotechnical Engineering Services – Critical Areas
Apple Valley, Phase 6
Kennewick, Washington
PBS Project 66090.005

Dear Mr. Smith:

PBS Engineering and Environmental Inc. (PBS) is pleased to submit this letter summarizing our geotechnical engineering services as they relate to the mapped critical areas for Phase 6 of Apple Valley in Kennewick, Washington. PBS completed a site visit on November 18, 2020, for the purposes of providing geotechnical recommendations and a critical areas assessment of the planned development.

PROJECT UNDERSTANDING

Proposed development of Apple Valley, Phase 6 will consist of dividing the 30-acre property into 96 smaller, single-family, residential lots. Following completion of the lots, it is expected that timber-frame homes will be built. Development will include mass grading, installation of utilities, and construction of roadways.

SITE CONDITIONS

Multiple areas within the proposed development are designated as critical areas due to high erosion potential and/or steep slopes. The City of Kennewick defines steep slopes as slopes exceeding 15 percent (6.7H:1V [horizontal to vertical]). The inclinations of site slopes are as steep as 48 percent (2.1H:1) but are generally 10 percent or flatter. Figure 1 highlights the approximate areas designated as critical areas.

Preliminary site grading plans generally show fill being placed in low areas of the site to raise or flatten grades and facilitate stormwater drainage. Current plans include construction of new roadways, stormwater drainage and infiltration facilities, and installation of utilities.

SUBSURFACE CONDITIONS

PBS observed and logged 11 cells in existing cuts/utility trenches within the boundary of Apple Valley Phase 6 to better understand the subsurface conditions present at the site. Figure 1 generally shows the locations of logged cells. Generally, the soil conditions consist of a brown silt and sand mixture, with a thickness of between approximately 2 and 8 feet, mantled over basalt bedrock. Bedrock is generally fresh to slightly weathered, very closely spaced, dense to slightly vesicular, and strong to extremely strong based on blows of a geological hammer. Subsurface conditions at Phase 6 were similar to subsurface conditions at neighboring phases of the Apple Valley subdivision and are consistent with the region in general. A review of well logs installed near the site

Matt Smith
Opinion Letter of Compliance – Apple Valley, Phase 6
February 24, 2021
Page 2 of 3

indicate static groundwater is present at a depth of over 50 feet below ground surface. Groundwater was not observed within excavated cuts/utility trenches.

CRITICAL AREAS

Steep Slopes – Due to the inclination of slopes, as steep as 2.1H:1V, in the proposed development area, the site has been identified as having hazards associated with steep slopes. Steep slopes were identified within the two canyons onsite which act as surface drainage and convey water from the southwest to the northeast. Existing site slopes show no obvious signs of recent instability such as exposed soil, scarps, seeps, etc. The location and approximate extents of steep slopes is highlighted in red in Figure 1.

Current site grading plans include placement and compaction of fill within the canyons which harbor steep slope hazards, thereby burying steep slope hazards found within the natural topography. Completion of grading activities is expected to eliminate natural slopes which qualify as steep per the City's definition. Remaining slopes that are steeper than 15% will be composed of documented fill or approved cut and will have undergone density testing with satisfactory (95% or better maximum dry density) results and are expected to be stable.

Soil Erosion – The near-surface silty/sandy soil encountered on the site can be easily eroded when exposed to wind and water. Site slopes are presently bare across much of the site and are being watered regularly for dust and erosion control. No obvious signs of recent erosion, such as rills, gullies, loose soil, etc., were observed at the site.

Placement of fill within the canyons harboring erosion hazards will both slow and disperse surface water which is expected to increase infiltration into site soils. Additionally, development of the site will include measures to reduce erosion during construction and implement measures for ongoing erosion control such as covering exposed soils with erosion control matting or planting appropriate vegetation.

Matt Smith
Opinion Letter of Compliance – Apple Valley, Phase 6
February 24, 2021
Page 3 of 3

CLOSING

We trust this letter meets your current needs. Please feel free to contact me at 509.375.7844 or clint.nealey@pbsusa.com with any questions or comments.

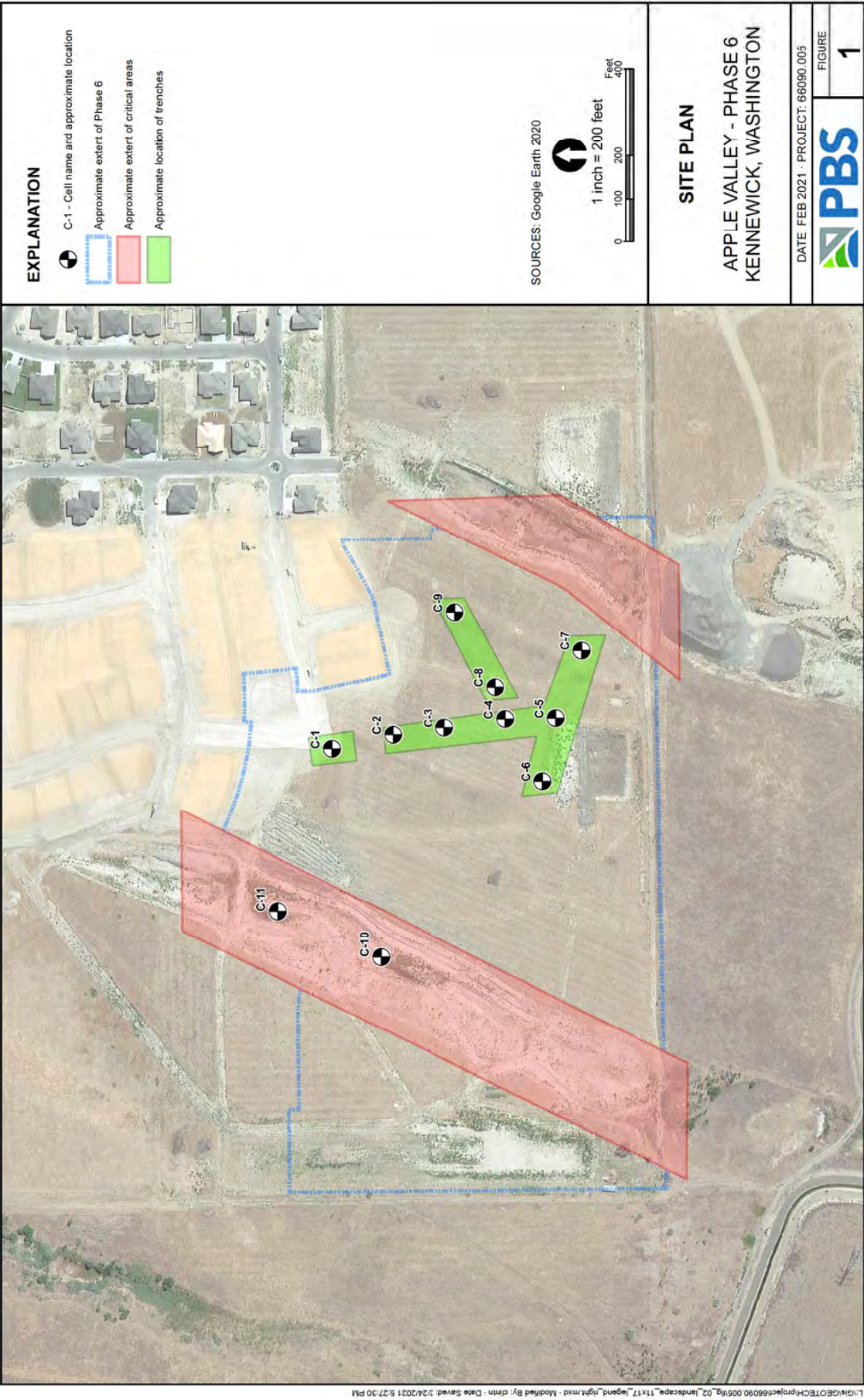
Sincerely,



February 24, 2021

Clinton Nealey, PE
Geotechnical Staff Engineer
PBS Engineering and Environmental Inc.

CN



Apple Valley Subdivision, Phase 6 Traffic Impact Analysis

South of W 33rd Place, West of S Sherman Street
Kennewick, Washington

Parcel numbers: 1-1789-200-0001-011 & 1-1789-200-0001-012

Prepared for:

William Smith Properties

ATTN: Matt Smith

15 SW Colorado Avenue, Suite 1

Bend, Oregon 97702

September 11, 2020
PBS Project 66090.005



Digitally signed by
John Manix PE
Date: 2020.09.11
11:23-07'00'



415 W 6TH STREET, SUITE 601
VANCOUVER, WA 98660
360.695.3488 MAIN
866.727.0140 FAX
PBSUSA.COM

Table of Contents

EXECUTIVE SUMMARY	IV
1 INTRODUCTION.....	1
1.1 Scope of Study.....	1
1.2 Existing Site Conditions.....	1
1.3 Existing Infrastructure	1
1.3.1 Land Uses	2
1.3.2 Existing Roadways.....	2
1.3.3 Major Intersections and Traffic Control.....	3
1.4 Traffic Volumes.....	4
1.4.1 Baseline Traffic Volumes.....	4
1.4.1.1 Method Where Historical Data Were Available.....	4
1.4.1.2 Method Where Historical Data Were Unavailable and New Data Were Collected.....	4
1.4.1.3 Present Volumes	4
1.4.2 Background Growth	5
1.4.3 In-Process Projects.....	5
1.4.4 Future Volumes.....	5
2 PROPOSED CONDITIONS.....	7
2.1 Project Description.....	7
2.2 Access and Circulation.....	7
2.3 Trip Generation and Distribution	7
2.3.1 Proposed Trip Generation.....	7
2.3.2 Proposed Trip Distribution.....	8
2.3.3 Future Volumes with Project.....	8
3 INTERSECTION OPERATIONS AND ROADWAY CAPACITY ANALYSES	9
3.1 Operations Description	9
3.2 Operation Standards	9
3.3 Analysis Methodology	9
3.4 Level of Service Analyses	10
3.4.1 2020 Existing Conditions.....	10
3.4.2 2022 Future Conditions Without Project.....	10
3.4.3 2022 Future Conditions With Project.....	11
3.4.4 2040 Future Conditions Without Project.....	11
3.4.5 2040 Future Conditions With Project.....	12
4 SAFETY ANALYSIS	13
4.1 Left and Right Turn Lane Warrants.....	13
4.2 Collision Analysis	14
4.3 Transit, Pedestrian, and Bicycle Facilities.....	15
4.4 Intersection Sight Distance.....	15
5 STUDY FINDINGS	17
5.1 Traffic Volumes.....	17
5.2 Future Traffic Volumes Increase.....	17
5.3 Access and Circulation.....	17

5.4	Trip Generation.....	17
5.5	Level of Services.....	17
5.6	Turn Lane Warrants.....	17
5.7	Collision Analysis	17
5.8	Transit, Pedestrian, and Bicycle Facilities.....	18
5.9	Intersection Sight Distance.....	18
6	RECOMMENDATIONS.....	19
6.1	Traffic Impact Mitigation	19
6.2	Accessibility.....	19
6.3	Intersection Sight Distance.....	19
7	REFERENCES	20

Supporting Data

TABLES

- Table 1. Land Uses Around the Site
- Table 2. Existing Roadway Information
- Table 3. Major Intersections: Existing Lanes and Traffic Controls
- Table 4. ITE Trip Generation for Apple Valley Subdivision Phase 6
- Table 5. Estimated 2020 Level of Service for Existing Conditions for Study Area Intersections
- Table 6. Estimated 2022 Level of Service without Project for Study Area Intersections
- Table 7. Estimated 2022 Level of Service With Project for Study Area Intersections
- Table 8. Estimated 2040 Level of Service without Project for Study Area Intersections
- Table 9. Estimated 2022 Level of Service With Project for Study Area Intersections
- Table 10. Collision Analysis for Study Area Intersections (January 2015 through December 2019)

FIGURES

- Figure 1. Vicinity Map
- Figure 2. Site Plan
- Figure 3. Existing Lane Configurations and Traffic Controls
- Figure 4. 2020 Existing Volumes
- Figure 5. Apple Valley Unoccupied Lots Background Growth
- Figure 6. 2022 Without Project Volumes
- Figure 7. Trip Distribution and Assignment
- Figure 8. 2022 With Project Volumes
- Figure 6. 2040 Without Project Volumes
- Figure 8. 2040 With Project Volumes

APPENDICES

- Appendix A:** Traffic Counts
- Appendix B:** Background Growth
- Appendix C:** Trip Generation Calculations
- Appendix D:** Level of Service Calculations
- Appendix E:** Collision Rate Calculations and Data

©2020 PBS Engineering and Environmental Inc.

EXECUTIVE SUMMARY

Purpose and Scope

The applicant proposes to develop Phase 6 of a 9-phase project, namely the 553-lot Apple Valley Subdivision. The proposed Phase 6 is located west of S Sherman Street and south of W 33rd Place. Phase 6 will include 96 detached single-family dwellings. The estimated completion date of Phase 6 is early 2022.

At the City of Kennewick's direction, the scope of the traffic impact analysis (TIA) was to include the previously approved phase 5 that is approved but no homes are complete. We also included homes in Phases 1 through 4 that are complete but not occupied. These homes were analyzed in the background growth.

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. 31st Place/Bob Olson Parkway
5. Sherman Street/33rd Place

Findings

The findings of this traffic impact analysis are listed below.

Because of the ongoing COVID-19 pandemic temporarily closing schools and multiple businesses, present intersection traffic volumes were estimated based on historical data rather than by counting existing volumes.

A historical growth rate of 2.0% (linear growth) was assumed as a conservative approach and as recommended by the City. For locations where historical data were available, past volumes were increased by 2.0% (linear growth) to estimate August 2020 volumes.

Comparisons between current counts and present projections (based on 2.0% linear growth) at a select study area intersection indicate the COVID-19 pandemic has depressed volumes by approximately 36% during the PM peak hour. So, for locations where historical data were unavailable, current PM peak hour counts were increased by 36%, to estimate August 2020 volumes.

Traffic volumes in the study area will continue to increase without or with the project. Trips for unoccupied or under construction lots of Apple Valley Phases 1 through 5, were included in this analysis.

Generic background growth (at 2.0% for 2 years) was assumed to add approximately 4.0% to the 2020 baseline volumes to estimate 2022 Without Project volumes.

Generic background growth (at 2.0% for 20 years) was assumed to add approximately 40.0% to the 2020 baseline volumes to estimate 2040 Without Project volumes.

The project proposes access points from the extensions of existing roadways developed with Phases 1 through 5 onto W 31st Place and W 33rd Place. An internal local roadway network will be constructed to serve

all 96 residential lots. Pedestrian connections will be provided via sidewalks constructed as part of the local street section.

Phase 6 of the Apple Valley Subdivision is anticipated to generate 1,001 vehicle trips during a typical weekday, including 73 during the AM peak hour and 98 during the PM peak hour.

All studied intersections operate within the acceptable LOS during existing and future conditions in the PM peak hour.

No right-turn lanes are recommended for this project. None of the development accesses meet the volume criteria for a left-turn lane.

The 2015–2019 collision history at the study intersections was reviewed. The Southridge Boulevard/Hildebrand Boulevard intersection has a collision rate that is higher than the critical rate.

A pattern of rear-end collisions was found at one intersection, Southridge Boulevard/Hildebrand Boulevard.

There was one suspected serious injury at the Bob Olson Parkway/Steptoe Street/10th Avenue intersection but not at the exact location of the intersection.

Multi-modal transportation options are available for future subdivision residents.

It is assumed that adequate intersection sight distance (ISD) is available on the stop-controlled approaches at the three access intersections.

Recommendations

This traffic impact analysis supports the following recommendations.

Update signal timing to address safety concerns at the Southridge Boulevard/Hildebrand Boulevard intersection for the rear-end collisions.

Assure all driveways, sidewalks, and curb ramps constructed with the subdivision project comply with the current Americans with Disabilities Act (ADA) guidelines.

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.

1 INTRODUCTION

The purpose of this study is to determine the impacts of the traffic generated by Phase 6 of the Apple Valley Subdivision 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 (City).

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's 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. 31st Place/Bob Olson Parkway
5. Sherman Street/33rd Place

This TIA includes analysis of future background conditions growth based on an assumed 2.0% 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 (2022) conditions without and with the project
- Build-out horizon year (2040) 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 south of Bob Olson Parkway and west of S Sherman Street. The site is contiguous with Phases 1 through 5 of the Apple Valley Subdivision, all of which have a zone of "RL Residential Low Density," including the site itself. Most of the surrounding areas are also zoned "RL Residential Low Density," with the area to the south having the "RM Residential Medium Density" zone. The site is not currently developed, nor are the areas to the south or west. The area to the northeast consists of Phases 1 through 4 of Apple Valley Subdivision. There are approximately 140 occupied dwellings, with approximately 16 unoccupied dwellings, and 13 dwellings under construction. Phase 5 of the subdivision, which is to the east of the site, has 45 dwellings under construction and 6 lots awaiting construction.

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		S I T E	East of Site	
Zoning	RL		Zoning	RL
Description	Residential Low Density		Description	Residential Low Density
Existing Use	Single-family residential lots and single-family residential dwellings		Existing Use	Single-family residential lots and single-family residential dwellings
West of Site		S I T E	East of Site	
Zoning	RL		Zoning	RL
Description	Residential Low Density		Description	Residential Low Density
Existing Use	Undeveloped		Existing Use	Single-family residential lots and single-family residential dwellings
South of Site		S I T E	East of Site	
Zoning	RM		Zoning	RL
Description	Residential Medium Density		Description	Residential Low Density
Existing Use	Undeveloped		Existing Use	Single-family residential lots and single-family residential dwellings

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	40	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	40 ^c	3	Yes ^d	Yes
Steptoe Street	Principal Arterial	40	5	Yes	Yes
10th Avenue ^e	Minor Arterial	40	4 ^e	Yes ^e	Yes ^e

Roadway Name	Classification	Speed Limit (mph)	Lane Configuration		
			Lanes	Sidewalks	Bike Lanes
31st Place	Local	25	2	Yes	No
33rd Place	Local	25	2	Yes	No

^a Based on City Transportation System Plan (TSP) 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

^e After Lois Lane, there are only 2 lanes, sidewalk only on the north side, and no bike lanes

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	3	3	2	2

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

Intersection	31st Place/Bob Olson Parkway			
Leg	NB	SB	WB	EB
Control	Stop	NA	Stop	Stop
Number of Lanes	2	NA	3	3

Intersection	S Sherman Street/33rd Place			
Leg	NB	SB	WB	EB
Control	NA	NA	Stop	Stop
Number of Lanes	2	2	2	2

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

Because of the ongoing COVID-19 (novel coronavirus) pandemic, traffic volumes are somewhat depressed throughout the nation, and current volume data represent highly atypical conditions. These volume estimates address all locations, both where historical data were available and where they were not.

1.4.1.1 Method Where Historical Data Were Available

The City provided October 2018 PM peak hour turning movement counts (TMC) at Southridge Boulevard/Hildebrand Boulevard intersection. As a conservative approach and recommended by the City, a 2.0% historic growth was applied to the October 2018 PM peak hour TMC. A copy of the historical data is provided in Appendix A.

1.4.1.2 Method Where Historical Data Were Unavailable and New Data Were Collected

To aid in estimating the current decrease in traffic volumes, traffic counts were collected during the weekday PM peak periods at the following intersections. PBS retained All Traffic Data (ATD) to gather the data at major intersections and PBS staff collected data at the two project accesses.

- Southridge Boulevard/Hildebrand Boulevard (data collected by ATD)
- Sherman Street/Bob Olson Parkway/Hildebrand Boulevard (data collected by ATD)
- Bob Olson Parkway/Steptoe Street/10th Avenue (data collected by ATD)
- 31st Place/Bob Olson Parkway (data collected by PBS)
- Sherman Street/33rd Place (data collected by PBS)

Data was previously collected at Southridge Boulevard/Hildebrand Boulevard intersection on October 23, 2018. If the 2018 volumes were increased by 2.0%, as described above, to estimate what typical volumes might have been apart from the pandemic, then the 2020 counts suggest a 36% decrease in volumes during the PM peak hour.

To adjust for the pandemic conditions, increases of 36% (PM) were applied to data collected at the following intersections where earlier data were not available.

- Sherman Street/Bob Olson Parkway/Hildebrand Boulevard
- Bob Olson Parkway/Steptoe Street/10th Avenue
- 31st Place/Bob Olson Parkway
- Sherman Street/33rd Place

At each intersection with no historical data available, an increase of 36% was applied to the current PM peak hour counts to estimate present volumes. Copies of the historical data, the recent data, and the regional decrease calculations are provided in Appendix A.

1.4.1.3 Present Volumes

Present volumes were estimated at each of the five studied intersections by one of the two methods described above. The present volume date was assumed to be align with the date when the recent data were collected. The resulting present peak hour volumes for the studied intersections are termed the 2020 baseline

volumes. These volumes were input to the intersection operations analyses addressed later in this TIA, and they form the basis of all the future year scenarios as well. The 2020 baseline volumes are presented in Figure 4.

Findings: Because of the ongoing COVID-19 pandemic temporarily closing schools and multiple businesses, present intersection traffic volumes were estimated based on historical data rather than by counting existing volumes.

A historical growth rate of 2.0% (linear growth) was assumed as a conservative approach and as recommended by the City. For locations where historical data were available, past volumes were increased by 2.0% (linear growth) to estimate August 2020 volumes.

Comparisons between current counts and present projections (based on 2.0% linear growth) at a select study area intersection indicate the COVID-19 pandemic has depressed volumes by approximately 36% during the PM peak hour. So, for locations where historical data were unavailable, current PM peak hour counts were increased by 36%, to estimate August 2020 volumes.

1.4.2 Background Growth

As a conservative approach and recommended by the City, a 2.0% background growth was used. Apple Valley development has been proceeding in phases over the recent years. Portions of Phases 1 through 4 are occupied, while some homes are still on the market or under construction. As part of the background growth, the trips generated by the homes that are still on the market or under construction were included. Phase 5 has been approved but no homes are occupied.

To estimate the trips generated by unoccupied homes, a site survey was done by PBS staff. It was found that approximately 80 lots of single-family homes were either unoccupied or under construction. Figure 5 presents the trip distribution and assignment of the trips generated by the 80 lots of single-family homes. Appendix B provides lot accounting map done by PBS staff.

1.4.3 In-Process Projects

In-process trips from approved projects were requested from the City, and City staff indicated that no in-process projects are expected to impact the study area.

1.4.4 Future Volumes

The baseline volumes for 2022 intersection operations analysis, termed the 2022 Without Project volumes, represent the sum of existing traffic and background growth. Figure 6 presents the 2022 Without Project volumes for the weekday PM peak hour.

The baseline volumes for 2040 intersection operations analysis, termed the 2040 Without Project volumes, represent the sum of 2020 baseline traffic and 20 years of background growth. Figure 9 presents the 2040 Without Project volumes for the weekday PM peak hour.

Findings: Traffic volumes in the study area will continue to increase without or with the project. Trips for unoccupied or under construction lots of Apple Valley Phases 1 through 5, were included in this analysis.

Generic background growth (at 2.0% for 2 years) was assumed to add approximately 4.0% to the 2020 baseline volumes to estimate 2022 Without Project volumes.

Generic background growth (at 2.0% for 20 years) was assumed to add approximately 40.0% to the 2020 baseline volumes to estimate 2040 Without Project volumes.

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 Phase 6 of a 9-phase project, namely the Apple Valley Subdivision. The proposed Phase 6 is located west of S Sherman Street and south of W 33rd Place. Phase 6 will include 96 detached single-family dwellings. The estimated completion date of Phase 6 is early 2022.

At the City's direction, the scope of the TIA was to include the previously approved Phase 5 that is approved but no homes are complete. We also included homes in Phases 1 through 4 that are complete but not occupied. These homes were analyzed in the background growth.

2.2 Access and Circulation

The access points for Phase 6 are through existing roadways developed with Phases 1 through 5 onto W 31st Place and W 33rd Place. See Figure 2 for the site plan and the future connections within Phases 1 through 5. The connections to the collector/arterial streets are at Sherman Street and W 33rd Place and Bob Olsen Parkway and W 31st Place. See Figure 3 for the existing traffic control at these intersections.

Within the developed Phase 6, an internal local roadway network will be constructed to serve the future 96 detached single-family dwellings. Pedestrian connections will be provided in the form of sidewalks to be constructed as part of the local street section. The local roadway network includes the extensions of existing W 33rd Place, S Young Street, S Zimmerman Street, as well as the construction of new local streets.

Findings: The project proposes access points from the extensions of existing roadways developed with Phases 1 through 5 onto W 31st Place and W 33rd Place. An internal local roadway network will be constructed to serve all 96 residential lots. Pedestrian connections will be provided via sidewalks constructed as part of the local street section.

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

Trip generation estimates for Phase 6 are the average trip rates for 96 single-family dwellings based on ITE Trip Generation Manual land use code 210. No adjustments were made for transit, pass-by, or diverted links. Table 4 presents the estimates.

Table 4. ITE Trip Generation for Apply Valley Subdivision Phase 6

Land Use (ITE Code)	Single-Family Detached Residences (210)	
Independent Variable	Dwelling Units	
Size	96	
Average Weekday Trips (ADT)	1,001	
Peak Hour Trips	AM	PM
In	18	62
Out	55	36
Total Trips	73	98

Findings: Phase 6 of the Apple Valley Subdivision is anticipated to generate 1,001 vehicle trips during a typical weekday, including 73 during the AM peak hour and 98 during the PM peak hour.

2.3.2 Proposed Trip Distribution

The trip distribution is based on the Benton Franklin Council of Governments (BFCOG) 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, northwest of the site
 - 20% to and from 15th Place, west of Bob Olson Parkway
 - 20% to and from Steptoe Street, north of 10th Avenue
 - 10% to and from 10th Avenue, east of Steptoe Street
- 40% to or from the east on Hildebrand Boulevard, northeast 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 east on Ridgeline Drive, southeast of the site

The site generated trips distributed to the studied intersection 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 2022 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 2040 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 Administrative Code Title 13-08-030(5)*, at existing signalized intersections the analysis must demonstrate that the major intersection approaches can operate at LOS D (see References).

3.3 Analysis Methodology

Traffic impacts were estimated to determine the changes in traffic conditions caused by the project's development. To make these determinations, the following assumptions were employed:

- The individual peak hour volumes were analyzed for 2020, 2022, and 2040.
- The peak hour factor (PHF) for the overall intersection, as calculated from the count data, was applied for the 2020 baseline analysis scenario and the future conditions (2022 and 2040).
- A minimum heavy vehicle percentage (HV%) of 2.0% was assumed for each movement for all analysis scenarios (2020, 2022, and 2040). The HV% calculated from the count data was applied if it was greater than 2.0%.
- 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 buildout, 2022 Without Project, and for the planning horizon year, 2040 Without Project volumes.
- As noted previously, trip generation estimates for the project were prepared for the weekday AM and PM peak hours 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 2022 With Project and 2040 With Project conditions.
- The LOS for all signalized and stop-controlled intersections was calculated with Trafficware's Synchro software, Version 10, 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 2020 Existing Conditions

Table 5 describes the LOS for each intersection within the study area for the 2020 baseline volumes during the PM peak hour.

Table 5. Estimated 2020 Level of Service for Existing Conditions for Study Area Intersections

INTERSECTION (critical lane group)	PM Peak Hour		
	LOS	Delay (sec/veh)	v/c (critical lane)
1. Southridge Boulevard/Hildebrand Boulevard	B	17.3	0.64 (NET)
2. Sherman Street/Bob Olson Parkway/Hildebrand Boulevard	B	13.5	0.09 (NBL)
3. Bob Olson Parkway/Steptoe Street/10th Avenue	A	6.2	0.205 (SB)
4. 31st Place/Bob Olson Parkway	B	12.6	0.054 (NEL)
5. Sherman Street/33rd Place	B	10.0	0.006 (EB)

NET – northeast-bound through, NBL – northbound left turn, SB – southbound, NEL – northeast-bound left turn, EB – eastbound

As shown in Table 5, all studied intersections currently operate at an acceptable LOS during the weekday PM peak hour.

3.4.2 2022 Future Conditions Without Project

Table 6 describes the LOS for each intersection within the study area for 2022 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 (critical lane)
1. Southridge Boulevard/Hildebrand Boulevard	B	17.6	0.65 (NET)

INTERSECTION (critical lane group)	PM Peak Hour		
	LOS	Delay (sec/veh)	v/c (critical lane)
2. Sherman Street/Bob Olson Parkway/Hildebrand Boulevard	B	14.9	0.107 (NBL)
3. Bob Olson Parkway/Steptoe Street/10th Avenue	A	6.2	0.219 (SB)
4. 31st Place/Bob Olson Parkway	B	13.2	0.089 (NEL)
5. Sherman Street/33rd Place	B	10.4	0.032 (EB)

NET – northeast-bound through, NBL – northbound left turn, SB – southbound, NEL – northeast-bound left turn, EB – eastbound

As shown in Table 6, all studied intersections will operate at an acceptable LOS in the 2022 year of opening Without Project conditions during the weekday PM peak hour.

3.4.3 2022 Future Conditions With Project

Table 7 describes the LOS for each intersection within the study area for 2022 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)
1. Southridge Boulevard/Hildebrand Boulevard	B	17.6	0.65 (NET)
2. Sherman Street/Bob Olson Parkway/Hildebrand Boulevard	C	16.1	0.119 (NBL)
3. Bob Olson Parkway/Steptoe Street/10th Avenue	A	6.2	0.225 (SB)
4. 31st Place/Bob Olson Parkway	B	13.9	0.131 (NEL)
5. Sherman Street/33rd Place	B	10.9	0.065 (EB)

NET – northeast-bound through, NBL – northbound left turn, SB – southbound, NEL – northeast-bound left turn, EB – eastbound

As shown in Table 7, all studied intersections will operate at an acceptable LOS in the 2022 year of opening With Project conditions during the weekday PM peak hour.

3.4.4 2040 Future Conditions Without Project

Table 8 describes the LOS for each intersection within the study area for 2040 Without Project during the PM peak hour.

Table 8. Estimated 2040 Level of Service Without Project for Study Area Intersections

INTERSECTION (critical lane group)	PM Peak Hour		
	LOS	Delay (sec/veh)	v/c (critical lane)
1. Southridge Boulevard/Hildebrand Boulevard	B	19.8	0.73 (NET)
2. Sherman Street/Bob Olson Parkway/Hildebrand Boulevard	C	19.7	0.193 (NBL)
3. Bob Olson Parkway/Steptoe Street/10th Avenue	A	6.6	0.310 (SB)
4. 31st Place/Bob Olson Parkway	C	15.5	0.11 (NEL)
5. Sherman Street/33rd Place	B	10.7	0.034 (EB)

NET – northeast-bound through, NBL – northbound left turn, SB – southbound, NEL – northeast-bound left turn, EB – eastbound

As shown in Table 8, all studied intersections will operate at an acceptable LOS in the 2040 year of opening Without Project conditions during the weekday PM peak hour.

3.4.5 2040 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 2040 Level of Service With Project for Study Area Intersections

INTERSECTION (critical lane group)	PM Peak Hour		
	LOS	Delay (sec/veh)	v/c (critical lane)
1. Southridge Boulevard/Hildebrand Boulevard	B	19.9	0.74 (NET)
2. Sherman Street/Bob Olson Parkway/Hildebrand Boulevard	C	22.0	0.216 (NBL)
3. Bob Olson Parkway/Steptoe Street/10th Avenue	A	6.6	0.317 (SB)
4. 31st Place/Bob Olson Parkway	C	16.4	0.163 (NEL)
5. Sherman Street/33rd Place	B	11.2	0.068 (EB)

NET – northeast-bound through, NBL – northbound left turn, SB – southbound, NEL – northeast-bound left turn, EB – eastbound

As shown in Table 9, all studied intersections will operate at an acceptable LOS in the 2040 year of opening With Project conditions during the weekday PM peak hour.

Findings: All studied intersections operate within the acceptable LOS during existing and future conditions in the PM peak hour.

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.

Both development accesses meet the volume criteria for a right-turn lane. The locations are as follows:

- Eastbound right-turn lane at 31st Place/Bob Olson Parkway intersection.
- Southbound right-turn lane at Sherman Street/33rd Place intersection.

After further analysis, at 31st Place/Bob Olson Parkway the right-turn lane is not recommended for the following reasons:

- The precedence has been set that there are no right-turn lanes along Bob Olson Parkway at other stubbed out intersections. This appears to be based on design standard of frequent access points to the surrounding land use to distribute future turning movements along Bob Olson Parkway. With future Apple Valley phases, additional access points will be provided on Bob Olson Parkway and Sherman Street that reduce the right and left turning movements.
- The speed at Bob Olson Parkway is 40 miles per hour (mph) and below; therefore, it does not meet the WSDOT right-turn lane guidelines with all study roadway speed limits set below the 45-mph threshold noted in the *WSDOT Design Manual Right-Turn Lane Guidelines* (see References).
- No LOS improvements are needed at this driveway.

After further analysis, at Sherman Street/33rd Place the right-turn lane is not recommended for the following reasons:

- This is a residential collector street with relatively low speed (30 mph); adding a southbound right-turn lane may not significantly improve safety at this intersection.
- Future connections are proposed at W 35th Avenue will further distribution the turning movements.
- The speed at Sherman Street is 30 mph and below; therefore, it does not meet the WSDOT right-turn lane guidelines with all study roadway speed limits set below the 45-mph threshold noted in the *WSDOT Design Manual Right-Turn Lane Guidelines*.
- No LOS improvements are needed at this driveway.

None of the development accesses meet the volume criteria for a left-turn lane.

Findings: No right-turn lanes are recommended for this project. None of the development accesses meet the volume criteria for a left-turn lane.

4.2 Collision Analysis

Collision data from the study area was obtained from WSDOT for the five-year period spanning from January 2015 through December 2019. 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 E. Table 10 presents the results of the collision analysis.

Table 10. Collision Analysis for Study Area Intersections (January 2015 through December 2019)

Intersection	Collision Type				Total Collisions	Critical Rate	Collision Rate
	Rear-end	Angle	Object	All-Others			
Southridge Blvd/Hildebrand Blvd	12	3	1	5	21	0.84	0.86
Sherman Street/Bob Olson Parkway/Hildebrand Boulevard	-	-	3	-	3	0.94	0.47
Bob Olson Parkway/Steptoe Street/10th Avenue	-	1	2	-	3	0.84	0.14
31st Pl/Bob Olson Pkwy	-	-	-	-	0	0.94	0
Sherman St/33rd Pl	-	-	-	-	0	1.19	0

To calculate the collision rate, the PM peak hour total entering volumes from the existing turning movement counts 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 E.

As shown in Table 10, the calculated collision rate is higher than the critical rate for the Southridge Boulevard/Hildebrand Boulevard intersection; therefore, the collision records at this intersection were further examined for patterns and/or concerns. The Hildebrand Boulevard/Southridge Boulevard intersection has a pattern of rear-end collisions (12 out of 21 collisions), though no collisions resulted in suspected serious injury or fatality. There were 4 collisions that had possible injury and 1 collision that was a suspected minor injury.

The Sherman Street/Bob Olson Parkway/Hildebrand Boulevard intersection has a pattern of object collisions, but no collisions were with pedestrians and none resulted in serious injury or fatality. The collision was not at the intersection and not related.

The Bob Olson Parkway/Steptoe Street/10th Avenue intersection had one collision that was suspected serious injury. The collision cause by a rock bank or ledge. The collision was not at the intersection but near the area. The vehicle was going straight heading west to east.

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 2015–2019 collision history at the study intersections was reviewed. The Southridge Boulevard/Hildebrand Boulevard intersection has a collision rate that is higher than the critical rate.

A pattern of rear-end collisions was found at one intersection, Southridge Boulevard/Hildebrand Boulevard.

There was one suspected serious injury at the Bob Olson Parkway/Steptoe Street/10th Avenue intersection but not at the exact location of the intersection.

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

Sidewalks are or will be available at most locations throughout the vicinity of the proposed site. According to Figure 4-6 of the City's Transportation System Plan (TSP), Bob Olson Parkway and Hildebrand Boulevard are primary pedestrian routes, with Sherman Street being a secondary pedestrian route. Figure 4-9 of the City's TSP shows that the reconstruction of Sherman Street (Plan ID R-2) is planned/in process to reconstruct to a 3-lane standard street with sidewalk on both sides.

Bike lanes are or will be available along Bob Olson Parkway and Hildebrand Boulevard. Bike lanes are not currently available along S Sherman Street. Figure 4-7 of the City's TSP identifies both Bob Olson Parkway and Hildebrand Boulevard as primary bike routes, with Sherman Street being a secondary bike route.

Transit service is provided by the Ben Franklin Transit, Route 47 with a bus stop at about one mile east of the site. As the land along Bob Olsen Parkway is built out, additional bus stops should be provided in the area.

To assure accessibility compliance, all driveways, sidewalks, crosswalks, and curb ramps constructed with Apple Valley Phase 6 should be designed and constructed according to the current Americans with Disabilities Act (ADA) guidelines.

Findings: Multi-modal 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 two roadways providing access to the Apple Valley Phase 6 site already exist, namely at northbound 31st Place approaching Bob Olson Parkway and at eastbound 33rd Place approaching Sherman Street, they were checked graphically to verify they meet intersection sight distance (ISD).

It is recommended the internal roadway network, intersections, and site accesses be designed in accordance with Kennewick Municipal Code (KMC) 13.12.020 guidelines for ISD (see References) for ISD. Install no objects within the ISD triangles that would block approaching drivers' views of approaching traffic.

Findings: The ISD at the two existing intersections that provide access to the site, W 31st Place and Bob Olson Parkway and W 33rd Place and Sherman, meet ISD.

Recommendations: 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 drivers' views of approaching traffic.

5 STUDY FINDINGS

The findings of this TIA are listed below.

5.1 Traffic Volumes

Because of the ongoing COVID-19 pandemic temporarily closing schools and multiple businesses, present intersection traffic volumes were estimated based on historical data rather than by counting existing volumes.

A historical growth rate of 2.0% (linear growth) was assumed as a conservative approach and as recommended by the City. For locations where historical data were available, past volumes were increased by 2.0% (linear growth) to estimate August 2020 volumes.

Comparisons between current counts and present projections (based on 2.0% linear growth) at a select study area intersection indicate the COVID-19 pandemic has depressed volumes by approximately 36% during the PM peak hour. So, for locations where historical data were unavailable, current PM peak hour counts were increased by 36%, to estimate August 2020 volumes.

5.2 Future Traffic Volumes Increase

Traffic volumes in the study area will continue to increase without or with the project. Trips for unoccupied or under construction lots of Apple Valley Phases 1 through 5 were included in this analysis.

Generic background growth (at 2.0% for 2 years) was assumed to add approximately 4.0% to the 2020 baseline volumes to estimate 2022 Without Project volumes.

Generic background growth (at 2.0% for 20 years) was assumed to add approximately 40.0% to the 2020 baseline volumes to estimate 2040 Without Project volumes.

5.3 Access and Circulation

The project proposes access points from the extensions of existing roadways developed with Phases 1 through 5 onto W 31st Place and W 33rd Place. An internal local roadway network will be constructed to serve all 96 residential lots. Pedestrian connections will be provided via sidewalks constructed as part of the local street section.

5.4 Trip Generation

Phase 6 of the Apple Valley Subdivision is anticipated to generate 1,001 vehicle trips during a typical weekday, including 73 during the AM peak hour and 98 during the PM peak hour.

5.5 Level of Services

All studied intersections operate within the acceptable LOS during existing and future conditions in the PM peak hour.

5.6 Turn Lane Warrants

No right-turn lanes are recommended for this project. None of the development accesses meet the volume criteria for a left-turn lane.

5.7 Collision Analysis

The 2015–2019 collision history at the study intersections was reviewed. The Southridge Boulevard/Hildebrand Boulevard intersection has a collision rate that is higher than the critical rate.

A pattern of rear-end collisions was found at one intersection, Southridge Boulevard/Hildebrand Boulevard.

There was one suspected serious injury at the Bob Olson Parkway/Steptoe Street/10th Avenue intersection but not at the exact location of the intersection.

5.8 Transit, Pedestrian, and Bicycle Facilities

Multi-modal transportation options are available for future subdivision residents.

5.9 Intersection Sight Distance

The ISD at the two existing intersections that provide access to the site, W 31st Place and Bob Olson Parkway and W 33rd Place and Sherman, meet ISD.

6 RECOMMENDATIONS

The traffic impact analysis supports the following recommendations.

6.1 Traffic Impact Mitigation

Update signal timing to address safety concerns at the Southridge Boulevard/Hildebrand Boulevard intersection for the rear-end collisions.

6.2 Accessibility

Assure all driveways, sidewalks, and curb ramps constructed with the subdivision project comply with the current ADA guidelines.

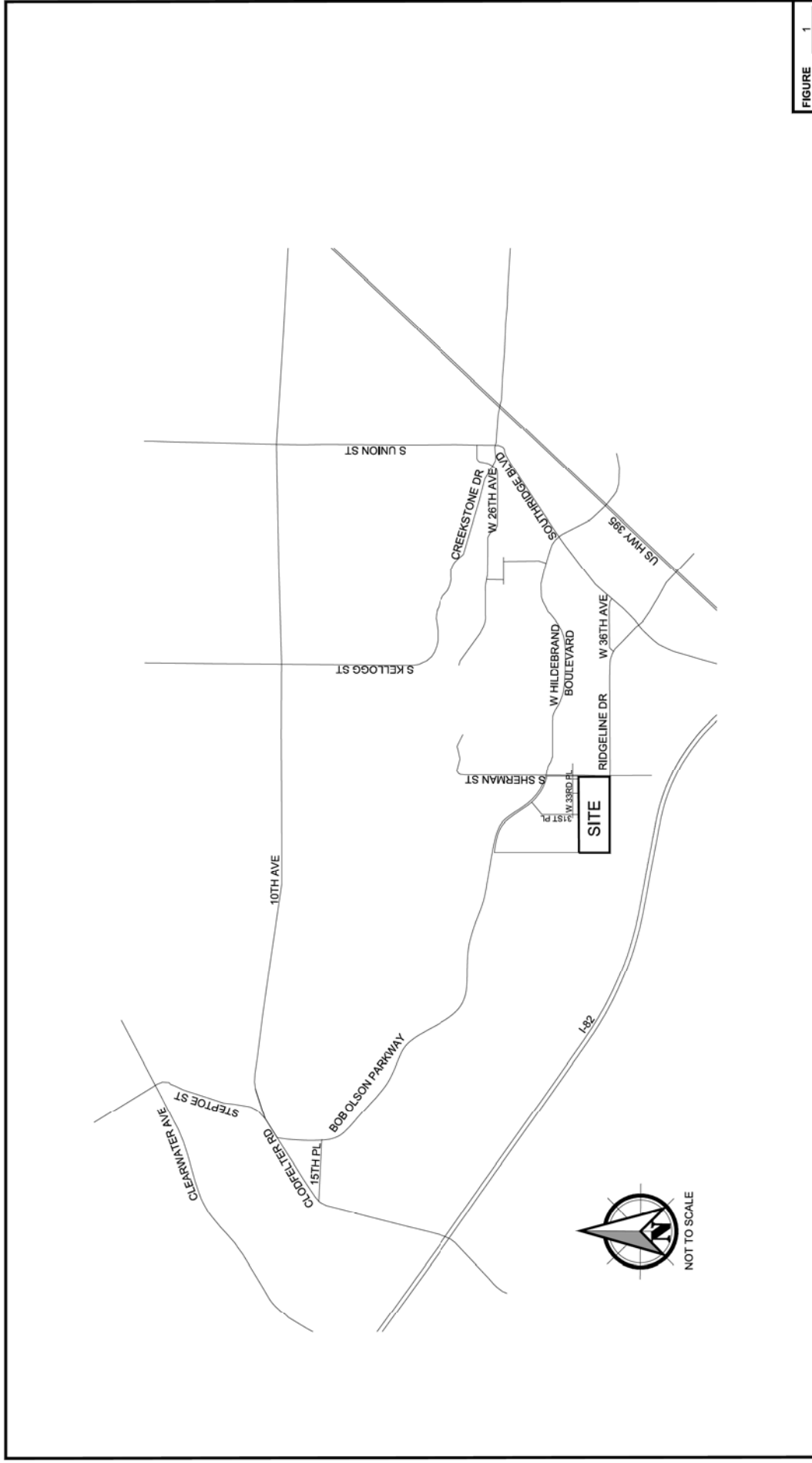
6.3 Intersection Sight Distance

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.

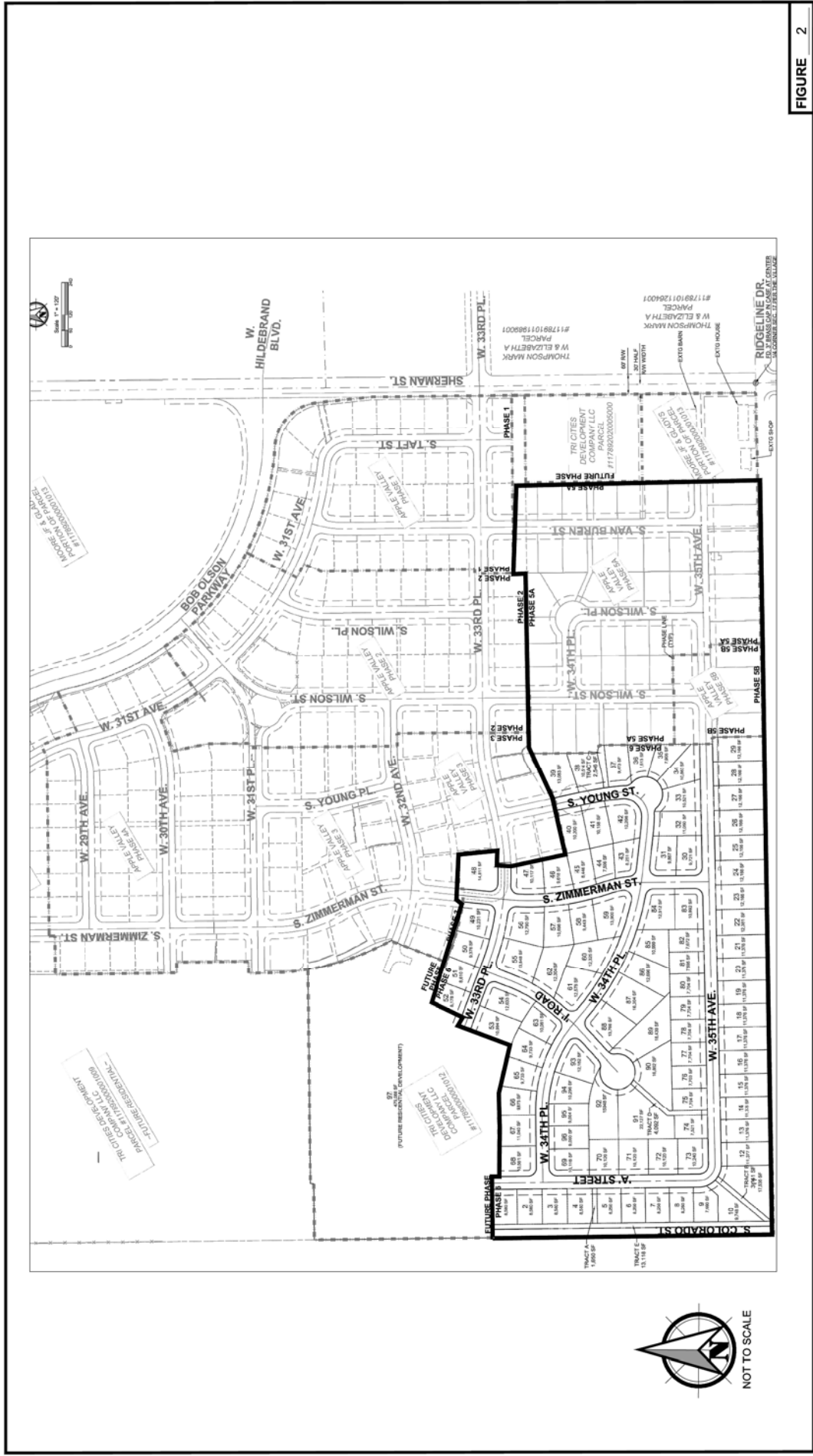
7 REFERENCES

- City of Kennewick (City). *Sightline Setbacks Per KMC 13.12.020*.
(<https://www.go2kennewick.com/DocumentCenter/View/742/Sightline-Diagram-PDF?bidId=>).
- City of Kennewick (City). 2040 *Transportation System Plan (TSP)*.
- City of Kennewick (City). Title 13 Public Works-Traffic. *Kennewick Administrative Code Title 13-08-030(5)*.
- Federal Highway Administration (FHWA). (2009 Edition with May 2012 Revisions). *Manual on Uniform Traffic Control Devices (MUTCD)*.
- Institute of Transportation Engineers (ITE). (2017). *Trip Generation Manual*, 10th Edition.
- Transportation Research Board (TRB), National Research Council. (2016). *Highway Capacity Manual (HCM)*, 6th Edition.
- Washington State Department of Transportation (WSDOT). (December 2019). *WSDOT Design Manual*.
- Washington State Department of Transportation (WSDOT). (undated). *WSDOT Sidra Policy Settings*.
(<https://wsdot.wa.gov/sites/default/files/2006/03/21/sidrapolicysettingsdesign.pdf>)

Figures



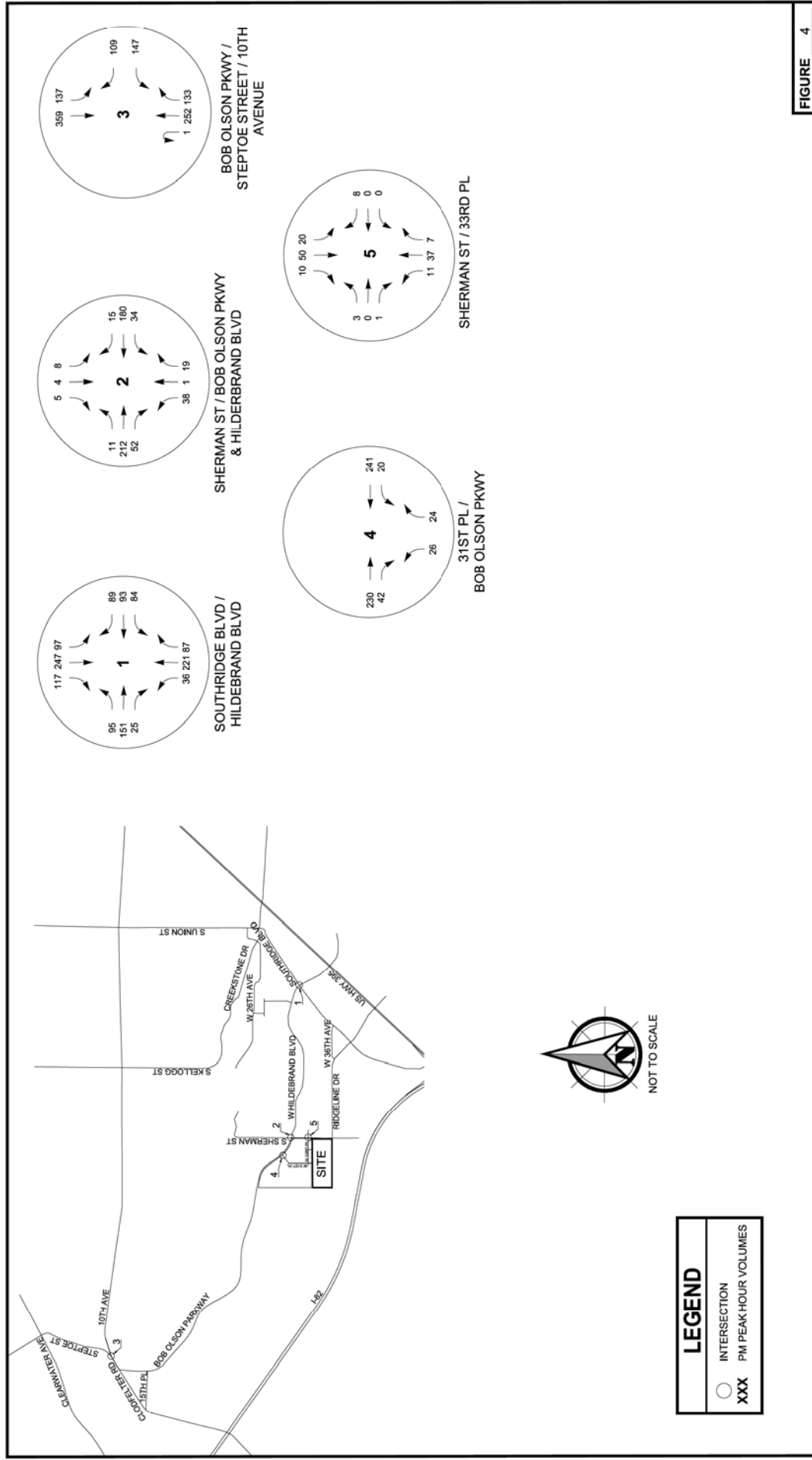
Vicinity Map
Apple Valley Phase 6



Site Plan
Apple Valley Phase 6



Existing Lane Configurations and Traffic Controls



2020 Existing Volumes
 Apple Valley Phase 6



Apple Valley Unoccupied Lots Background Growth Apple Valley Phase 6

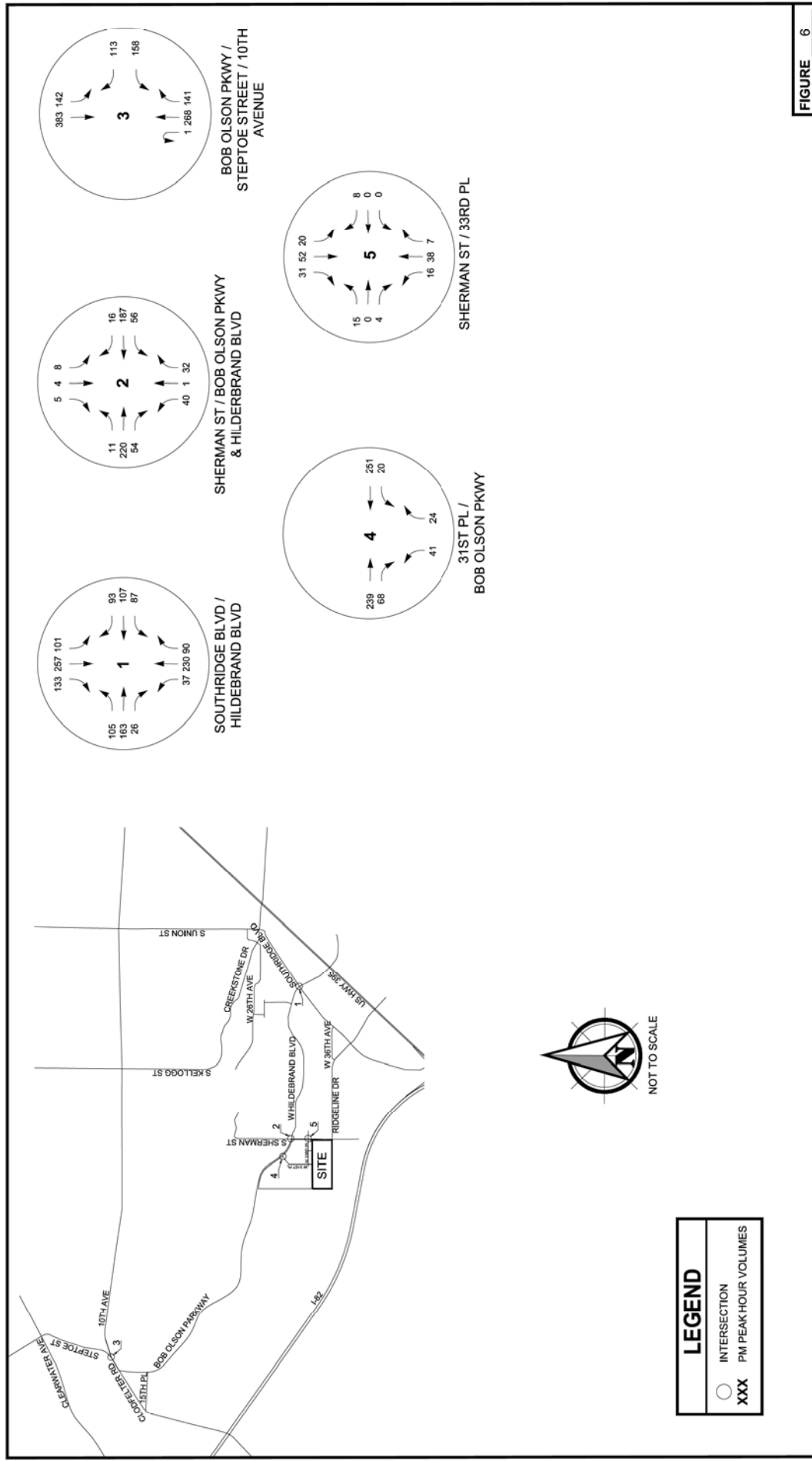


FIGURE 6

2022 Without Project Volumes Apple Valley Phase 6

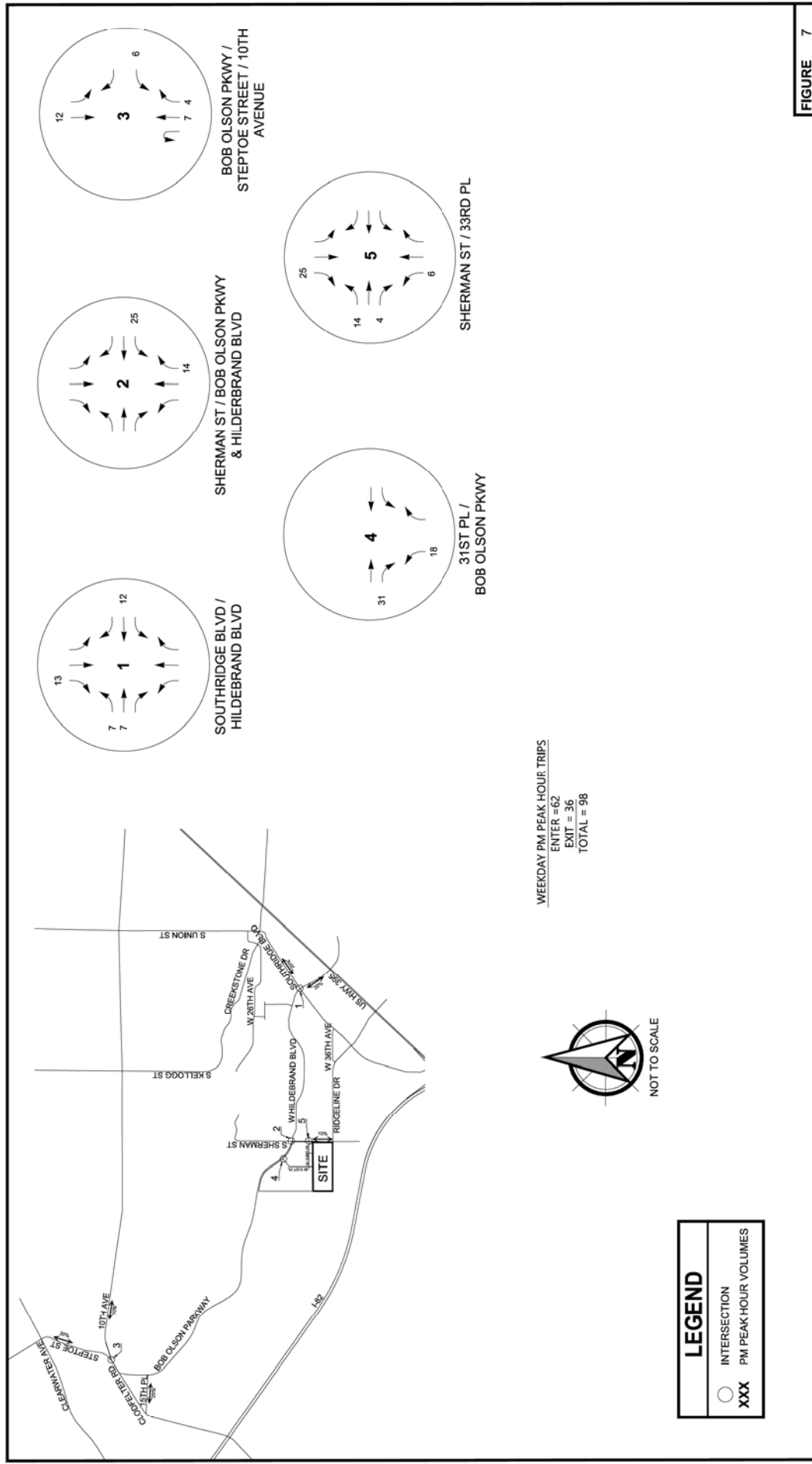


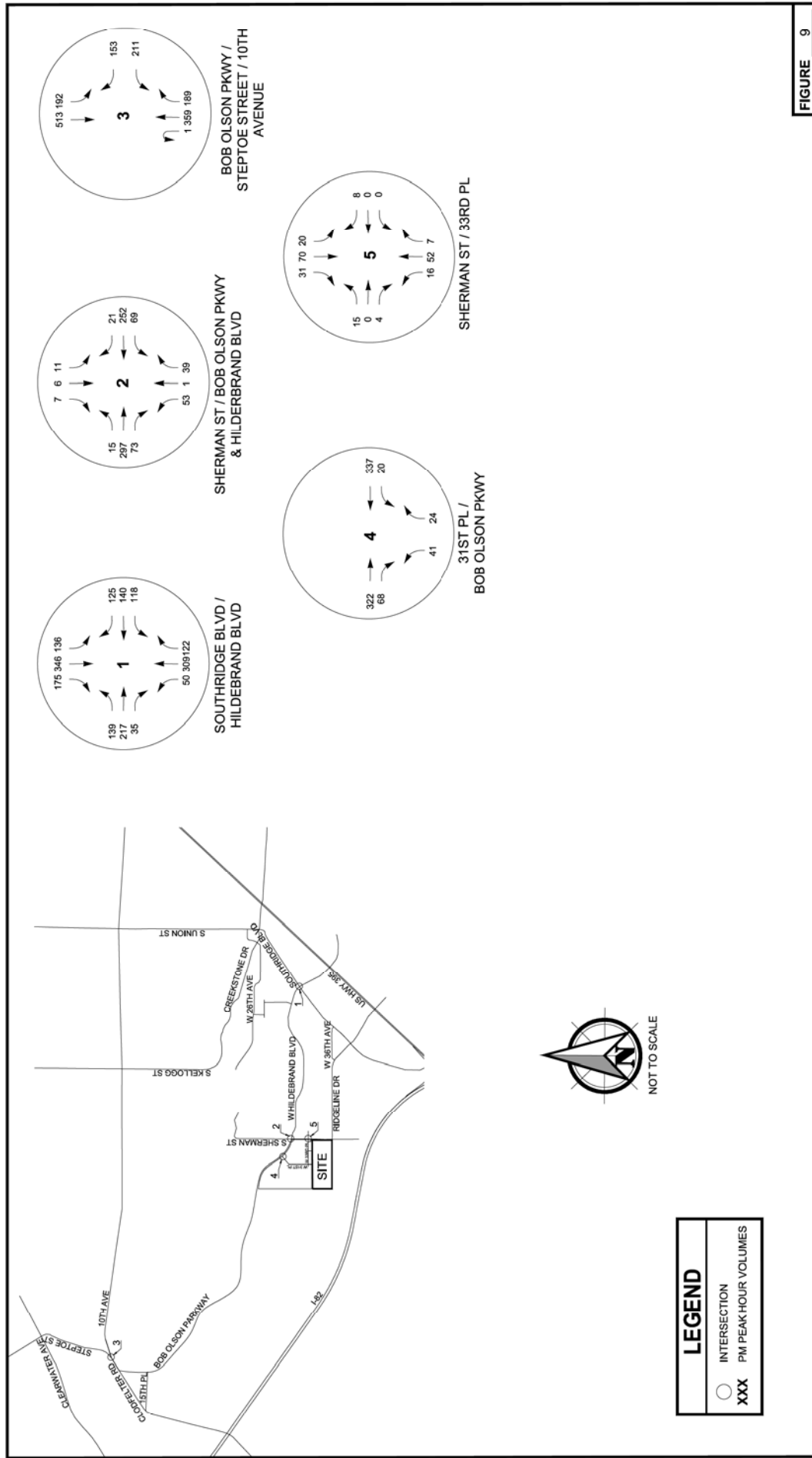
FIGURE 7

Trip Distribution and Assignment

Apple Valley Phase 6



Exhibit 8



2040 Without Project Volumes
 Apple Valley Phase 6

Appendix A

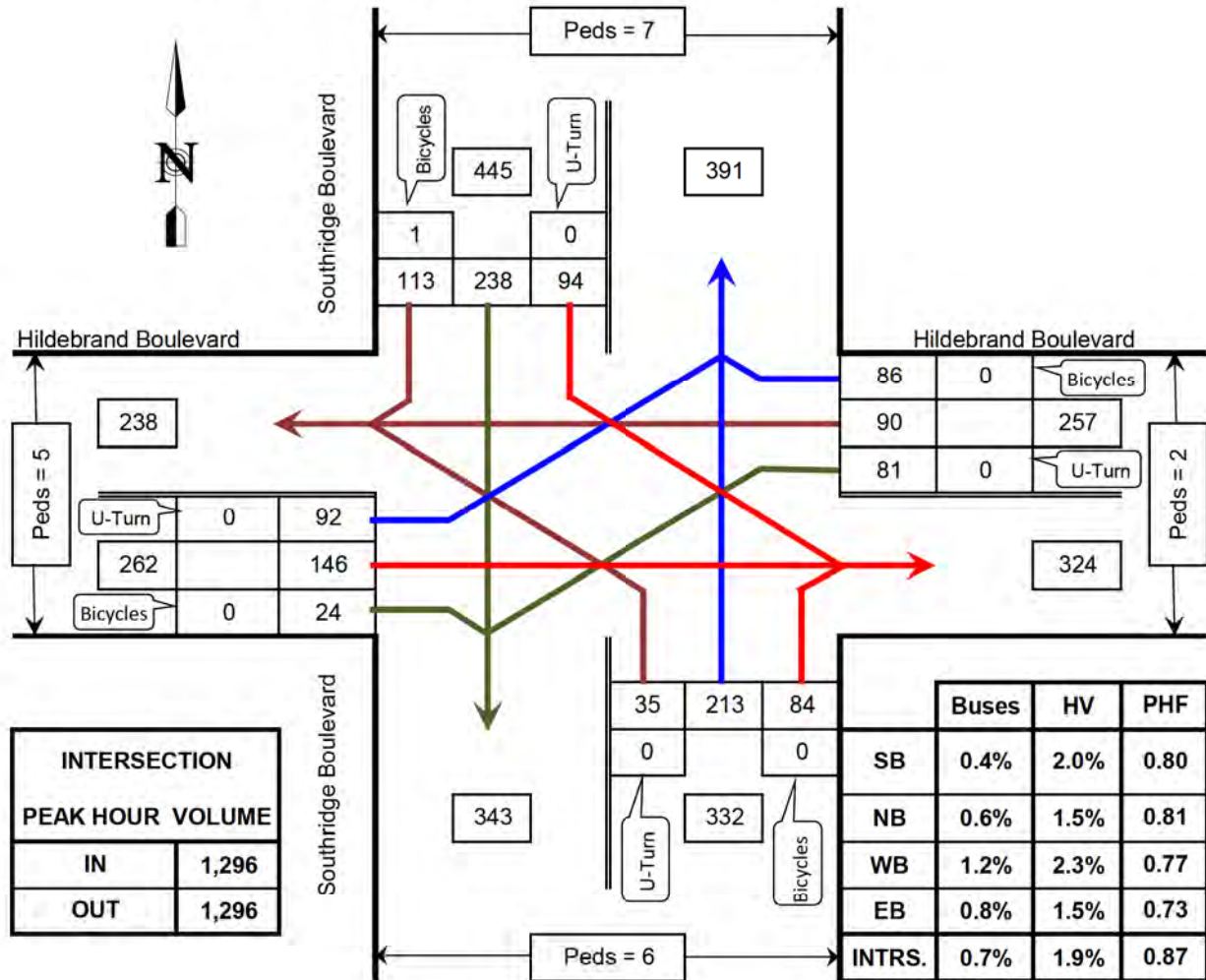
Traffic Counts



TRAFFIC DATA GATHERING

TURNING MOVEMENTS DIAGRAM

4:00 PM - 6:00 PM PEAK HOUR: 4:30 PM TO 5:30 PM



PHF : Peak Hour Factor
 HV : Heavy Vehicles (any vehicle including trailers with 6 or more tires)
 Buses : School, Transit, Access & Tour Buses
 Motorcycles are counted as vehicles

Hildebrand Boulevard @ Southridge Boulevard

Kennewick, WA

COUNTED BY: TDG

DATE OF COUNT: Tue. 10/23/18

REDUCTION DATE: Tue. 11/6/18

TIME OF COUNT: 4:00 PM - 6:00 PM

LOCATION:	<u>Hildebrand Boulevard @ Southridge Boulevard</u>	DATE OF COUNT:	<u>Tue. 10/23/18</u>	COUNTED BY:	<u>TDG</u>
	<u>Kennwick, WA</u>	TIME OF COUNT:	<u>4:00 PM - 6:00 PM</u>	DATE OF REDUCTION:	<u>11/6/2018</u>

Buses = School, Transit, Access & Tour Buses
 HV = Heavy Vehicle (any vehicle including trailers with six or more tires)
 PHF = Peak Hour Factor
 Motorcycles are counted as vehicles

TIME INTERVAL	FROM NORTH ON Southridge Boulevard										FROM SOUTH ON Southridge Boulevard										FROM EAST ON Hildebrand Boulevard										FROM WEST ON Hildebrand Boulevard										INTERVAL TOTALS
	Peds	Bicycle	Buses	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	Buses	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	Buses	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	Buses	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	Buses	HV	U-Turn	Left	Thru	Right	
2:00 PM - 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM - 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM - 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM - 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM - 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	4	0	2	8	0	76	185	110	1	0	3	7	0	37	201	75	1	0	6	9	0	6	9	0	80	94	80	7	0	3	7	0	74	167	17	0	74	167	17	0	1096
4:15 PM - 5:15 PM	4	0	2	9	0	87	202	105	4	0	3	7	0	39	210	78	1	0	5	8	0	7	8	0	72	85	82	7	0	3	7	0	90	133	22	0	90	133	22	0	1205
4:30 PM - 5:30 PM	7	1	2	7	0	94	238	113	6	0	2	5	0	35	213	84	2	0	3	6	0	8	0	81	90	86	5	0	2	4	0	92	146	24	0	92	146	24	0	1296	
4:45 PM - 5:45 PM	5	1	2	4	0	102	233	116	9	0	2	7	0	30	196	89	5	0	1	4	0	1	4	0	100	93	80	3	0	1	2	0	88	140	24	0	88	140	24	0	1291
5:00 PM - 6:00 PM	7	1	2	4	0	106	215	120	9	0	2	7																													



(303) 216-2439
www.alltrafficdata.net

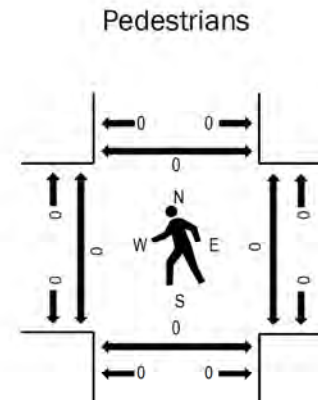
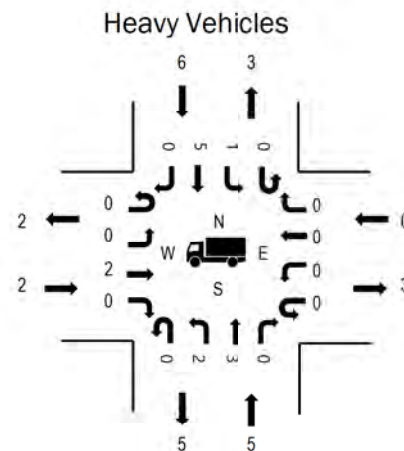
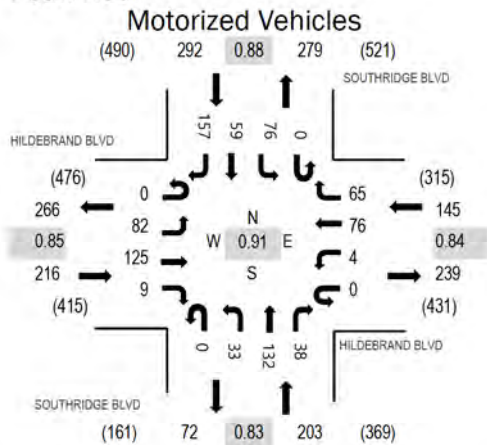
Location: 1 SOUTHRIDGE BLVD & HILDEBRAND BLVD PM

Date: Tuesday, August 18, 2020

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:05 PM - 05:20 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.9%	0.85
WB	0.0%	0.84
NB	2.5%	0.83
SB	2.1%	0.88
All	1.5%	0.91

Traffic Counts - Motorized Vehicles

Interval Start Time	HILDEBRAND BLVD Eastbound				HILDEBRAND BLVD Westbound				SOUTHRIDGE BLVD Northbound				SOUTHRIDGE BLVD 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	7	6	2	0	1	5	7	0	6	10	3	0	5	7	11	70	778
4:05 PM	0	4	10	1	0	2	9	7	0	1	18	6	0	2	4	7	71	777
4:10 PM	0	1	7	2	0	0	6	7	0	4	14	3	0	3	11	7	65	783
4:15 PM	0	5	9	0	0	1	2	5	0	1	9	3	0	4	6	6	51	805
4:20 PM	1	8	9	2	0	1	8	9	0	1	10	3	0	1	2	7	62	824
4:25 PM	0	6	9	2	0	1	8	6	0	2	9	2	0	2	3	8	58	833
4:30 PM	0	7	12	1	0	0	6	4	0	0	12	5	0	6	3	13	69	856
4:35 PM	0	4	10	2	0	0	4	3	0	8	16	2	0	4	5	18	76	850
4:40 PM	0	13	10	0	0	2	6	10	0	1	8	3	0	4	5	13	75	837
4:45 PM	0	5	3	0	0	0	4	1	0	4	12	4	0	9	4	17	63	825
4:50 PM	0	4	10	2	0	1	9	6	0	1	7	1	0	4	4	10	59	820
4:55 PM	0	10	6	2	0	0	2	5	0	2	9	2	0	6	7	8	59	809
5:00 PM	0	5	9	2	0	0	3	3	0	6	14	5	0	6	4	12	69	811
5:05 PM	0	4	7	0	0	0	8	10	0	4	17	2	0	8	2	15	77	
5:10 PM	0	8	12	0	0	1	16	6	0	1	10	4	0	7	9	13	87	
5:15 PM	0	5	14	0	0	0	2	3	0	2	12	3	0	9	8	12	70	
5:20 PM	0	11	14	0	0	0	5	4	0	2	7	3	0	6	5	14	71	
5:25 PM	0	6	18	0	0	0	11	10	0	2	8	4	0	7	3	12	81	
5:30 PM	0	10	6	0	0	1	7	3	0	3	8	2	0	13	6	4	63	
5:35 PM	0	9	12	0	0	0	9	9	0	5	4	3	0	1	4	7	63	
5:40 PM	0	6	12	3	0	2	11	3	0	2	4	2	0	4	4	10	63	
5:45 PM	0	7	14	2	0	1	10	3	0	0	6	1	0	4	5	5	58	
5:50 PM	0	1	7	1	0	1	7	3	0	3	5	3	0	5	4	8	48	
5:55 PM	0	6	11	1	0	2	7	6	0	2	7	1	0	4	4	10	61	
Count Total	1	152	237	25	0	17	165	133	0	63	236	70	0	124	119	247	1,589	
Peak Hour	0	82	125	9	0	4	76	65	0	33	132	38	0	76	59	157	856	

Exhibit 8

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	0	0	0	4:00 PM						4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	0	0	4:05 PM						4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	0	0	4:10 PM						4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	1	1	4:15 PM						4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM						4:20 PM	0	0	0	0	0
4:25 PM	0	1	0	2	3	4:25 PM						4:25 PM	0	0	0	0	0
4:30 PM	1	0	0	1	2	4:30 PM						4:30 PM	0	0	0	0	0
4:35 PM	0	1	0	1	2	4:35 PM						4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	0	0	4:40 PM						4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	1	1	4:45 PM						4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	0	0	4:50 PM						4:50 PM	0	0	0	0	0
4:55 PM	0	1	0	1	2	4:55 PM						4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM						5:00 PM	0	0	0	0	0
5:05 PM	0	1	0	0	1	5:05 PM						5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM						5:10 PM	0	0	0	0	0
5:15 PM	1	1	0	2	4	5:15 PM						5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM						5:20 PM	0	0	0	0	0
5:25 PM	0	1	0	0	1	5:25 PM						5:25 PM	0	0	0	0	0
5:30 PM	1	0	0	0	1	5:30 PM						5:30 PM	0	0	0	1	1
5:35 PM	0	0	0	0	0	5:35 PM						5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM						5:40 PM	0	0	0	0	0
5:45 PM	1	0	1	1	3	5:45 PM						5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM						5:50 PM	0	0	0	0	0
5:55 PM	0	1	0	0	1	5:55 PM						5:55 PM	0	0	0	0	0
Count Total	4	7	1	10	22	Count Total						Count Total	0	0	0	1	1
Peak Hour	2	5	0	6	13	Peak Hour						Peak Hour	0	0	0	0	0



(303) 216-2439
www.alltrafficdata.net

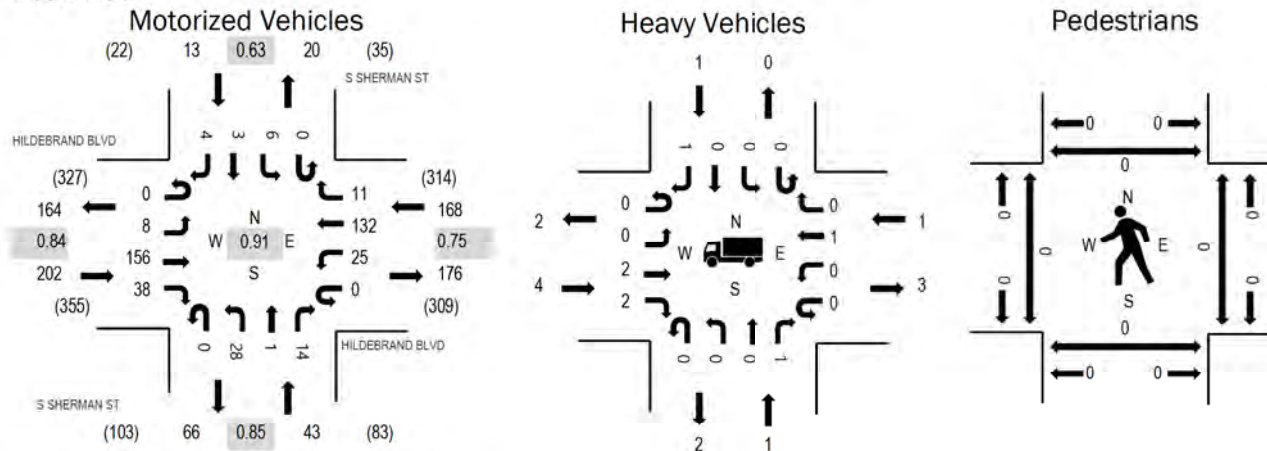
Location: 2 S SHERMAN ST & HILDEBRAND BLVD PM

Date: Tuesday, August 18, 2020

Peak Hour: 04:50 PM - 05:50 PM

Peak 15-Minutes: 05:05 PM - 05:20 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.0%	0.84
WB	0.6%	0.75
NB	2.3%	0.85
SB	7.7%	0.63
All	1.6%	0.91

Traffic Counts - Motorized Vehicles

Interval Start Time	HILDEBRAND BLVD Eastbound				HILDEBRAND BLVD 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	13	3	0	3	9	0	0	5	0	2	0	0	0	0	36	356
4:05 PM	0	1	10	0	0	0	10	0	0	3	0	0	0	0	0	0	24	351
4:10 PM	0	0	9	0	0	1	10	1	0	4	0	0	0	0	0	0	25	361
4:15 PM	0	1	13	2	0	0	6	0	0	1	0	0	0	0	0	2	25	387
4:20 PM	0	1	6	3	0	1	7	0	0	7	0	0	0	0	0	0	25	394
4:25 PM	0	0	11	1	0	2	10	0	0	3	0	0	0	1	1	2	31	402
4:30 PM	0	1	11	1	0	0	13	3	0	2	0	0	0	0	0	0	31	406
4:35 PM	0	0	13	4	0	3	16	0	0	0	0	4	0	1	0	0	41	411
4:40 PM	0	0	11	0	0	1	9	1	0	4	0	0	0	0	0	1	27	408
4:45 PM	0	1	4	6	0	0	14	1	0	2	1	0	0	0	0	0	29	416
4:50 PM	0	1	11	2	0	4	11	0	0	2	0	0	0	0	1	0	32	426
4:55 PM	0	0	11	4	0	1	8	1	0	3	0	0	0	2	0	0	30	419
5:00 PM	0	0	11	8	0	2	6	0	0	2	0	2	0	0	0	0	31	418
5:05 PM	0	0	6	1	0	1	21	1	0	2	0	1	0	0	0	1	34	
5:10 PM	0	2	20	3	0	3	13	2	0	5	0	0	0	2	0	1	51	
5:15 PM	0	0	10	2	0	0	16	0	0	3	0	1	0	0	0	0	32	
5:20 PM	0	0	18	5	0	2	4	0	0	2	0	2	0	0	0	0	33	
5:25 PM	0	1	12	2	0	5	8	1	0	2	0	1	0	2	1	0	35	
5:30 PM	0	0	13	4	0	1	13	2	0	0	1	2	0	0	0	0	36	
5:35 PM	0	1	13	5	0	0	13	1	0	3	0	2	0	0	0	0	38	
5:40 PM	0	2	17	1	0	3	5	1	0	2	0	2	0	0	0	2	35	
5:45 PM	0	1	14	1	0	3	14	2	0	2	0	1	0	0	1	0	39	
5:50 PM	0	0	8	2	0	2	10	0	0	1	1	0	0	1	0	0	25	
5:55 PM	0	0	15	1	0	0	12	1	0	0	0	0	0	0	0	0	29	
Count Total	0	14	280	61	0	38	258	18	0	60	3	20	0	9	4	9	774	
Peak Hour	0	8	156	38	0	25	132	11	0	28	1	14	0	6	3	4	426	

Exhibit 8

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	0	0	1	4:00 PM						4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	0	0	4:05 PM						4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	0	0	4:10 PM						4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0	4:15 PM						4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM						4:20 PM	0	0	0	0	0
4:25 PM	0	0	1	0	1	4:25 PM						4:25 PM	0	1	0	0	1
4:30 PM	1	0	0	0	1	4:30 PM						4:30 PM	0	0	0	0	0
4:35 PM	1	0	1	0	2	4:35 PM						4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	0	0	4:40 PM						4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM						4:45 PM	0	1	0	0	1
4:50 PM	1	0	0	0	1	4:50 PM						4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM						4:55 PM	0	0	0	0	0
5:00 PM	1	0	0	0	1	5:00 PM						5:00 PM	0	0	0	0	0
5:05 PM	0	0	1	0	1	5:05 PM						5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM						5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM						5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM						5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM						5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM						5:30 PM	0	0	0	0	0
5:35 PM	1	0	0	0	1	5:35 PM						5:35 PM	0	0	0	0	0
5:40 PM	1	0	0	1	2	5:40 PM						5:40 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1	5:45 PM						5:45 PM	0	0	0	0	0
5:50 PM	0	0	1	0	1	5:50 PM						5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM						5:55 PM	0	0	0	0	0
Count Total	7	1	4	1	13	Count Total						Count Total	0	2	0	0	2
Peak Hour	4	1	1	1	7	Peak Hour						Peak Hour	0	0	0	0	0



(303) 216-2439
www.alltrafficdata.net

Location: 1 S STEPTOE ST & W 10TH AVE PM

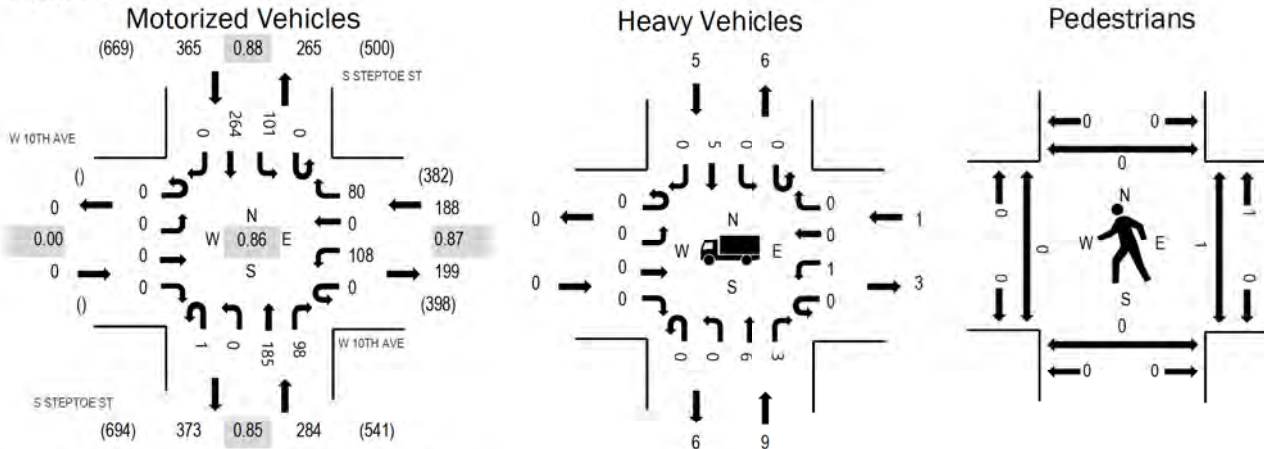
Date: Tuesday, August 18, 2020

Peak Hour: 04:25 PM - 05:25 PM

Peak 15-Minutes: 05:05 PM - 05:20 PM

Exhibit 8

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.5%	0.87
NB	3.2%	0.85
SB	1.4%	0.88
All	1.8%	0.86

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	1	11	0	7	0	0	14	9	0	3	14	0	59	792
4:05 PM	0	0	0	0	0	6	0	7	0	0	20	13	0	8	12	0	66	796
4:10 PM	0	0	0	0	1	7	0	8	0	0	21	9	0	10	15	0	71	802
4:15 PM	0	0	0	0	0	16	0	5	0	0	14	11	0	7	14	0	67	808
4:20 PM	0	0	0	0	0	13	0	4	0	0	13	9	0	7	17	0	63	835
4:25 PM	0	0	0	0	0	7	0	5	0	0	18	9	0	9	20	0	68	837
4:30 PM	0	0	0	0	0	12	0	6	0	0	15	9	0	6	23	0	71	836
4:35 PM	0	0	0	0	0	4	0	7	0	0	14	12	0	10	16	0	63	827
4:40 PM	0	0	0	0	0	3	0	3	0	0	12	6	0	8	21	0	53	827
4:45 PM	0	0	0	0	0	18	0	8	0	0	17	9	0	13	20	0	85	834
4:50 PM	0	0	0	0	0	5	0	6	0	0	12	6	0	5	21	0	55	811
4:55 PM	0	0	0	0	0	8	0	7	0	0	19	8	0	8	21	0	71	819
5:00 PM	0	0	0	0	0	9	0	10	0	0	10	10	0	11	13	0	63	800
5:05 PM	0	0	0	0	0	7	0	11	0	0	17	5	0	10	22	0	72	
5:10 PM	0	0	0	0	0	10	0	5	0	0	22	7	0	3	30	0	77	
5:15 PM	0	0	0	0	0	17	0	5	1	0	17	9	0	9	36	0	94	
5:20 PM	0	0	0	0	0	8	0	7	0	0	12	8	0	9	21	0	65	
5:25 PM	0	0	0	0	0	9	0	11	0	0	7	7	0	12	21	0	67	
5:30 PM	0	0	0	0	0	7	0	8	0	0	10	2	0	14	21	0	62	
5:35 PM	0	0	0	0	0	7	0	2	0	0	7	11	0	13	23	0	63	
5:40 PM	0	0	0	0	0	7	0	7	0	0	13	9	0	7	17	0	60	
5:45 PM	0	0	0	0	0	6	0	6	0	0	17	5	0	9	19	0	62	
5:50 PM	0	0	0	0	1	13	0	1	0	0	14	11	0	4	19	0	63	
5:55 PM	0	0	0	0	0	13	0	10	0	0	9	2	0	4	14	0	52	
Count Total	0	0	0	0	3	223	0	156	1	0	344	196	0	199	470	0	1,592	
Peak Hour	0	0	0	0	0	108	0	80	1	0	185	98	0	101	264	0	837	

Exhibit 8

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	1	0	2	4:00 PM						4:00 PM	0	0	2	0	2
4:05 PM	0	0	0	1	1	4:05 PM						4:05 PM	0	0	0	0	0
4:10 PM	0	1	1	0	2	4:10 PM						4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	1	1	4:15 PM						4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM						4:20 PM	0	0	0	0	0
4:25 PM	0	2	0	0	2	4:25 PM						4:25 PM	0	0	0	0	0
4:30 PM	0	2	0	2	4	4:30 PM						4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	0	0	4:35 PM						4:35 PM	0	0	0	0	0
4:40 PM	0	1	0	0	1	4:40 PM						4:40 PM	0	0	1	0	1
4:45 PM	0	1	1	0	2	4:45 PM						4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	2	2	4:50 PM						4:50 PM	0	0	0	0	0
4:55 PM	0	1	0	1	2	4:55 PM						4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM						5:00 PM	0	0	0	0	0
5:05 PM	0	1	0	0	1	5:05 PM						5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM						5:10 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1	5:15 PM						5:15 PM	0	0	1	0	1
5:20 PM	0	0	0	0	0	5:20 PM						5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM						5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	1	1	5:30 PM						5:30 PM	0	0	0	1	1
5:35 PM	0	0	0	0	0	5:35 PM						5:35 PM	0	0	1	0	1
5:40 PM	0	1	0	0	1	5:40 PM						5:40 PM	0	0	1	0	1
5:45 PM	0	0	0	1	1	5:45 PM						5:45 PM	0	0	0	0	0
5:50 PM	0	1	0	1	2	5:50 PM						5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM						5:55 PM	0	0	0	0	0
Count Total	0	13	3	10	26	Count Total						Count Total	0	0	6	1	7
Peak Hour	0	9	1	5	15	Peak Hour						Peak Hour	0	0	2	0	2

Pa

1

10

1

1

1

16:30 - 17:30

	Northbound	Eastbound	Southbound	Westbound	
--	------------	-----------	------------	-----------	--

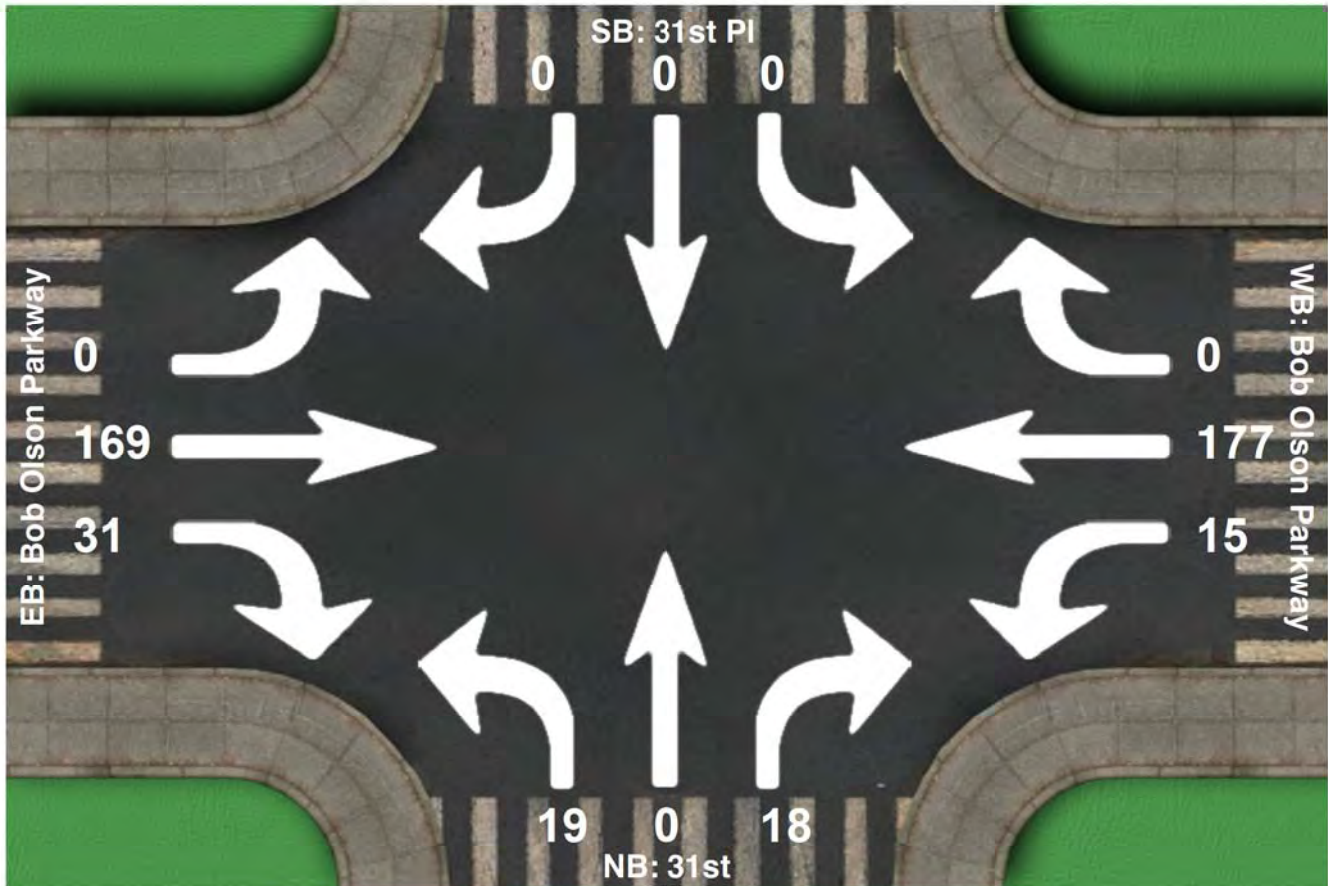
Vehicle	NorthBound			Eastbound			Southbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	18	0	18	0	167	30	0	0	0	15	176	0	424

[illegible][illegible]

Intersection Peak Hour

Exhibit 8

Location: 31st Pl at Bob Olson Parkway, Kennewick, WA
 GPS Coordinates: Lat: 48.1825 Long: -119.2146
 Date: 2020-07-29
 Day of week: Wednesday
 Weather: Sunny
 Analyst: Paige Price



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Eastbound			Northbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	19	0	18	0	169	31	0	0	0	15	177	0	429
Factor	0.59	0.00	0.75	0.00	0.88	0.60	0.00	0.00	0.00	0.62	0.82	0.00	0.96
Approach Factor	0.66			0.96			0.00			0.84			

Turn Count Summary

Location: S Sherman St at 33rd Pl, Kennewick, WA
GPS Coordinates: Lat=46.179181, Lon=-119.210948
Date: 2020-07-28
Day of week: Tuesday
Weather: Sunny
Analyst: Paige Price

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	1	4	2	0	0	2	0	5	0	2	0	1	17
16:15	0	8	2	0	0	2	2	11	0	0	0	0	25
16:30	2	8	1	0	0	0	3	11	1	2	0	0	28
16:45	3	15	1	0	0	2	3	5	2	0	0	0	31
17:00	2	10	2	0	0	0	0	9	0	0	0	0	23
17:15	8	4	3	0	0	4	2	2	2	0	0	1	26
17:30	2	9	1	0	0	0	1	6	2	2	0	1	24
17:45	3	8	3	0	0	3	0	4	0	1	0	0	22

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	1	4	2	0	0	2	0	5	0	2	0	1	17
16:15	0	8	2	0	0	2	2	11	0	0	0	0	25
16:30	2	8	1	0	0	0	3	11	1	1	0	0	27
16:45	3	13	1	0	0	2	3	5	2	0	0	0	29
17:00	2	10	2	0	0	0	0	8	0	0	0	0	22
17:15	8	4	3	0	0	4	2	1	2	0	0	1	25
17:30	2	9	1	0	0	0	1	6	2	2	0	1	24
17:45	3	8	3	0	0	3	0	4	0	1	0	0	22

Truck traffic

[illegible]

Bicycle traffic

[illegible]

Pedestrian volumes

[illegible]

16:30 - 17:30

	South Beach	West Beach	North Beach	East Beach	
--	-------------	------------	-------------	------------	--

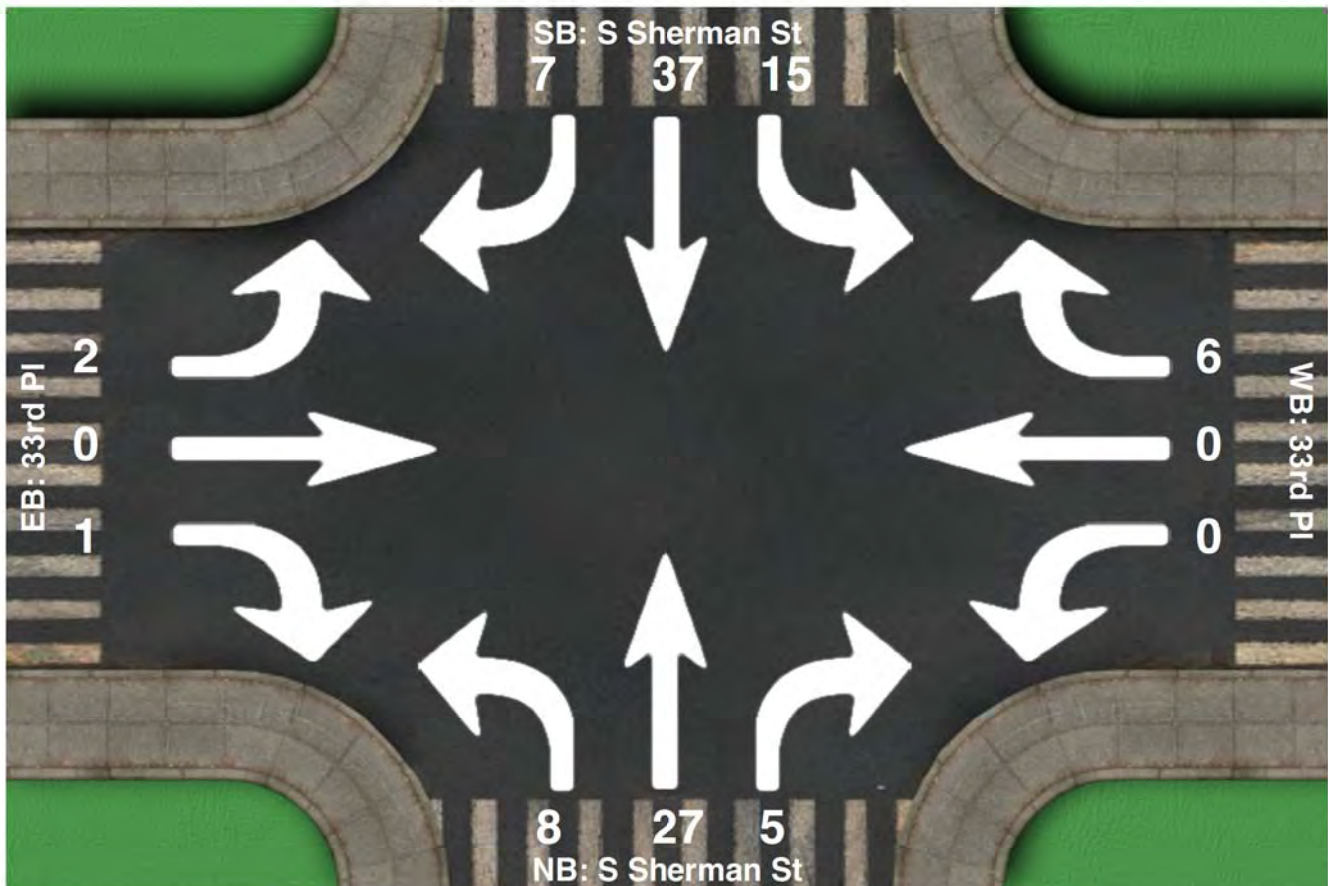
Vehicle	Southbound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	15	35	7	0	0	6	8	25	5	1	0	1	103

[illegible][illegible]

Intersection Peak Hour

Exhibit 8

Location: S Sherman St at 33rd Pl, Kennewick, WA
 GPS Coordinates: Lat=46.179181, Lon=-119.210948
 Date: 2020-07-28
 Day of week: Tuesday
 Weather: Sunny
 Analyst: Paige Price



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	15	37	7	0	0	6	8	27	5	2	0	1	108
Factor	0.47	0.62	0.58	0.00	0.00	0.38	0.67	0.61	0.62	0.25	0.00	0.25	0.87
Approach Factor	0.78			0.38			0.67			0.38			

PM	Historical Volumes			Recent Volumes			If Historical Volumes Had Grown at 2.0%							
	With Data Date			With Data Date			2.0%							
Southernbridge Blvd / Hilderbrand Blvd	92	146	24	113	238	94	Oct-18	157	59	76	Aug-20	117	247	97
				86	82	125	9	65	95	151	25	89	93	84
				1,296	81	90	76	4	856	1,342				
Sherman St / Bob Olson Pkwy & Hilderbrand Blvd	1	35	213	84	1	33	132	38	Aug-20	1	36	221	87	
					4	3	6	11	132	25	n/a			
				n/a	8	155	38	426	80	108	n/a			
Bob Olson Pkwy / Steptoe Street / 10th Avenue	2				2	28	1	14	Aug-20	2				
					264	101								
				n/a	837						n/a			
31st Pl / Bob Olson Pkwy	3				3	185	98	Jul-20	3					
					169	31	429	177	15					
				n/a						n/a				
Sherman St / 33rd Pl	4				4	19	18	Jul-20	4					
					7	37	15	6	0	0	n/a			
				n/a	2	0	1	108	0	0	n/a			
	5				5	8	27	5	5					

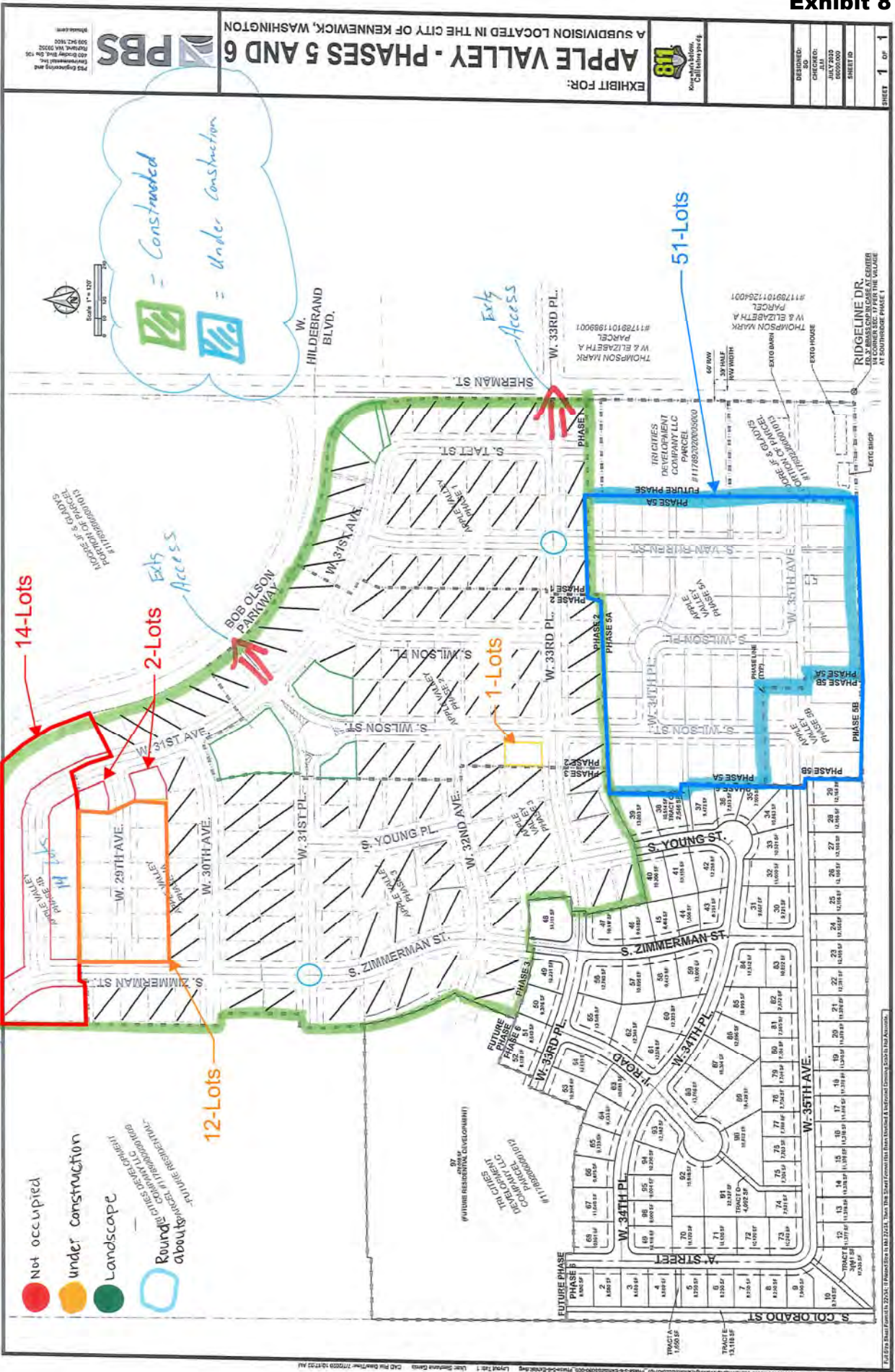
Avg Med Overall
-36% -36% -36%

-36%

2020 Raw Volumes (unbalanced)											
Either grow historical volumes by 2.0%... ...OR increase recent data by 36%											
117	247	97	95	151	25	89	93	84	36	221	87
5	4	8	11	212	52	15	180	34	5	4	8
2	38	1	19	0	0	109	0	147	0	359	137
0	0	0	1,138	0	0	0	0	0	0	0	0
3	252	133	0	0	0	0	0	0	0	0	0
0	0	0	583	241	20	0	0	0	0	0	0
4	26	0	24	10	50	20	10	50	20	10	50
3	0	0	147	8	0	0	0	0	0	0	0
5	11	37	7	11	37	7	11	37	7	11	37

Appendix B

Background Growth



Trip Generation Summary

Alternative: Alternative 1

Phase:

Project: Apple Valley

Open Date: 8/25/2020

Analysis Date: 8/25/2020

ITE	Land Use	Weekday Average Daily Trips				Weekday AM Peak Hour of Adjacent Street Traffic				Weekday PM Peak Hour of Adjacent Street Traffic			
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
210	Unoccupied lots at Apple Valley Phase 1 to 5B		424	423	847		16	46	62		52	30	82
	80 Dwelling Units												
	Unadjusted Volume		424	423	847		16	46	62		52	30	82
	Internal Capture Trips		0	0	0		0	0	0		0	0	0
	Pass-By Trips		0	0	0		0	0	0		0	0	0
	Volume Added to Adjacent Streets		424	423	847		16	46	62		52	30	82

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition

TRIP GENERATION 10, TRAFFICWARE, LLC

Appendix C

Trip Generation Calculations

Appendix D

Level of Service Calculations

Appendix E

Collision Rate Calculations and Data



MEMORANDUM

Fire Department

To: Anthony Muai, Development Services
From: Brian Ellis, Deputy Fire Marshal
Date: April 5, 2021
Re: Apple Valley Phase 6
Project: PLN-2020-02594

1. Fire Hydrant water system to be looped and GPM and Pressure to be able to provide fire flow requirements for future proposed structures.
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. Fire Hydrant Location to be approved by Fire Department.
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. Site Plan Applications will contain a Fire Protection Page (FP), which will include for review the following components, if applicable.
 - a. Location of all existing Fire Hydrants.
 - b. Location of Proposed Fire Hydrants.
 - c. Distances of Dead End streets.
 - d. Width of Roadways, Drives, Access routes.
 - e. Turning radius at all corners for Emergency Vehicles.
 - f. Location of Secondary Emergency Vehicle Access (SEVA), (the width and where it starts and ends.), If applicable.
 - g. Any proposed Gates on roadways.

Brian Ellis

Captain/Deputy Fire Marshal



Department of Energy

Bonneville Power Administration
2211 North Commercial Avenue
Pasco, Washington 99301

TRANSMISSION BUSINESS LINE

October 22, 2020

In reply refer to: PP 20-02/PLN-2020-02594 Notice of Application Apple Valley Phase 6
Located within a Portion of Section 17, Township 8 North,
Range 29 East, W.M., Benton County, Washington

Anthony Muai, AICP
City of Kennewick
Community Development/Senior Planner
210 W. 6th Avenue
Kennewick, WA 99336

Dear Anthony:

Bonneville Power Administration's (BPA) has had the opportunity to review PP 20-02/PLN-2020-02594 Notice of Application Apple Valley Phase 6. The request is to create 97 lots on 41.07 acres. The project is generally located west of Sherman Street and south of Bob Olson Parkway in Kennewick, WA.

In researching our records, we have found that this proposal will not directly impact BPA facilities approximately 584 feet south of the subject property. BPA does not have any objections to the approval of this request at this time.

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 (503) 230-5510 or by email at mjdeklyen@bpa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Mike DeKlyen", is written over a horizontal line.

Mike DeKlyen
BPA Field Realty Specialist

From: Chad Brooks
Sent: 20 Oct 2020 21:38:11 +0000
To: Anthony Muai
Subject: RE: [E] PP 20-02/PLN-2020-02594 Notice of Application Apple Valley Ph 6

Benton PUD will require additional easements to route feeder conductor, 5'x9' vaults and switch cabinets through subdivision. There is an existing overhead power line on South end of property. Any grading by power lines or poles will need to be coordinated with Benton PUD.

Chad Brooks

Distribution Design Tech I

Benton PUD

Email: brooksc@bentonpud.org

Main # (509)582-2175

Direct # (509)582-1233



From: Anthony Muai

Sent: Wednesday, October 7, 2020 9:55 AM

To: Ashley M. Morton ; Ben Franklin Transit - Bill Barlow ; Ben Franklin Transit - Kevin Sliger ; Benton Clean Air Authority - Rob Rodger ; Benton Clean Air Authority - Tyler Thompson ; Benton Clean Air John Lyle ; Benton Franklin Health Dept - Rick Dawson ; EngService ; Jeff Vosahlo ; Chad Brooks ; Mike Irving ; Shanna Everson ; Tina Glines ; BPA - Deborah Rodgers ; BPA - Joe Cottrell ; BPA - Mike Deklyen ; Cascade Gas James Thomas ; Charter Communications - Robert Early ; Columbia Irrigation District ; Department of Ecology SEPA UNIT ; Dept of Archaeology and Historic Preservation (sepa@dahp.wa.gov) ; Dept of Fish & Wildlife ; Dept of Fish & Wildlife - Michael Ritter ; Dept of Natural Resources SEPA Center ; Dustin Fisk - Kennewick School District (dustin.fisk@ksd.org) ; Frontier Communications (gregory.goodwin@ziply.com) ; Greg Wendt (Greg.Wendt@co.benton.wa.us) ; Kennewick School District ; Brandon Potts ; KID Development ; Michelle Cooke ; Mike Stevens - (mstevens@ci.richland.wa.us) ; Shane O'Neill ; US Army Corps of Engineers ; Williams Pipeline - Audie Neuson ; WSDOT ; Yakama Nation - Thalia Sachtleban

Subject: [E] PP 20-02/PLN-2020-02594 Notice of Application Apple Valley Ph 6

The City of Kennewick has received a Preliminary Plat Application. Please review and submit comments and conditions of approval necessary to implement your agency's applicable regulations.

Project description:

A Preliminary Plat Application has been submitted for property located at the NW corner of the Ridgeline Drive and Sherman Street intersection. The request is to create 97 lots on 41.07 acres, with an average lot size of 10,783 sq. ft. The Comprehensive Plan designation for the site is Low Density Residential and is zoned Residential, Low Density (RL).

Please review and submit your comments to the Community Planning Department, at the email listed below, on or before October 22, 2020.

Anthony Muai, AICP

Planning Manager

Community Planning Department

City of Kennewick

O: 509.585.4386 | F: 509.585.4442



anthony.muai@ci.kennewick.wa.us



Caution: This email originated from outside of Benton PUD. Do not click links or open attachments unless you recognize the sender and know the content is safe



October 20, 2020

City of Kennewick Community Planning Department
210 W. 6th Avenue
Kennewick, WA 99336

Attention: Anthony Muai, AICP, Planning Manager

Subject: PP 20-02/PLN-2020-02594, Notice of Application Apple Valley Ph. 6
US 395, MP 13.78, Ridgeline Drive

We have reviewed the proposed project and have the following comments.

- The subject property is not adjacent to U.S. Highway 395 (US 395); however, this highway is the sole north-south arterial serving the area. As such, WSDOT expects the majority of traffic generated by this proposal will utilize US 395 and access the highway at Ridgeline Drive and Hildebrand Boulevard.
- The City of Kennewick has an interchange project programmed for the US 395/Ridgeline Drive intersection. As with other recent developments in the area, we recommend the City require the developer to contribute to towards construction of the interchange at US 395 and Ridgeline Drive in proportion to their impacts.

Thank you for the opportunity to review and comment on this proposal. If you have any questions regarding this letter, please contact Jacob Prilucik at (509) 577-1635.

Sincerely,

Paul Gonseth, P.E.
Planning Engineer

PG: jjp/mnk

cc: US 395, File #8
Kara Shute, Area 3 Maintenance Superintendent



Memorandum
Public Works

Leading the Way

To: Anthony Muai, Planning Manager

From: Fernando Garcia, Development Services Supervisor

Date: October 22, 2020

Re: Public Works Consolidated Comments

Project: PP No. 20-02 / PLN-2020-02594

1. Provide the location and design of fencing to be constructed along abutting streets per KMC 17.10.030(5). Widen sidewalk an additional 18-inches when adjoining a wall or fence per COK detail 2-10, sheet 1 of 8, note 4.
2. As part of all residential development construction plans, there shall be a separate schematic drawing which, at a minimum, shows the power source(s), wiring diagram, street light pole spacing, and street permanent signing per COK Standard Specifications 7-10. Combine signing, striping, and illumination plans onto the same drawing with other elements left off.
3. Due to project phasing, any temporary dead end street 150-feet or greater from the street intersection will require construction of a temporary cul-de-sac, constructed with 6-inches of base rock and 2-inches of Hot Mix Asphalt (HMA).
4. There is an existing 8-inch water main zone 4 and a 16-inch zone 5 stubbed to the west end of W 35th Ave and an 8-inch of W 33rd installed by previous Apple Valley phases.
5. Provide an updated overall water, sewer and stormwater comprehensive plans at full build out of Apple Valley are required (not just for phase 6) for review and approval before submitting construction drawings for review per KMC 14.10.030.
6. Install utilities on City right of way. If COK Public Works grant 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 will no longer be permitted.
7. Routing of wet utilities to be placed in City rights-of-way. Avoid routing utilities between homes.
8. Include pipe sizes and water zones on proposed water mains and pipe sizes on sewer and storm mains on the comprehensive plans for review. Make provisions to serve east and west side of S Colorado and properties south of Apple Valley subdivision
9. If significant deviations in layout/ connectivity from the previous (June 2017) submittal, an updated water hydraulic analysis may be required

Exhibit 13

10. Developer will be required to loop all water mains to avoid the buildup of stagnant water, which will assist water quality, and minimize taste and odor concerns associated with stagnant water.
11. Potable water is not available for irrigation purposes. Provide irrigation water to irrigate proposed plat.
12. There are existing 8-inch sanitary sewer mains installed by Previous Apple Valley Phases.
13. Residential sub-divisions shall be designed 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.
14. Stormwater design, construction and post construction per KMC 14.28.045 and COK Standard Specification 5-8.
15. 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.
16. Provide erosion control and site stability notes.
17. Provide compaction test and testing requirements within the right of way meeting COK Standard Specifications section 2-4.02 and 1-13.04
18. Provide storm routing through the subdivision for offsite runoff or show that it does not exist
19. **For civil plan reviews submit the following:**
 - a. PDF copy of the Application for Civil Review Storm Calculations.
 - b. One full size (24"x36") PDF copy of the construction plans.
20. Plan review and utility fees will be quoted from the construction cost from the Contractor selected by the Developer to construct the project. Cost shall be paid in the amount of five percent (5%), and the construction cost shall be determined by the actual bid document reviewed, and approved, by the City Engineer.
21. Kennewick Survey Data requirements for construction plans and record drawings:
 - a. Construct all projects using current COK Survey data.
 - b. For detailed information on Kennewick Survey Data and Record Drawings go to COK website @ <https://www.go2kennewick.com/314/Civil-Plan-Review>.

**MEMORANDUM****Traffic Engineering Division**

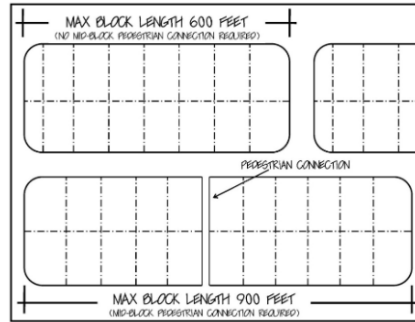
To: Anthony Muai, Planning Manager
From: Joe Seet, Assistant Traffic Engineer
Date: October 22, 2020
Re: Traffic Engineering Comments for 3426 S. Young St. Apple Valley Phase 6 - 97 lots
Project: PP 20-02/PLN-2020-02594

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 be remitted to projects congruent with the area where the impact is realized.
2. The 2020 TIF is \$1,367/Dwelling Unit based on a land use of Single-Family Detached Housing. The proposed Apple Valley Phase 6 is in District 1. Based on the submitted project documents, estimated TIF is \$132,599 for the proposed 97 lots.
3. Developer will receive TIF credit for lots developed under Apple Valley Phase 6, for street improvements along Colorado Street.

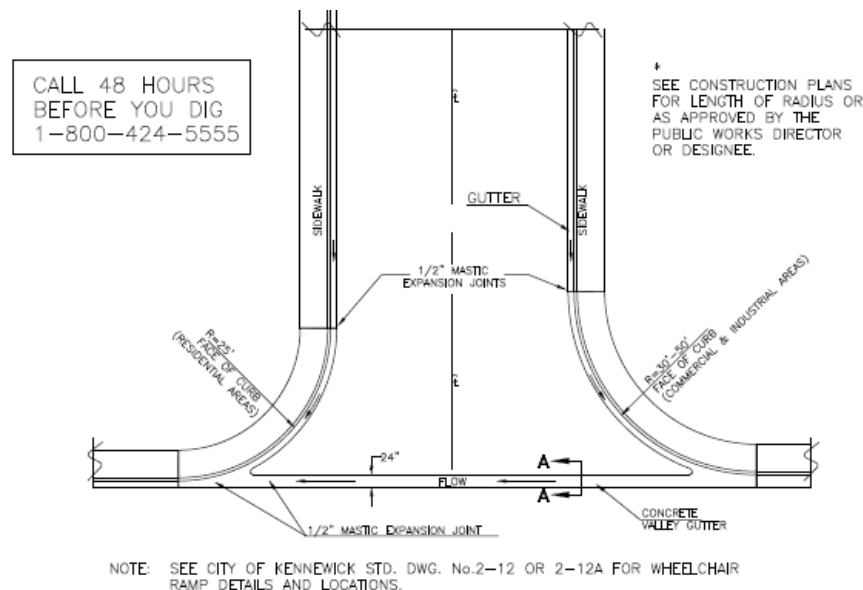
TOPOGRAPHY DRAWING/GRADING PLAN**Traffic Operations**

1. KMC 17.20.010(2)(a) – Streets greater than 1,200 feet in continuous uninterrupted length will need traffic calming measure. Provide adequate right-of-way for traffic calming device.
 - a. A Street continues to W 35th Ave will require traffic calming.
2. KMC 17.20.010(3)(b) – Mid-block pedestrian crossings
 - a. A Street and W. 35th Ave. will require mid-block pedestrian crossings.



Proposed Roadways

1. Please refer to COK Standard Drawing No. 2-9 below. Provide civil design layout for roadway intersections to verify right-of-way limits and minimum intersection radius.



COK Standard Drawing No. 2-9

2. Provide Horizontal Sightline Offset (HSO), per 2011 AASHTO 3-36, analysis for all proposed horizontal curves.
 - a. A St./W. 35th Ave.
 - b. S. Young St./W 34th Pl.
3. Please refer to the table below for the design rate of vertical curvature, K, values for vertical curves at the proposed roadway design speed. Provide civil design layout to verify that roadway will have adequate right-of-way for vertical and horizontal curves and minimum vertical curvature, K, values.

Traffic Engineering Division

1010 E. Chemical Drive * PO Box 6108 * Kennewick, WA 99336

Sorin Juster – 509-585-4400 * Joe Seet – 509-585-4527 * Josh Hazlett – 509-585-4342

Table 3-34. Design Controls for Crest Vertical Curves Based on Stopping Sight Distance

Design Speed (km/h)	Metric			U.S. Customary		
	Stopping Sight Distance (m)	Rate of Vertical Curvature, K^a		Stopping Sight Distance (ft)	Rate of Vertical Curvature, K^a	
		Calculated	Design		Calculated	Design
20	20	0.6	1	15	80	3
30	35	1.9	2	20	115	7
40	50	3.8	4	25	155	12
50	65	6.4	7	30	200	19
60	85	11.0	11	35	250	29
70	105	16.8	17	40	305	44
80	130	25.7	26	45	360	61
90	160	38.9	39	50	425	84
100	185	52.0	52	55	495	114
110	220	73.6	74	60	570	151
120	250	95.0	95	65	645	193
130	285	123.4	124	70	730	247
				75	820	312
				80	910	384

^a Rate of vertical curvature, K , is the length of curve per percent algebraic difference in intersecting grades (ft), $K = L/A$.

Table 3-36. Design Controls for Sag Vertical Curves

Design Speed (km/h)	Metric			U.S. Customary		
	Stopping Sight Distance (m)	Rate of Vertical Curvature, K^a		Stopping Sight Distance (ft)	Rate of Vertical Curvature, K^a	
		Calculated	Design		Calculated	Design
20	20	2.1	3	15	80	9.4
30	35	5.1	6	20	115	16.5
40	50	8.5	9	25	155	25.5
50	65	12.2	13	30	200	36.4
60	85	17.3	18	35	250	49.0
70	105	22.6	23	40	305	63.4
80	130	29.4	30	45	360	78.1
90	160	37.6	38	50	425	95.7
100	185	44.6	45	55	495	114.9
110	220	54.4	55	60	570	135.7
120	250	62.8	63	65	645	156.5
130	285	72.7	73	70	730	180.3
				75	820	205.6
				80	910	231.0

^a Rate of vertical curvature, K , is the length of curve (m) per percent algebraic difference intersecting grades (ft), $K = L/A$.

- The Civil plans will need to include a signing and striping plan.

Right-of-Way and Easement

- Dedicate right-of-way for future S. Colorado St. adjacent to the westerly project limits. The right-of-way reserve (875' by 44') should be wide enough to support a 3-lane roadway section for the entire length, per City of Kennewick Standard Drawing 2-4, of the project's westerly limits.
- Place a "Reservation for Future Right-of-Way" Note for the future S. Colorado St. Right-of-way on the face of the plat map.
- S. Colorado St. - Per KMC 17.20.010(2)(h) and KMC 5.56.070(1)(b), half street improvements are required, including pavement, curb, gutter, sidewalk and street lighting per City of Kennewick Standard Drawing 2-4. The minimum street width is 42' to maintain adequate travel lanes width for 2-way traffic and a middle lane.
- Developer will design and construct the half-street and utility improvements of future Colorado Street adjacent to the westerly property limits. Developer will receive TIF credit for lots developed under Apple Valley Phase 6, for street improvements along Colorado Street.

Traffic Operations

- A full traffic Impact Study is required for the proposed development. The scope of the Traffic Impact Study is per the memorandum of August 6, 2020 and the addendum to the memorandum dated October 21, 2020. Traffic Impact Study trip generation shall cover all future phases of Apple Valley per Addendum 1.

American Disability Act (ADA) Compliance

- All proposed pedestrian facilities within the public right-of-way and easement, including but not limited to driveways, sidewalks, curb ramps, etc., shall be ADA compliant to maintain Pedestrian Accessibility Route (PAR) accessibility,

continuity and connectivity. Provide sidewalk profile plan to document appropriate locations of lots driveways, ADA transition slope (6' long or 12:1 or whichever is greater), landing pad and sidewalk termination locations.

Attachments:

August 6, 2020 Traffic Study Scope Memorandum and

October 21, 2020 Traffic Study Scope Memorandum Addendum No.1.

JS:cm
PW2020-335

October 21, 2020

ADDENDUM #1 TO TRAFFIC STUDY SCOPE MEMORANDUM OF AUGUST 6, 2020

This addendum purpose is:

1. Clarify the required study area and,
 2. Add the future connections of Apple Valley development to Colorado Street to the intersections studied.
1. **Clarify the required study area.** The trip generation for the future parcels 117892000001009 and 117892000001012 identified on attached Exhibit A shall be included in this study. This is to emphasize that the study area south of Bob Olson Parkway shall include all the present and future development area bounded by S Colorado Street to the west, Sherman Street to the east, Ridgeline Drive to the south and Bob Olson Parkway to the north.
 2. **Future intersections of the proposed and existing Apple Valley development with S Colorado Street shall be included in this study.** These intersections are shown on the attached Exhibit A and shall include:
 - a. S Colorado Street and Bob Olson Parkway,
 - b. S Colorado Street and S Zimmerman Street and,
 - c. S Colorado Street and W 31st Pl.



EXHIBIT FOR:
APPLE VALLEY - FUTURE LAYOUT
A SUBDIVISION LOCATED IN THE CITY OF KENNEWICK, WASHINGTON



Know what's below.
Call before you dig.

DESIGNED:
SG

CHECKED:
JLM

OCTOBER 2020
66090.005

SHEET ID

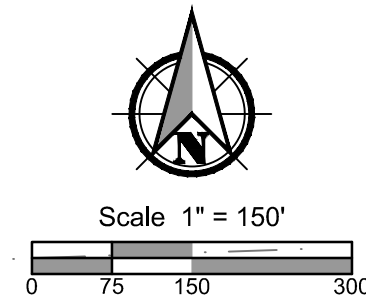


Exhibit A

Additional intersections to be studied



Memorandum

DATE: August 6, 2020

TO: Sorin Juster, PE, PTOE, Transportation Manager, City of Kennewick

FROM: John A. Manix, PE, Senior Traffic Engineer

PROJECT: Roth Property (66045.004, Phase 0003) and Apple Valley Phase 6 (66090.005, Phase 0003)

REGARDING: Traffic Impact Analysis Scoping Meeting Summary

This memo summarizes the Roth Property and Apple Valley Phase 6 traffic impact analysis (TIA) scoping meeting on July 31, 2020. The purpose of the meeting was to agree on the extent of the studies, which will be similar in scope due to their land use, size, location, and timing. Both projects are located west of Sherman Street. Roth Property proposes approximately 192 single-family home lots north of Bob Olson Parkway and south of the Kennewick Irrigation District canal. Apple Valley Phase 6 proposes approximately 96 single-family home lots south of Bob Olson Parkway, contiguous with Phases 1 through 5 of the Apple Valley development. Preliminary site plans of both developments are attached for reference.

The following topics were discussed:

- TIA schedule
- Studied intersections
- Traffic volumes
- Trip generation
- Trip distribution
- Specific content

TIA SCHEDULE

Jason Mattox provided an estimate on the completion of the phasing for each project.

Roth Property: complete buildout of all subdivision phases is anticipated by 2025. The TIA will be started immediately to be complete as soon as possible. The analysis scenarios are as follows:

- 2025 Buildout Year Without Project Conditions
- 2025 Buildout Year With Project Conditions
- 2040 Horizon Year Without Project Conditions
- 2040 Horizon Year With Project Conditions

Apple Valley Phase 6: complete buildout of the subdivision phase is anticipated by 2022. The TIA will be started immediately to be complete as soon as possible. The analysis scenarios are as follows:

- 2022 Buildout Year Without Project Conditions
- 2022 Buildout Year With Project Conditions
- 2040 Horizon Year Without Project Conditions
- 2040 Horizon Year With Project Conditions

Note that, for now, only the weekday PM peak hour will be analyzed for both Roth Property and Apple Valley Phase 6 developments. The City of Kennewick (City) will determine if the weekday AM peak hour will be included in the TIA.

School traffic is still in question with start of traditional on-campus school not likely before November at the earliest. Since current traffic volumes and patterns are disrupted due to COVID-19 pandemic impacts, 2020 existing year conditions will not be analyzed.

STUDIED INTERSECTIONS

Roth Property:

The following intersections will be analyzed:

- Site Accesses
 - Two accesses on Sherman Street (names to be determined)
 - Two accesses on Bob Olson Parkway (Delaware Street and Alaska Street)
- Bob Olson Parkway / Steptoe Street / 10th Avenue
- Hildebrand Boulevard / Southridge Boulevard
- Sherman Street / Bob Olson Parkway / Hildebrand Boulevard

Apple Valley Phase 6:

The following intersections will be analyzed:

- Site Accesses
 - One access on Sherman Street (33rd Place)
 - One access on Bob Olson Parkway (31st Place)
- Bob Olson Parkway / Steptoe Street / 10th Avenue
- Hildebrand Boulevard / Southridge Boulevard
- Sherman Street / Bob Olson Parkway / Hildebrand Boulevard

TRAFFIC VOLUMES

Volumes for the Without Project conditions will be calculated as the sum of three components, each of which is discussed further below.

- Recent or new turning movement counts (TMCs)
- Background growth
- Trips from approved but unoccupied portions of the Apple Valley development

The City will provide TMCs at the following intersections:

- Bob Olson Parkway / Steptoe Street / 10th Avenue
- Hildebrand Boulevard / Southridge Boulevard

PBS will collect a new TMC at the following intersection:

- Sherman Street / Bob Olson Parkway / Hildebrand Boulevard

A background growth rate of 2% per year will be applied to the recent or existing intersection volumes to estimate future conditions. Regional modeling will not be used to estimate background growth.

The Apple Valley development has been proceeding in phases over recent years. Portions of Phases 1 through 5 are occupied, while some homes are still on the market or under construction. Apple Valley trips will be included by one of two methods:

- Phases that are 90% or more occupied are assumed to be included in the TMCs.
- Phases that are less than 90% occupied will have the proportionate unoccupied portions added.

TRIP GENERATION

Trip generation calculations will be prepared based on the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 10th Edition (2017), data for Single-Family Detached Housing, ITE land use code 210.

The impact of each subdivision (Roth Property and Apple Valley Phase 6) will be measured separately in its own TIA. Based on the buildout timing, the Roth Property TIA will include Apple Valley Phase 6 trips as another unoccupied portion of the Apple Valley development.

TRIP DISTRIBUTION

The Benton-Franklin Council of Government (BFCOG) transportation model will be used to estimate the trip distribution to and from the proposed developments. BFCOG staff provided a model output for the 2040 PM peak hour after the scoping meeting. The model indicates the following general distribution pattern:

- 50% to and from the west on Bob Olson Parkway
- 40% to and from the east on Hildebrand Boulevard
- 10% to and from the east on Ridgeline Drive (via Sherman Street)

These distributions match those estimated from recent TMCs, and they will be applied to trips generated by both the Roth Property and Apple Valley Phase 6 developments. A copy of the model output is attached for reference.

SPECIFIC CONTENT

No other specific content was requested to be addressed in the TIAs.

cc: Jason Mattox, David Holt, and Bhauvesh Jaya, PBS

Attachments: Preliminary Site Plans, BFCOG Distribution Model



FEASIBILITY AND CONCEPT SITE LAYOUT FOR:

HAYDEN HOMES

A RESIDENTIAL DEVELOPMENT IN SOUTH KENNEWICK, WA



Know what's below.
Call before you dig.

DESIGNED:
MER

CHECKED:
RJB

DEC 2019
66045004

SHEET ID

EXH 1

SHEET 1 OF 3



Scale 1" = 100'
0 50 100 200



SINGLE FAMILY LOT COUNT: 192 LOTS

NOTES:

- EXISTING EASEMENTS WHICH MAY (OR MAY NOT) BE SHOWN ON THIS DRAWING WILL NEED TO BE VERIFIED AND SITE PLAN ADJUSTMENTS MAY BE NECESSARY BASED ON FINDINGS.
- LOT COUNTS MAY BE AFFECTED BY SITE REQUIREMENTS AND GRADING ADJUSTMENTS DURING FINAL DESIGN.

Filepath: \\pbsen\lan\l\Projects\66000\66090-005\Civil\CAD\Working\Exhibits\2020-07-07_Phase-5-6-Exhibit.dwg User: Stephanie Garcia CAD Plot Date/Time: 7/7/2020 10:17:32 AM



Full Size Sheet Format Is 22x34; If Printed Size Is Not 22x34, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

PBS Engineering and
Environmental Inc.
106
Richland, WA 99352
509.942.1600
pbsusa.com



EXHIBIT FOR:
APPLE VALLEY - PHASES 5 AND 6
A SUBDIVISION LOCATED IN THE CITY OF KENNEWICK, WASHINGTON



Know what's below.
Call before you dig.

DESIGNED:
SG

CHECKED:
JLM

JULY 2020
66090.000

SHEET ID

From: John A. Manix
Sent: Wednesday, August 5, 2020 1:51 PM
To: Bhauvesh Jaya; David Holt
Subject: Roth/AV TIA - Transportation Model Output Request
Attachments: DistributionPlot_bfcg2040_Build.pdf

Check it out. My conclusion based on a 1 min review is that it looks good!

John Manix, PE | Senior Traffic Engineer | PBS Vancouver | 360.607.1854 (cell)

From: Patrick Pittenger <ppittenger@bfcog.us>
Sent: Wednesday, August 5, 2020 1:13 PM
To: John A. Manix <Manix@pbsusa.com>
Cc: Olivia Meza <omeza@bfcog.us>; Erin Braich <ebraich@bfcog.us>
Subject: RE: Transportation Model Output Request

John-

Attached is a distribution plot provided to us by our consulting firm today and their description below. Please confirm this meets your needs or if you have further questions. Thanks.

Attached is the distribution plot requested by John Manix. The gray labels are the distribution percent. For example the model suggests 48% of trips are oriented west on Bob Olson Pkwy and 39% to the east. I used TAZ 722 because it had land use more consistent with the proposed development than TAZ 714, but loads trips to the network in similar ways. I also adjusted the percentage to remove about 18% linked to TAZ 184 to the west (that is why the centroid connector shows 118%)

This reflects 2040 Build PM Peak conditions.

Let me know if you have questions.

Disclaimer text:

This graphic reflects outputs from a regional travel demand model, which was built to reflect regional trip-making patterns. Care and professional judgment should be used when applying regional model outputs for site specific traffic analyses. In close vicinity of a site development project, it is more appropriate to determine local traffic patterns based on site specific details (such as access points) rather than the regional travel demand model.

Patrick Pittenger, AICP, PTP
Transportation Planning Director
Benton-Franklin Council of Governments
587 Stevens Drive
Richland, WA 99352
ppittenger@bfcog.us
509-492-5188
www.bfcog.us



From: John A. Manix [<mailto:Manix@pbsusa.com>]
Sent: Friday, July 31, 2020 9:58 PM
To: Patrick Pittenger <ppittenger@bfcog.us>
Subject: RE: Transportation Model Output Request

Next week may be optimistic, but let us know what you can do.

John Manix, PE | Senior Traffic Engineer | PBS Vancouver | 360.607.1854 (cell)

From: Patrick Pittenger <ppittenger@bfcog.us>
Sent: Friday, July 31, 2020 8:37 PM
To: John A. Manix <Manix@pbsusa.com>
Cc: Bhauvesh Jaya <Bhauvesh.Jaya@pbsusa.com>; David Holt <David.Holt@pbsusa.com>; Erin Braich <ebraich@bfcog.us>
Subject: RE: Transportation Model Output Request

John-

Thanks for info – you’ve got quite the timing. I’ll check into when we can have it for you with that timeline as the goal and will be back in touch early next week.

Patrick Pittenger, AICP, PTP
Transportation Planning Director
Benton-Franklin Council of Governments
587 Stevens Drive
Richland, WA 99352
ppittenger@bfcog.us
509-492-5188
www.bfcog.us



From: John A. Manix [<mailto:Manix@pbsusa.com>]
Sent: Friday, July 31, 2020 7:14 PM
To: Patrick Pittenger <ppittenger@bfcog.us>
Cc: Bhauvesh Jaya <Bhauvesh.Jaya@pbsusa.com>; David Holt <David.Holt@pbsusa.com>; Erin Braich <ebraich@bfcog.us>
Subject: Re: Transportation Model Output Request

Thanks and we would like the data by the end of next week.

Get [Outlook for iOS](#)

From: Patrick Pittenger <ppittenger@bfcog.us>
Sent: Friday, July 31, 2020 6:02:11 PM
To: John A. Manix <Manix@pbsusa.com>
Cc: Bhauvesh Jaya <Bhauvesh.Jaya@pbsusa.com>; David Holt <David.Holt@pbsusa.com>; Erin Braich <ebraich@bfcog.us>
Subject: RE: Transportation Model Output Request

John-

Thank you for contacting BFCG with this request.

You are correct, a member of our staff – Erin Braich, Senior Transportation Planner – is the one who can best help you. Unfortunately, he just went on vacation and won't be back until the 10th.

What's your timeline like? If you need it before then, I can attempt to obtain the information another way.

Patrick Pittenger, AICP, PTP
Transportation Planning Director
Benton-Franklin Council of Governments
587 Stevens Drive
Richland, WA 99352
ppittenger@bfcog.us
509-492-5188
www.bfcog.us



From: John A. Manix [<mailto:Manix@pbsusa.com>]
Sent: Friday, July 31, 2020 5:50 PM
To: Patrick Pittenger <ppittenger@bfcog.us>
Cc: Bhauvesh Jaya <Bhauvesh.Jaya@pbsusa.com>; David Holt <David.Holt@pbsusa.com>
Subject: Transportation Model Output Request

Patrick: I learned your name and email address from the Benton-Franklin Council of Government web page but assume this request should go to a member of your staff. Please forward it to the appropriate person.

PBS is preparing a transportation impact analysis reports in Kennewick for two, signal family home developments, with over 100 homes in each, in close proximity to Bob Olen Parkway/Hildebrand Blvd/Sherman St intersection. We request forecast year model output that can be used for future year trip distribution purposes. I assume the most appropriate output is the 2040 (assuming this is the forecast year) trips to and from the TAZ that covers the land west of Sherman Street and north and south of Bob Olsen Parkway for approximately 0.5 miles to the west.

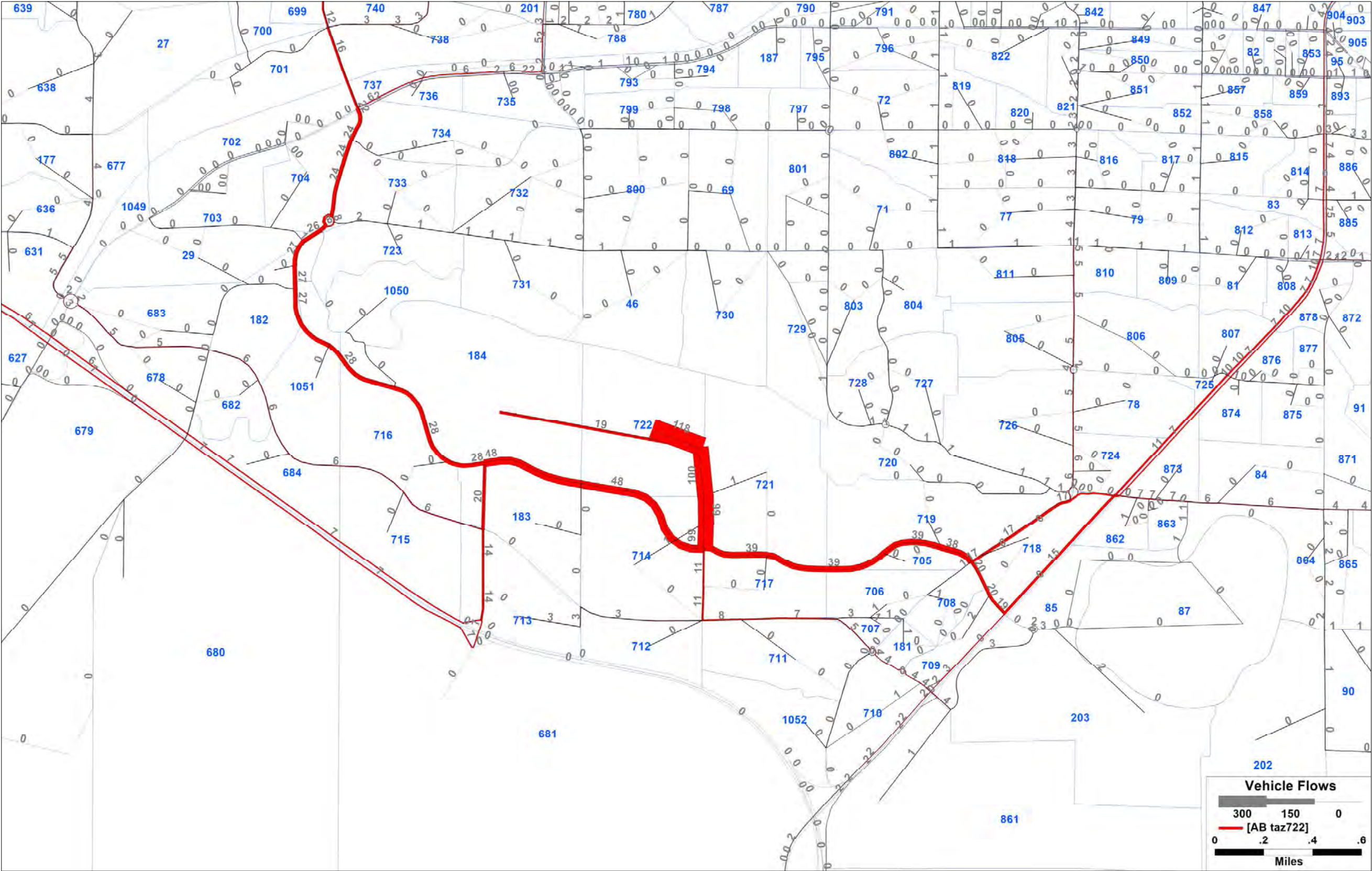
Feel free to contact myself or Bhauvesh Jaya at 360-213-0229 for more details.

Thank you

John Manix, PE
Senior Traffic Engineer

PBS
415 W 6th St., Suite 601, Vancouver, WA 98660
office: 360.695.3488 | direct: 360.567.2117 | cell: 360.607.1854
john.manix@pbsusa.com
pbsusa.com







STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
1250 West Alder Street • Union Gap, Washington 98903-0009 • (509) 575-2490

October 20, 2020

Anthony Muai
City of Kennewick Community Planning
P.O. Box 6108
Kennewick, WA 99336

Re: PP 20-02/PLN-2020-02594

Dear Anthony Muai:

Thank you for the opportunity to comment on the Notice of Application for the Apple Valley Phase 6 Preliminary Plat, proposed by the Tri Cities Development Company, LLC. The Department of Ecology (Ecology) has reviewed the application and has the following comments.

WATER RESOURCES

Project with Potential to Discharge Off-Site

If your project anticipates disturbing ground with the potential for stormwater discharge off-site, the NPDES Construction Stormwater General Permit is recommended. This permit requires that the SEPA checklist fully disclose anticipated activities including building, road construction and utility placements. Obtaining a permit may take 38-60 days.

The permit requires that a Stormwater Pollution Prevention Plan (Erosion Sediment Control Plan) shall be prepared and implemented for all permitted construction sites. These control measures must be able to prevent soil from being carried into surface water and storm drains by stormwater runoff. Permit coverage and erosion control measures must be in place prior to any clearing, grading, or construction.

In the event that an unpermitted Stormwater discharge does occur off-site, it is a violation of Chapter 90.48 RCW, Water Pollution Control and is subject to enforcement action.

More information on the stormwater program may be found on Ecology's stormwater website at: <http://www.ecy.wa.gov/programs/wq/stormwater/construction/>. Please submit an application or contact **Lloyd Stevens, Jr.** at the Dept. of Ecology, 509-574-3991 or email lloyd.stevensjr@ecy.wa.gov, with questions about this permit.

Sincerely,

A handwritten signature in blue ink that reads "Gwen Clear".

Gwen Clear
Environmental Review Coordinator
Central Regional Office
509-575-2012
crosepa@ecy.wa.gov



2015 South Ely Street
Kennewick, WA 99337
Phone 509-586-9111
FAX 509-586-7663
www.kid.org

April 2, 2021

Anthony Muai
City of Kennewick – Community Planning Department
P.O. Box 6108
Kennewick, WA 99336

Subject: Review Comments for PP 20-02/PLN-2019-03067 – Apple Valley Ph. 6

Dear Mr. Muai:

This letter provides Kennewick Irrigation District (KID) review comments on Pre Plat No. 20-02 submitted by Matt Smith of Tri-Cities Development, 15 S.W. Colorado, Ste. 1, Bend, OR 97702 ("Applicant"¹). **These comments/conditions of approval are preliminary and subject to pending KID Board action on April 20th, 2021. A final letter shall be provided to the City of Kennewick on April 21st, 2021.** The properties are generally located west of the intersection of S. Sherman Street and Ridgeline Drive and includes the following parcels:

- 1-1789-200-0001-011 (**30.25 Irrigable acres**)
- 1-1789-200-0001-012 (**22.30 irrigable acres**)

The properties identified on the proposed preliminary plat are located within the KID boundaries. The properties within this preliminary plat are classified as irrigable land and consist of **41.07** irrigable acres. Accordingly, KID provides the following comments to be included as required conditions of approval by the legislative authority under RCW 58.17.310(2):

- 1) The plat shall include the following irrigation easements consistent with KID requirements:
 - a. Dedicate to KID an irrigation easement 10 feet in width via a recorded deed to match irrigation system components, centered on an irrigation pipeline.
 - b. On all lots within the plat, dedicate to KID an irrigation easement 10 feet in width, or five (5) feet in width if adjacent to a utility easement, located along the road frontage of each lot. An irrigation easement may be included within the

¹ Reference to the "Applicant" throughout this comment letter shall refer to the property owner and/or developer of the proposed plat.

‘sidewalk and utility’ easement if one is proposed, denoting the easement as a “Sidewalk, Utility, and Irrigation Easement.”

- c. Dedicate to KID an irrigation easement 15 feet in width adjacent to Tract B of the proposed Preliminary Plat,.
- 2) This plat is within the Southridge Master Plan Benefit Area. Compliance with the Southridge Master Irrigation Facilities Plan and KID Resolution No. 2016-14 is also required.
- 3) The Applicant is required to install an irrigation system that conforms to the most recent edition of the KID Standard Specifications pursuant to Resolution 86-15-A. This includes providing distribution pipelines adequate to provide individual pressurized irrigation services to each lot within the preliminary plat. This system will be dedicated to the KID upon completion, at the time of final plat.
- 4) Design of the required irrigation system must be approved by KID prior to installation. The Applicant is required to submit an irrigation plan designed by a professional engineer for review and approval by the KID. The plan may be hand drawn or computer drafted. The plan shall be accurate and to a scale not to exceed one (1) inch = 50 feet. This is a vital step of the approval process. In addition to compliance with Condition 2 above, the Plan must ensure all reasonable measures are taken to protect any easements, right-of-ways, and facilities. Please contact me at 586-6012 for more information regarding this irrigation plan.
- 5) Completion of all the facilities, consistent with irrigation plan approved by KID, is required prior to KID signature on the Final Plat.
 - a. In the event any KID facilities are damaged during construction, the damage must be fully repaired to KID’s then-existing standards.
 - b. For each phase of the plat, KID review and approval of construction and grading plans is required to allow KID to assure all reasonable measures to protect any easements and right-of-ways. Such review and approval will be coordinated as part of City review and the Final Plat approval process.
 - c. The KID must inspect any new irrigation system installations or modifications. The Applicant shall contact the KID to arrange an inspection at least 48 hours in advance of the desired inspection date.
 - d. As an alternative to immediate construction prior to approval of the Final Plat, the Applicant may choose to delay installation of the irrigation system by entering into a facilities installation agreement with the KID. The Applicant must still provide the KID with an irrigation system design that conforms to the most recent addition of the KID standard specifications. This irrigation system may be bonded and delayed up to five years. The facility installation agreement charge is \$350.00. The Applicant must establish an approved bonding mechanism with the KID in an amount approved by KID.

In addition, pursuant to RCW 58.17.310 (1), KID would like to inform the City of Kennewick of the following information regarding the proposed preliminary plat upon the structural integrity, including lateral support, of KID's facilities, other risk exposures, and the safety of the public and irrigation district, and conditions of approval that KID deems to be necessary as a result:

- 6) A portion of the plat lies below an unlined earthen canal section (Amon Pump Lateral). Unlined earthen canal sections are more likely to have a canal embankment breach occur than lined sections. Without adequate mitigation, increased runoff resulting from the proposed residential development increases the likelihood of a canal embankment breach requiring significant repairs to portions of the canal. Should a canal embankment breach occur near this development, there is additional potential for the public safety to be at risk. Additionally, existing canal embankments are low through this area and this flooding potential also presents safety risks to the public and to the proposed development without additional drainage measures or reinforcement. In order to mitigate these risks, the KID will require:
 - a. Rights-of-Way that shall include all reasonably necessary features to allow the KID to operate, maintain and replace the canal and KID facilities, including the irrigation system.
 - b. Stormwater systems shall be designed to minimize the introduction of water into the soils up-gradient of the canal. KID/USBR review and approval of all stormwater plans is required prior to final plat approval.
 - c. The plat shall include drainage systems and/or features that will carry excess water and/or flood waters away from the irrigation water distribution system for the proposed development and toward the canal down gradient should a canal failure and/or breach occur.
- 7) For each phase of the Project, KID/USBR review and approval of grading and construction plans is required to allow KID to assure all reasonable measures to protect any easements and ROWs. Such review and approval will be coordinated as part of the City's review and Final Plat approval process.
- 8) The Applicant shall include the potential failure of KID system components in its public offering statement for the plat pursuant to RCW 58.19.055(1)(r), which requires a public offering statement to include "[a] list of any physical hazards known to the developer which particularly affect the development or the immediate vicinity in which the developer is located and which are not readily ascertainable by the purchaser."

Finally, KID requests the following additional conditions of final plat approval:

- 9) Prior to approval of each phase, the current year's assessment must be paid. If the final plat is submitted for review after May 31st of a given year or submitted for review prior to May 31st but not submitted for final approval prior to June 15th, the next year's estimated assessment (125% of the current year's assessment) must be paid prior to plat approval.

- 10) Prior to approval of the first phase, the USBR construction loan for **all parcels** owned by the property owner within the boundaries of the KID must be paid and all other USBR requirements associated with this payout must be completed.
- 11) The Review and Inspection fees in place at the time of each review request must be paid. At the time of application the review fees are as follows:
 - a. A Preliminary Plat review fee of **\$825.00** which must be paid prior to scheduling for final plat approval at a KID Board meeting for the first phase.
 - b. For each Phase an inspection fee **\$350** for the first 20 lots/tracts plus **\$25** per lot/tract after 20 lots/tracts.
 - c. Final Plat review fee for each phase of **\$225.00**.
- 12) Per KID Policy 4.17, "Irrigable Land Recalibration Principles," as land within the plat is subdivided or developed; KID will remove the irrigation water allocation from the impermeable surfaces, such as streets, from the plats.
- 13) In order to receive KID irrigation water delivery, a water master (or point of contact) for the subdivision must be appointed. This water master can be appointed by the Homeowners Association (or similar organization) officers, or must be elected from among the property owners within the boundary of this proposed subdivision. If no HOA (or similar organization) is organized, than an election method similar to the attached document is required.
- 14) Prior to approval of each phase, an electronic file (AutoCAD 2004 format) and hard copy (6-mil mylar, sealed by a professional engineer) of construction as-builts must be provided to KID.
- 15) All subdivisions of land are required to be approved by the KID Board of Directors during a KID Board Meeting. KID Board Meetings are regularly scheduled on the first and third Tuesdays of each month. All conditions must be completed prior to submittal to KID for final approval. The submittal for final approval must be received by KID a minimum of two weeks prior to a regularly scheduled Board Meeting in order to be considered at that meeting.

KID reserves the following rights regarding future review of the plat:

- 16) KID reserves the right to provide review comments under RCW 58.17.330(1) and RCW 58.17.330(2) in response to future design submittals by the Applicant prior to final plat approval. The scope of these reviews will be limited to Phases that are adjacent to the District's Rights of Way. KID review of construction plans will be consistent with the City of Kennewick's plan review timelines.

- 17) KID reserves the right to review and comment on the Applicant's plat line revisions for potential additional revisions to protect KID system components for Phases that are adjacent to KID's easements or ROWs.
- 18) KID reserves the right to review and comment on the Applicant's covenants, conditions, and restrictions to evaluate whether they should include any terms regarding protection of KID system components after construction and fencing requirements.
- 19) KID reserves the right to submit additional comments during the City's review process under the State Environmental Policy Act (SEPA).

Please provide notice to KID of any Public meeting or hearing where this project will be an agenda item. If you have any questions regarding these comments, please contact me at the address/phone number listed below.

Sincerely,



For Jason McShane

Jason McShane, P.E.
Engineering/Operations Manager

Sample Watermaster Election Process

That the Water Users are deemed to agree as a condition of water delivery as follows::

- i. The LID participants will elect a Watermaster from among themselves, as follows:
 - a. Election of First Watermaster. The first Watermaster shall be elected prior to April 1, 2011, and shall be elected as described in paragraph d. below.
 - b. Resignation of Watermaster. If the Watermaster resigns, the parties shall meet at a place and time designated by the resigning Watermaster in a written notice and elect a new Watermaster, or if the Watermaster does not designate a time and a place for such a meeting, the parties shall meet at a time and a place first designated in writing by two of the parties hereto to elect a new Watermaster.
 - c. Death or Incapacity of Watermaster. If the Watermaster dies or becomes incapacitated, the parties shall meet at a time and a place first designated in writing by two of the parties hereto to elect a new Watermaster.
 - d. Elections and Replacement of Watermaster. The Watermaster shall be assigned by the elected members of the Royal Ann Estates Homeowner Association Board of Directors. If the Homeowner's Association defaults or stops functioning, the Watermaster shall be elected by and may be replaced by a sixty percent (60%) majority of the Water Users participating in the LID at an election called for by a majority of the properties that are subject hereto. Each property shall have one (1) vote. If more than one person owns a property, the owners of the property shall designate in writing the person who shall have the right to vote for that property. If the owners of the property cannot agree on the person who shall vote for the property, that property shall have no vote in the election. The owners' properties which are calling for an election or replacement of a new Watermaster shall give or cause the other parties to be given a written notice stating the place and time of the election. Any notice required under this paragraph, which notice shall be mailed by U.S. Mail as certified mail to the common address identified above for the property not more than thirty days and not less than ten days

prior to the election. Any election held hereunder shall be held in Benton County, Washington, between 6:00 p.m. and 9:00 p.m.

- ii. Powers and Duties of Watermaster. The Watermaster shall have the power and it shall be his or her duty to take all actions reasonably necessary to fulfill the purposes of this agreement, including but not limited to:
 - a. Provide a primary point of contact for KID to communicate system problems, outages, schedules, drought mitigation measures, etc.
 - b. Assist KID in providing the LID participants information regarding system problems, outages, water schedules, drought mitigation measures, etc.
- iii. Qualified Immunity of Watermaster from Liability. The Watermaster shall not be liable for any damages caused to the parcels or persons subject hereto so long as the Watermaster acts in good faith.
- iv. No water delivery unless a Watermaster is performing duties. If at any time a Watermaster no longer is performing his/her duties, as outlined above, for more than 30 days, KID will stop water delivery to the participants of the LID until a new Watermaster has been elected.
- v. Alternate Watermaster. An alternate Watermaster may be elected in the same manner as described above for the Watermaster. This alternate Watermaster can function as Watermaster for a limited time, not to exceed 60 days, in case of the elected Watermaster being unavailable.



RYAN JONES • CAPITAL PROJECTS MANAGER
5501 W. METALINE AVE. • KENNEWICK, WA 99336
P: (509) 222-6810 • F: (509) 222-5057
RYAN.JONES@KSD.ORG • WWW.KSD.ORG

April 5, 2021

Anthony Muai, AICP
Planning Manager
Community Planning Department
City of Kennewick

Re: Apple Valley Phase 6

Mr. Muai,

This memo is written in regards to your request for the Kennewick School District #17 to address capacity questions in regards to the Apple Valley Phase 6 preliminary plat application. The boundary schools for this development are Sage Crest Elementary (Bussing Zone), Chinook Middle School (Bussing Zone) and Southridge High School (Walking Zone).

The Kennewick School District is reaching capacity at Sage Crest Elementary. Based on this and forecasted development/growth in the before mentioned area, the Kennewick School District has acquired land for a future elementary site west of this area and intends to review other possible sites. The District reviews school boundaries on a regular basis to address residential growth.

Residential development west of Southridge High School has had a significant impact on public utility capacity (i.e. City of Kennewick, Kennewick Irrigation District, etc.), roads, and traffic. The impact on utility and road infrastructure directly and indirectly affect our schools and students. The District expects the level of current utility capacity to be maintained to District facilities. We request the city to ensure that developers are contributing toward utility infrastructure development and upgrades, safe walking routes, safe crosswalks, including flashing beacons, etc.

Sincerely,



Ryan Jones



January 26, 2020

Anthony Muai
City of Kennewick – Development Services Division
210 West 6th Avenue
Kennewick, Washington 99336

Via email: anthony.muai@ci.kennewick.wa.us

Regarding: PP 20-02/PLN-2020-02594
 Apple Valley, Phase 6
 West 33rd Place
 Kennewick, Washington
 PBS Project 66090.005

Dear Mr. Muai:

This letter is in response to the first review comments received for the Preliminary Plat of Apple Valley, Phase 6. Please see each section addressing the different department comments received and the response to each comment.

DEVELOPMENT SERVICES DIVISION

- 1. Provide and updated critical area report specific to Phase 6.**
An updated critical area report is attached to this letter.
- 2. Revise the Traffic Impact Analysis to incorporate the attached TIA Scope Addendum.**
A revised Traffic Impact Analysis is attached to this letter. See comments in separate file
- 3. Street names have been provided on the face of the plat.**
The street names have been updated as noted.
- 4. Review comments related to manufactures slopes and drainage noted on the grading plan.**
These comments are addressed in detail below.
- 5. Park Impact Fees will be due at the time of building permits. Each single-family dwelling unit will be approximately \$960.00.**
Park Impact Fees will be paid as stated.
- 6. I am attaching comments received from other City Departments and Outside Agencies. Please review and address any comments that may be an issue for your subdivision.**
These comments have been reviewed and addressed below.

PUBLIC WORKS CONSOLIDATED COMMENTS

- 1. Provide the location and design of fencing to be constructed along abutting streets per KMC 17.10.030(5). Widen sidewalk an additional 18-inches when adjoining a wall or fence per COK detail 2-10, sheet 1 of 8, note 4.**

Any proposed fencing shall be shown on final design plans, as noted. It has also been shown on the preliminary plat.

- 2. As part of all residential development construction plans, there shall be a separate schematic drawing which, at a minimum, shows the power source(s), wiring diagram, street light pole spacing, and street permanent signing per COK standard Specifications 7-10. Combine signing, striping, and illumination plans onto the same drawing with other elements left off.**

This will be incorporated into the final design plans.

- 3. Due to project phasing, any temporary dead end street 150-feet or greater from the street intersection will require construction of a temporary cul-de-sac, constructed with 6-inches of base rock and 2-inches of Hot Mix Asphalt (HMA).**

The two dead-end streets in Phase 6 (S. Belfair St. and W. 33rd Pl.) will show temporary cul-de-sacs, as noted. An easement for these is called out on the preliminary plat.

- 4. There is an existing 8-inch water main zone 4 and a 16-inch zone 5 stubbed to the west end of W 35th Ave and an 8-inch of W 33rd installed by previous Apple Valley phases.**

These will be extended into Phase 6 as shown on the comprehensive utility plan.

- 5. Provide an updated overall water, sewer and stormwater comprehensive plans at full build out of Apple Valley are required (not just for phase 6) for review and approval before submitting construction drawings for review per KMC 14.10.030.**

A comprehensive utility plan has been prepared and is attached.

- 6. Install utilities on City right of way. If COK Public Works grant 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 will no longer be permitted.**

Proposed tracts for the purposes of providing utility connections are shown and called out on the preliminary plat. These tracts will be paved, as noted.

- 7. Routing of wet utilities to be placed in City rights-of-way. Avoid routing utilities between homes.**

Due to site constraints, there will be some wet utilities that need to be connected between lots. In this case, a tract will seek to be provided for that utility, per comment 6 above.

- 8. Include pipe sizes and water zones on proposed water mains and pipe sizes on sewer and storm mains on the comprehensive plans for review. Make provisions to serve east and west side of S Colorado and properties south of Apple Valley subdivision.**

This will be incorporated into the comprehensive plan, referenced in comment 5 above.

9. If significant deviations in layout/ connectivity from the previous (June 2017) submittal, an updated water hydraulic analysis may be required.

Although overall site layout has changed since the listed study, waterline sizing has been updated to meet City comments based on coordination with the City. Since the general waterline sizing and layout/connectivity in Phase 6 will remain similar to that shown in the study, it is the opinion of PBS that an updated hydraulic analysis is not necessary for Phase 6. One difference between the study's analysis and the current waterline layout is the upsizing of the Zone 5 watermain from a 12" line to a 16" line. If the City feels that a new study is warranted based on an updated Comprehensive Utility Plan, additional coordination can be provided between the City and the Client prior to final design.

10. Developer will be required to loop all water mains to avoid the buildup of stagnant water, which will assist water quality, and minimize taste and odor concerns associated with stagnant water.

To the extent practicable by site layout and constraints, water mains will be looped as noted.

11. Potable water is not available for irrigation purposes. Provide irrigation water to irrigate proposed plat.

In previous phases of design, coordination with the Kennewick Irrigation District (KID) was completed to provide irrigation to the development. For Phase 6, and subsequent phases of the development, coordination with KID will continue in order to provide irrigation to the remainder of the development.

12. There are existing 8-inch sanitary sewer mains installed by Previous Apple Valley Phases.

These 8-inch sewer mains shall be extended into Phase 6 and subsequent phases.

13. Residential sub-divisions shall be designed 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.

The overall Apple Valley development has/will have stormwater runoff routed to 1 of 5 retention ponds existing on the site that were graded under previous phases of the development. Design of these ponds was completed and was seeking to meet City of Kennewick design requirements in place at time of design.

14. Stormwater design, construction and post construction per KMC 14.28.045 and COK Standard Specification 5-8.

The overall Apple Valley development has/will have stormwater runoff routed to 1 of 5 retention ponds existing on the site that were graded under previous phases of the development. Design of these ponds was completed and was seeking to meet City of Kennewick design requirements in place at time of design.

15. 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.

Design and analysis of known upstream flow from the development south of Apple Valley has been completed in Phase 5 design. PBS will continue to coordinate with the engineers for the site south of Apple Valley for design and analysis of upstream flow (if any) that will be routed to the Apple Valley retention ponds.

Anthony Muai – City of Kennewick
Apple Valley, Phase 6 – Preliminary Plat Comments Response
January 26, 2021
Page 4 of 7

16. Provide erosion control and site stability notes.

Erosion control and site stability notes shall be added to the Grading Plan of the civil plan set.

17. Provide compaction test and testing requirements within the right of way meeting COK Standard Specifications section 2-4.02 and 1-13.04.

Compaction tests and testing requirements within the right-of-way shall be provided as noted.

18. Provide storm routing through the subdivision for offsite runoff or show that it does not exist.

Design and analysis of known upstream flow from the development south of Apple Valley has been completed in Phase 5 design. PBS will continue to coordinate with the engineers for the site south of Apple Valley for design and analysis of upstream flow (if any) that will be routed to the Apple Valley retention ponds. Initial design of these facilities assumed that stormwater retention would only be provided for the site south, as previously mentioned, and the area within the property limits, which is made up of area south of Bob Olson Parkway, area up to the centerline of South Sherman Street and area up to the centerline of future Colorado Avenue. We understand that a regional stormwater study was completed for this area and offsite runoffs were accounted for in this study. The storm report that will be prepared in Phase 6 will address this comment further.

19. For civil plan reviews submit the following:

a. PDF copy of the Application for Civil Review Storm Calculations.

b. One full size (24"x36") PDF copy of the construction plans.

The items listed shall be submitted when a civil plan review package for Phase 6 is submitted to the City.

20. Plan review and utility fees will be quoted from the construction cost from the Contractor selected by the Developer to construct the project. Cost shall be paid in the amount of five percent (5%), and the construction cost shall be determined by the actual bid document reviewed, and approved, by the City Engineer.

Plan review and utility fees are understood.

21. Kennewick Survey Data requirements for construction plans and record drawings:

a. Construct all projects using current COK Survey data.

b. For detailed information on Kennewick Survey Data and Record Drawings go to COK website @ <https://www.go2kennewick.com/314/Civil-Plan-Review>.

Kennewick Survey Data will be shown on civil plans and record drawings as noted.

TRAFFIC ENGINEERING 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 be remitted to projects congruent with the area where the impact is realized.***

This is understood.

2. **The 2020 TIF is \$1,367/Dwelling Unit based on a land use of Single-Family Detached Housing. The proposed Apple Valley Phase 6 is in District 1. Based on the submitted project documents, estimated TIF is \$132,599 for the proposed 97 lots.**

This is understood.

3. **Developer will receive TIF credit for lots developed under Apple Valley Phase 6, for street improvements along Colorado Street.**

This is understood.

Topography Drawing/Grading Plan

1. **KMC 17.20.010(2)(a) – Streets greater than 1,200 feet in continuous uninterrupted length will need traffic calming measure. Provide adequate right-of-way for traffic calming device.**

a. **A Street continues to W 35th Ave will require traffic calming.**

The locations mentioned show where potential traffic calming devices/measures may be installed. This will be finalized with final design.

KMC 17.20.010(2)(a) is a requirement for installation not a "may be installed" - JS 2/9/2021

2. **KMC 17.20.010(3)(b) – Mid-block pedestrian crossings**

a. **A Street and W. 35th Ave. will require mid-block pedestrian crossings.**

A Street (S. Belfair St.) will have a pedestrian/watermain tract about 557 feet north of the southwest property corner to connect to Colorado Ave. sidewalk. Another pedestrian/watermain tract has been provided at the intersection of A Street and W. 35th Ave. that will connect to the Colorado Ave. sidewalk. A storm main tract has been provided at the intersection of S. Zimmerman St. and W. 35th Ave. to provide storm connectivity to the property to the south. This could be utilized for dual purpose as a pedestrian access to the southern development, if future development warrants a pedestrian connection. At this time, we will only refer to it as a storm main tract.

The pedestrian tract that had been shown connecting W. 35th Ave. and the S. Alaska Ct. cul-de-sac was removed due to the proposed grades in the area.

The mid-block crossing are marked crossing across the roadway. Pedestrian tracts need to be coordinated with Planning - JS 2/9/2021

Proposed Roadways

1. **Please refer to COK Standard Drawing No. 2-9 below. Provide civil design layout for roadway intersections to verify right-of-way limits and minimum intersection radius.**

The drawing listed has been referenced and it is believed that the layout of Phase 6 right-of-way meets this standard. All internal curb radii at face of curb shall be 25', as shown on specified detail.

2. **Provide Horizontal Sightline Offset (HSO), per 2011 AASHTO 3-36, analysis for all proposed horizontal curves.**

a. **A St./W. 35th Ave.**

An exhibit showing the HSO is provided in attached documents. The radius at this intersection was increased to 159' and a knuckle added to the right-of-way.

b. **S. Young St./W 34th PL.**

At this intersection, the centerline radius has been increased from 75' to 85'; the angle between the centerline alignment lines tangent to the radius meet the minimum 80-degree angle for intersections, per City of Kennewick municipal code 17.20.01 (k). This street will be an internal minor loop street. Please see preliminary plat.

The HSO will be used to establish the required sightline setback area behind the roadway curb so that no visual obstructions can be placed. Please provide for S. Young St./W 34th PL and show HSO lines in the submitted plans. - JS 2/9/2021

- 3. Please refer to the table below for the design rate of vertical curvature, K, values for vertical curves at the proposed roadway design speed. Provide civil design layout to verify that roadway will have adequate right-of-way for vertical and horizontal curves and minimum vertical curvature, K, values.**

The tables have been referenced and vertical curvature adjusted to meet K values. In some locations, the minimum K values may not be reachable due to existing site constraints. Upon submittal of Civil design plan set, the City shall be able to provide additional comment on individual areas of concern at time of final construction plan submittal.

- 4. The Civil plans will need to include a signing and striping plan.**

A signing and striping plan will be included in the final civil plan set documents.

Right-of-Way and Easement

- 1. Dedicate right-of-way for future S. Colorado St. adjacent to the westerly project limits. The right-of-way reserve (875' by 44') should be wide enough to support a 3-lane roadway section for the entire length, per City of Kennewick Standard Drawing 2-4, of the project's westerly limits.**

The current right-of-way shown for future S. Colorado St. shows a half-width right-of-way dedication of 26', which meets the minimum half-width right-of-way shown on Standard Drawing 2-4. Immediately behind the right-of-way is a 15-foot public sidewalk, utility, and irrigation easement per Standard Drawing 2-4. This 15-foot easement is fully within a 15-foot tract that follows the right-of-way and maintains the back of residential lots outside of the easement.

- 2. Place a "Reservation for Future Right-of-Way" Note for the future S. Colorado St. Right-of-way on the face of the plat map.**

Right-of-way will be dedicated for Colorado Avenue with the plat map, along the Phase 6 limits, as shown on the attached preliminary plat.

- 3. S. Colorado St. - Per KMC 17.20.010(2)(h) and KMC 5.56.070(1)(b), half street improvements are required, including pavement, curb, gutter, sidewalk and street lighting per City of Kennewick Standard Drawing 2-4. The minimum street width is 42' to maintain adequate travel lanes width for 2-way traffic and a middle lane.**

Standard Drawing 2-4 shows half-street width of 24' minimum. This minimum half-street width will be proposed for S. Colorado St., which meets the minimum half-width listed in the above comment. A minimum 10' landscape strip and 5' minimum sidewalk is proposed. Street lighting shall follow City requirements/details

Provide adequate width for a second travel lane to accommodate 2-way traffic maintaining full frontage improvements on the development side. - JS 2/9/2021

- 4. Developer will design and construct the half-street and utility improvements of future Colorado Street adjacent to the westerly property limits. Developer will receive TIF credit for lots developed under Apple Valley Phase 6, for street improvements along Colorado Street.**

This is understood.

Traffic Operations

- 1. A full traffic Impact Study is required for the proposed development. The scope of the Traffic Impact Study is per the memorandum of August 6, 2020 and the addendum to the memorandum dated**

Anthony Muai – City of Kennewick
Apple Valley, Phase 6 – Preliminary Plat Comments Response
January 26, 2021
Page 7 of 7

October 21, 2020. Traffic Impact Study trip generation shall cover all future phases of Apple Valley per Addendum 1.

The Traffic Impact Study is attached.

American Disability Act (ADA) Compliance

- 1. All proposed pedestrian facilities within the public right-of-way and easement, including but not limited to driveways, sidewalks, curb ramps, etc., shall be ADA compliant to maintain Pedestrian Accessibility Route (PAR) accessibility, continuity and connectivity. Provide sidewalk profile plan to document appropriate locations of lots driveways, ADA transition slope (6' long or 12:1 or whichever is greater), landing pad and sidewalk termination locations.**

The civil plans will seek to meet ADA compliance as stated. The civil plans will show the roadway/sidewalk profiles.

DEPARTMENT OF ENERGY – BONNEVILLE POWER ADMINISTRATION

No comments need be addressed, based on the letter from BPA dated October 22, 2020.

STATE OF WASHINGTON – DEPARTMENT OF ECOLOGY

Water Resources

Project with Potential to Discharge Off-Site

The comment from the Department of Ecology states that a NPDES Construction Stormwater General Permit is recommended if the project anticipates disturbing ground with the potential for stormwater discharge off-site. This project does not anticipate off-site stormwater discharge at this time.

Let me know if this letter and attachments satisfies the preliminary plat comments received. Please feel free to contact me at 509.947.6200 or jason.mattox@pbsusa.com with any questions or comments.

Sincerely,
Digitally signed by
Jason Mattox
Date: 2021.01.27
08:42:13-08'00'



Jason Mattox, PE
Senior Civil Engineer

cc: Matt Smith

Attachment(s): Critical Areas Report
Traffic Impact Analysis
Preliminary Plat Map
Preliminary Grading Plan
Comprehensive Utility Plan
Horizontal Sightline Offset for A St./W. 35th Ave.

SG:JLM

January 25, 2021

William Smith Properties
Attn: Matt Smith
15 SW Colorado Avenue, Suite 1
Bend, Oregon 97702

Via email: matt@wspi.net

Regarding: Traffic Impact Analysis Supplemental Letter
Apple Valley Phases 6 & 7
South of Bob Olson Parkway, East of S Colorado Street
Kennewick, Washington
Parcel numbers: 1-1789-200-0001-009 & 1-1789-200-0001-012
PBS Project 66090.005

Dear Mr. Smith:

This letter addresses comments on the traffic impact analysis submitted to support the proposed Apple Valley Subdivision. These responses fulfill the information requests and the additional discussion required. The project documents comprise the following:

- TIA Scope Memorandum, dated August 6, 2020, by PBS Engineering and Environmental Inc. (PBS).
- Traffic Impact Analysis, dated September 11, 2020, by PBS, referred to in this letter as the TIA.
- Addendum 1, dated October 21, 2020, by City of Kennewick Public Works (attached for reference).

PROJECT DESCRIPTION

The Apple Valley Subdivision is bounded by Bob Olson Parkway to the north, Sherman Street to the east, the future Ridgeline Drive to the south, and the future Colorado Street to the west. Figure 1 provides a vicinity map for the project. The subdivision is developing in phases, beginning at the Sherman Street / Bob Olson Parkway / Hildebrand Boulevard intersection and continuing west and south. Phases 1 through 5 previously received site plan approval from the City of Kennewick (City).

The 96 residential lots within Phase 6 were previously addressed in the TIA, assuming a buildout year of 2022. This letter summarizes analysis of Phase 6 and the remaining future phases of the Apple Valley Subdivision—estimated to contain 130 additional residential lots—as the proposed project. For simplicity, all remaining future phases will be collectively referred to as Phase 7 in this letter. This letter includes the following scope, as agreed upon with City staff.

- Analyze one additional intersection (Colorado Street and Bob Olson Parkway) in addition to those already evaluated.
- Provide trip distribution and assignments for the Colorado Street / 31st Place and Colorado Street / Zimmerman Street intersections. No level of service (LOS) analysis is required.
- Include only 2025 analysis to address year-of-buildout conditions.
- Include the trips from Hayden Homes' Sherman Heights proposed development.
- Submit traffic analysis in letter format and provide exhibits, tables, and figures summarizing the data.

BASELINE VOLUMES

The same procedures as described in TIA section 1.4.1 were applied to estimate the 2020 volumes at the future Colorado Street / Bob Olson Parkway intersection. The east-west volumes on Bob Olson Parkway were set equal to those on the west leg of the 31st Place / Bob Olson Parkway intersection. Figure 4 presents the 2020 Baseline volumes at the study intersections.

As requested by City staff, the proposed trips generated by the Sherman Heights subdivision, located north of Bob Olson Parkway and west of Sherman Street, are included in the 2025 analyses. Figure 6 presents the Sherman Heights trips.

The 2025 Without Project analysis scenario represents the future traffic conditions with no additional Apple Valley phases approved for development. It is the sum of:

- 2020 Baseline volumes
- Background growth volumes (at a linear rate of 2% per year)
- Trips generated by unoccupied or under construction homes from Apple Valley Phases 1 through 5, distributed as shown on Figure 5
- Sherman Heights trips

Figure 7 presents the 2025 Without Project volumes.

ACCESS AND CIRCULATION

There are two existing access points that were developed with Phases 1 through 5:

- 31st Place on Bob Olson Parkway
- 33rd Place on Sherman Street

The proposed Phase 7 will develop another access point, Colorado Street, on Bob Olson Parkway, along the west edge of the development. Colorado Street will connect to Bob Olson Parkway at the intersection stub currently signed as Delaware Street. See Figure 2 for the site plan and the future connections within Phases 1 through 5. See Figure 3 for the existing traffic controls at these intersections.

Within the developed Phases 6 and 7, an internal local roadway network will be constructed to serve the future detached single-family dwellings. Pedestrian connections will be provided in the form of sidewalks to be constructed as part of the local street section. The local roadway network includes (among others) the extensions of existing W 31st Place, W 33rd Place, and S Zimmerman Street, as well as the construction of new local streets. The east half-width of S Colorado Street will be dedicated and improved to City collector standards, anticipating a future three-lane cross section when it is fully improved.

Findings: The Apple Valley Subdivision will have three total access points, two existing and one proposed. An internal local roadway network will be constructed to serve all the residential lots. Pedestrian connections will be provided via sidewalks constructed as part of the local street section.

TRIP GENERATION

The number of new trips from the proposed Apple Valley Subdivision, Phases 6 and 7, was estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*.¹ The ITE trip generation regression equations for Single-Family Detached Housing (ITE Land Use Code 210), with the number of dwellings as the independent variable, were applied following the ITE *Trip Generation Handbook* guidelines.² See Figure 2 for the site plan and lot layout. The new weekday trips generated by the project are shown in Table 1. Trip generation calculations are included in the attachments.

Table 1. ITE Trip Generation for Apply Valley Subdivision Phases 6 and 7

Land Use (ITE Code)	Single-Family Detached Housing (210)				Total	
Independent Variable	Dwelling Units				Dwelling Units	
Phase	Phase 6		Phase 7		Phases 6 and 7	
Size	96		130		226	
Average Weekday Trips (ADT)	1,001		1,324		2,325	
Peak Hour Trips	AM	PM	AM	PM	AM	PM
In	18	62	24	83	42	145
Out	55	36	73	48	128	84
Total Trips	73	98	97	131	170	229

Findings: Together, Phases 6 and 7 of the Apple Valley Subdivision are anticipated to generate 2,325 vehicle trips during a typical weekday, including 170 during the AM peak hour and 229 during the PM peak hour.

TRIP DISTRIBUTION AND ASSIGNMENT

In the 2025 Without Project conditions, the Colorado Street / Bob Olson Parkway intersection is assumed not to exist. Trips from the unoccupied or under construction homes from Phases 1 through 5 will only have two accesses (31st Place / Bob Olson Parkway and Sherman Street / 33rd Place) into and out of the site. See Figure 5 for the trip distribution and assignment in the 2025 Without Project conditions.

In the 2025 With Project conditions, the Colorado Street / Bob Olson Parkway intersection is assumed to be built out. Trips from Phases 6 and 7 were distributed to three site accesses. Trips from the unoccupied or under construction homes from Phases 1 through 5 were redistributed to account for the additional access point. Existing trips from the occupied lots of Apple Valley were not redistributed because those homes are all closer to the two existing accesses than to Colorado Street. The combined trip distribution and assignment of the unoccupied or under construction homes from Phases 1 through 5, plus the proposed Phases 6 and 7, are shown on Figure 8.

The 2025 With Project analysis scenario represents the future traffic conditions with all Apple Valley phases approved for development. It is the sum of:

¹ Institute of Transportation Engineers (ITE). (2017). *Trip Generation Manual*, 10th Edition.

² Institute of Transportation Engineers (ITE). (2017). *Trip Generation Handbook*, 3rd Edition.

- 2020 Baseline volumes
- Background growth volumes (at a linear rate of 2% per year)
- Trips generated by unoccupied or under construction homes from Apple Valley Phases 1 through 5, redistributed as described above
- Sherman Heights trips
- Trips generated by Apple Valley Phases 6 and 7

Figure 9 presents the 2025 With Project volumes.

LEVEL OF SERVICE ANALYSIS

Operation Standards

Per Kennewick Administrative Code Title 13-08-030(5),³ at existing signalized intersections the analysis must demonstrate that the major intersection approaches can operate at LOS D. At unsignalized intersections or driveways, a LOS E must be provided on the minor street approach.

Analysis Methodology

Traffic impacts were estimated to determine the changes in traffic conditions caused by the project's development. To make these determinations, the following assumptions were employed:

- The individual peak hour volumes were analyzed for 2025. For the Colorado Street / Bob Olson Parkway access, the peak hour volumes were estimated using the nearby 31st Place / Bob Olson Parkway access.
- The peak hour factor (PHF) for the overall intersection, as calculated from the count data, was applied for the 2020 baseline analysis scenario and the future 2025 conditions. For the Colorado Street / Bob Olson Parkway intersection, the PHF was assumed to be 0.96, similar to the nearby 31st Place / Bob Olson Parkway intersection.
- A minimum heavy vehicle percentage (HV%) of 2% was assumed for each movement for the 2025 analysis scenarios. 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 the year of buildout and are termed the 2025 Without Project scenario.
- As noted previously, trip generation estimates for the project were prepared for the weekday AM and PM peak hours on the surrounding street system.
- Cumulative traffic impacts of the proposed project were determined by adding the project-generated traffic to the baseline weekday PM peak traffic at all studied intersections. This is termed the 2025 With Project scenario.
- The LOS for all signalized and stop-controlled intersections was calculated with Trafficware's Synchro software, Version 10, based on *Highway Capacity Manual* (HCM) 6th Edition⁴ methodologies.

³ City of Kennewick. Title 13 Public Works-Traffic. Kennewick Administrative Code Title 13-08-030(5).

⁴ Transportation Research Board (TRB), National Research Council. (2016). *Highway Capacity Manual* (HCM), 6th Edition.

- The LOS for the roundabout intersection was calculated with Akcelik & Associates' SIDRA Intersection software, Version 9, based on Washington State Department of Transportation (WSDOT)⁵ recommended settings.
- Intersection results are reported differently depending on the control type.
 - Two-way stop-controlled (TWSC) intersection results report the critical movement LOS, delay, and volume to capacity (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.

Level of Service Analyses

LOS calculation reports for the study area intersections are provided in the attachments. The key analysis findings are listed in the following tables.

2025 Future Conditions Without Project

Table 2 describes the LOS for each intersection within the study area for the 2025 Without Project scenario during the PM peak hour.

Table 2. Estimated 2025 Levels of Service Without Project for Study Area Intersections

INTERSECTION	PM Peak Hour		
	LOS	Delay (sec/veh)	v/c (critical lane)
1. Southridge Boulevard / Hildebrand Boulevard	B	18.1	0.67 (NB TH)
2. Sherman Street / Bob Olson Parkway / Hildebrand Boulevard	C	16.8	0.153 (NB LT)
3. Bob Olson Parkway / Steptoe Street / 10th Avenue	A	6.3	0.247 (SB)
4. 31st Place / Bob Olson Parkway	B	14.4	0.1 (NB LT)
5. Sherman Street / 33rd Place	B	10.7	0.033 (EB)
6. Colorado Street / Bob Olson Parkway	B	11.9	0.031 (SB)

As shown in Table 2, all studied intersections will operate at an acceptable LOS in the 2025 year of opening Without Project conditions during the weekday PM peak hour.

2025 Future Conditions With Project

Table 3 describes the LOS for each intersection within the study area for the 2025 With Project scenario during the PM peak hour.

⁵ Washington State Department of Transportation (WSDOT). (undated). "WSDOT Sidra Policy Settings." (<https://wsdot.wa.gov/sites/default/files/2006/03/21/sidrapolicysettingsdesign.pdf>)

Table 3. Estimated 2025 Level of Service With Project for Study Area Intersections

INTERSECTION	PM Peak Hour		
	LOS	Delay (sec/veh)	v/c (critical lane)
1. Southridge Boulevard / Hildebrand Boulevard	B	18.3	0.67 (NB TH)
2. Sherman Street / Bob Olson Parkway / Hildebrand Boulevard	C	19.8	0.184 (NB LT)
3. Bob Olson Parkway / Steptoe Street / 10th Avenue	A	6.4	0.263 (SB)
4. 31st Place / Bob Olson Parkway	C	15.5	0.101 (NB LT)
5. Sherman Street / 33rd Place	B	11.3	0.081 (EB)
6. Colorado Street / Bob Olson Parkway	C	16.3	0.131 (NB)

As shown in Table 3, all studied intersections will operate at an acceptable LOS in the 2025 year of opening With Project conditions during the weekday PM peak hour.

Findings: All studied intersections will operate at an acceptable LOS in the 2025 year of opening Without and With Project conditions during the weekday PM peak hour.

SAFETY ANALYSIS

Left- and Right-Turn Lane Warrants

The criteria for right- and left-turn lane warrants, according to the City's TIA guidelines, 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.

The proposed Colorado Street / Bob Olson Parkway development access meets the volume criteria for a right-turn lane with 78 eastbound right-turn movements during the 2025 PM peak hour. The location is as follows:

- Eastbound right-turn lane at Colorado Street / Bob Olson Parkway intersection.

After further analysis, at Colorado Street / Bob Olson Parkway the right-turn lane is not recommended for the following reasons:

This assertion is not acceptable

It meets the criteria it should be installed

- The precedent has been set that there are no right-turn lanes along Bob Olson Parkway at other stubbed-out intersections. This appears to be based on a design standard of frequent access points to the surrounding land use to distribute future turning movements along Bob Olson Parkway.

Current posted speed is 45 mph

- The posted speed on Bob Olson Parkway is 40 miles per hour (mph); therefore, it does not meet the WSDOT right-turn lane guidelines with a 45-mph threshold noted in the *WSDOT Design Manual Right-Turn Lane Guidelines*.⁶
- No LOS improvements are needed at this driveway.

The proposed Colorado Street / Bob Olson Parkway development access does not meet the City's volume criteria for a left-turn lane.

Findings: No right-turn lanes are recommended for the Colorado Street / Bob Olson Parkway intersection.

The Colorado Street / Bob Olson Parkway intersection does not meet the volume criteria for a left-turn lane.

Intersection Sight Distance

The Colorado Street / Bob Olson Parkway proposed site access currently includes only stubs for future connections to Bob Olson Parkway. The generally flat terrain and moderately curved alignment of Bob Olson Parkway suggest that adequate sight distances should be achievable through design and construction of the proposed Colorado Street access on Bob Olson Parkway.

No other physical limitations exist such as vertical curves or steep embankments to obstruct existing or future sight distance. It is recommended to design the proposed access points in accordance with Kennewick Municipal Code (KMC) 13.12.020 guidelines for intersection sight distance. Install no objects within the sight distance triangles that would block exiting drivers' view of approaching traffic.

Finding: Digital review of the current conditions along Bob Olson Parkway suggests that adequate sight distances should be achievable through design and construction of the Colorado Street / Bob Olson Parkway proposed access intersection.

Recommendation: Design the proposed access point consistent with KMC 13.12.020 guidelines for intersection sight distance. Install no objects within the sight distance triangles that would block exiting drivers' view at the access points.

FINDINGS SUMMARY

The findings of this letter are summarized from the above narrative.

- The Apple Valley Subdivision will have three total access points, two existing and one proposed. An internal local roadway network will be constructed to serve all 226 residential lots proposed within Phases 6 and 7. Pedestrian connections will be provided via sidewalks constructed as part of the local street section.
- Phases 6 and 7 of the Apple Valley Subdivision are anticipated to generate 2,325 vehicle trips during a typical weekday, including 170 during the AM peak hour and 229 during the PM peak hour.
- All studied intersections will operate at an acceptable LOS in the 2025 year of opening Without and With Project conditions during the weekday PM peak hour.
- No right-turn lanes are recommended for the Colorado Street / Bob Olson Parkway intersection.

⁶ WSDOT. (September 2020). *WSDOT Design Manual*, Chapter 1310.03(3).

William Smith Properties
Apple Valley Subdivision Phases 6 and 7 – TIA Supplemental Letter
January 25, 2021
Page 8 of 8

- The Colorado Street / Bob Olson Parkway intersection does not meet the volume criteria for a left-turn lane.
- Digital review of the current conditions along Bob Olson Parkway suggests that adequate sight distances should be achievable through design and construction of the Colorado Street / Bob Olson Parkway proposed access intersection.

RECOMMENDATIONS SUMMARY

The letter supports the following recommendation, which is summarized from the above narrative.

- Design the proposed access point consistent with KMC 13.12.020 guidelines for intersection sight distance. Install no objects within the sight distance triangles that would block exiting drivers' view at the access points.

CLOSING

Please feel free to contact me at 360.567.2117 or john.manix@pbsusa.com with any questions or comments.

Sincerely,

John Manix, PE
Senior Traffic Engineer

Attachments: Addendum 1, dated October 21, 2020, by City of Kennewick Public Works
Figures
ITE Trip Generation Calculation Summary
Level of Service Reports

BJ:DAH:JAM:mo



Leading the Way

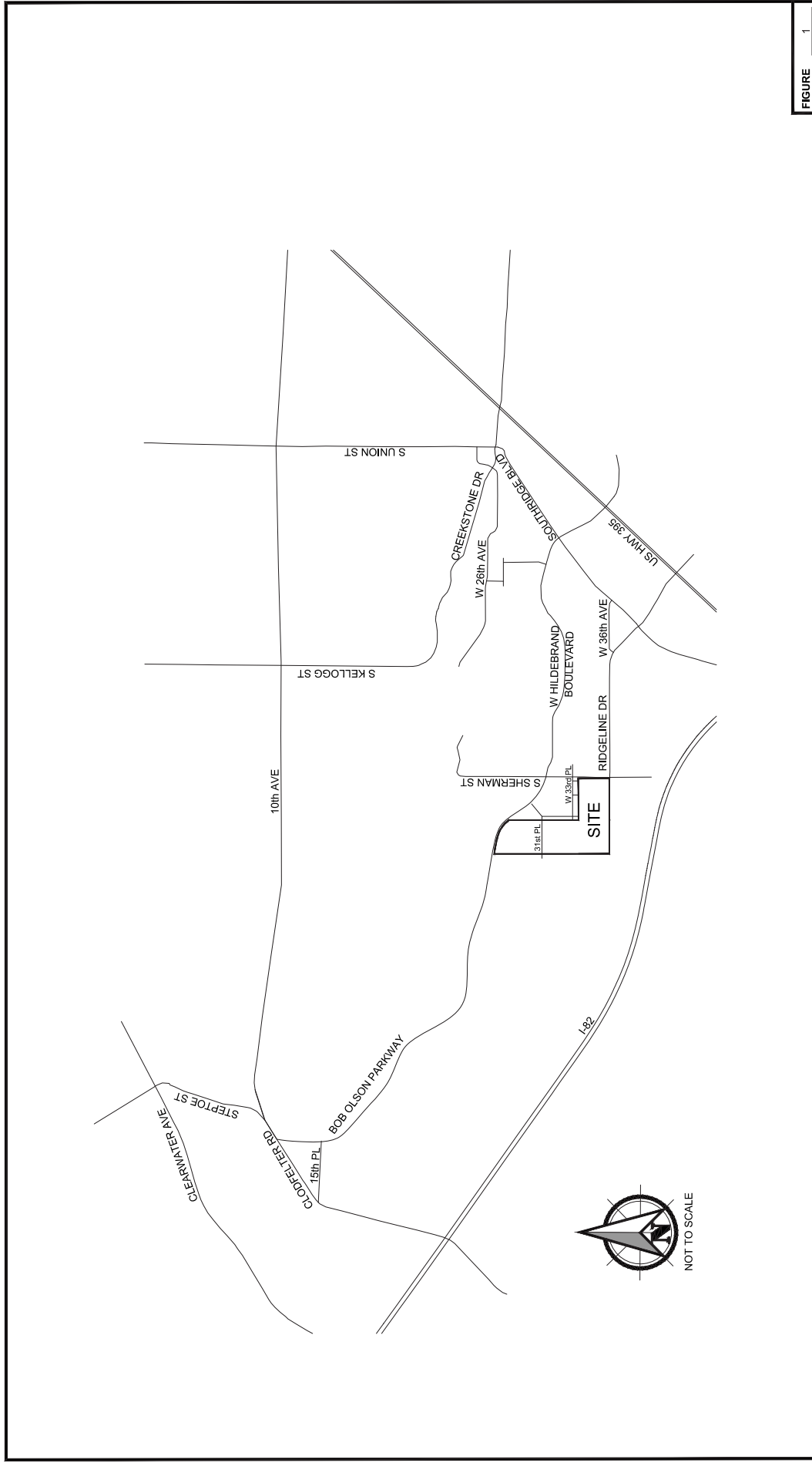
October 21, 2020

ADDENDUM #1 TO TRAFFIC STUDY SCOPE MEMORANDUM OF AUGUST 6, 2020

This addendum purpose is:

1. Clarify the required study area and,
 2. Add the future connections of Apple Valley development to Colorado Street to the intersections studied.
1. **Clarify the required study area.** The trip generation for the future parcels 117892000001009 and 117892000001012 identified on attached Exhibit A shall be included in this study. This is to emphasize that the study area south of Bob Olson Parkway shall include all the present and future development area bounded by S Colorado Street to the west, Sherman Street to the east, Ridgeline Drive to the south and Bob Olson Parkway to the north.
 2. **Future intersections of the proposed and existing Apple Valley development with S Colorado Street shall be included in this study.** These intersections are shown on the attached Exhibit A and shall include:
 - a. S Colorado Street and Bob Olson Parkway,
 - b. S Colorado Street and S Zimmerman Street and,
 - c. S Colorado Street and W 31st Pl.

PUBLIC WORKS



Vicinity Map
Apple Valley Phase 6 & 7

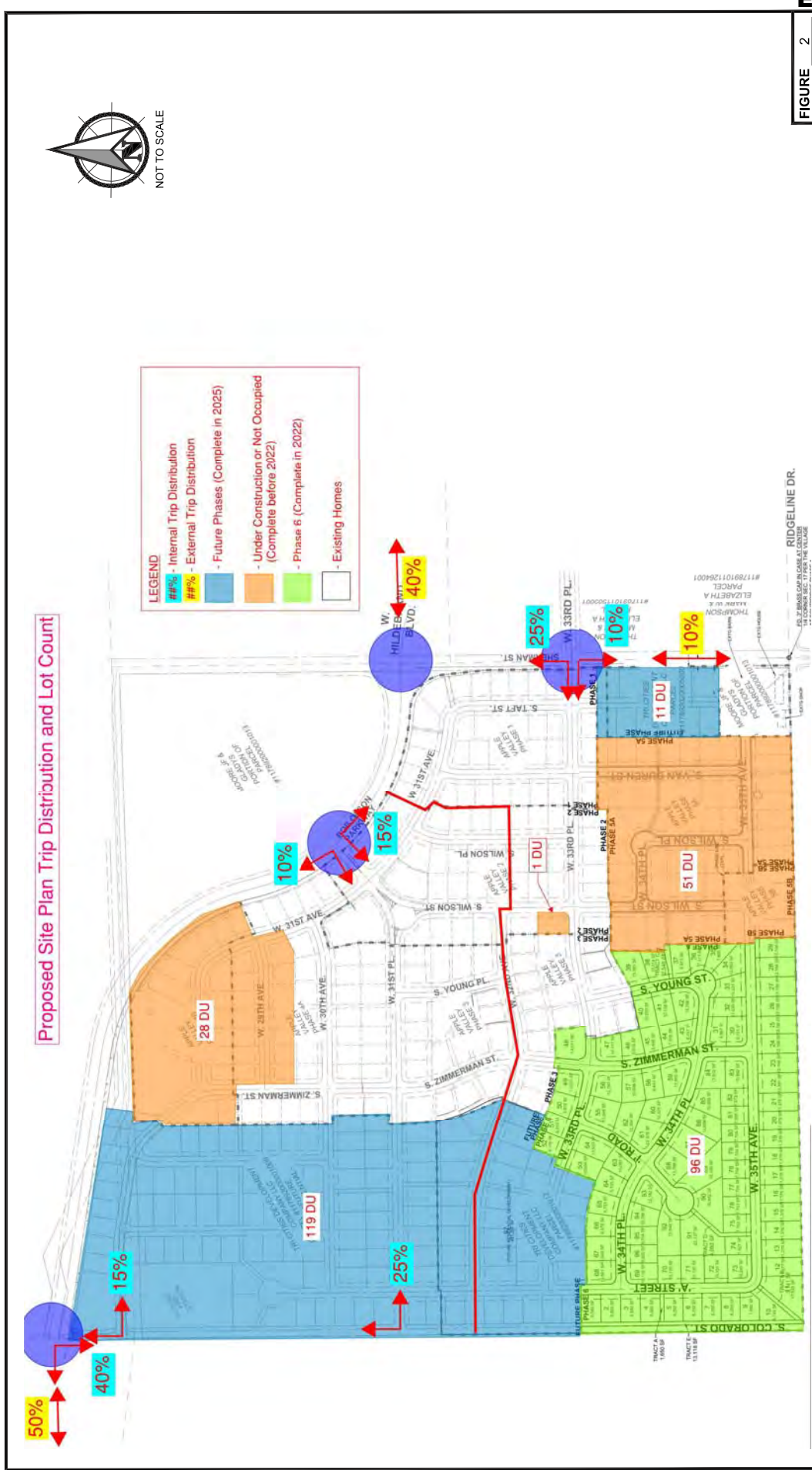
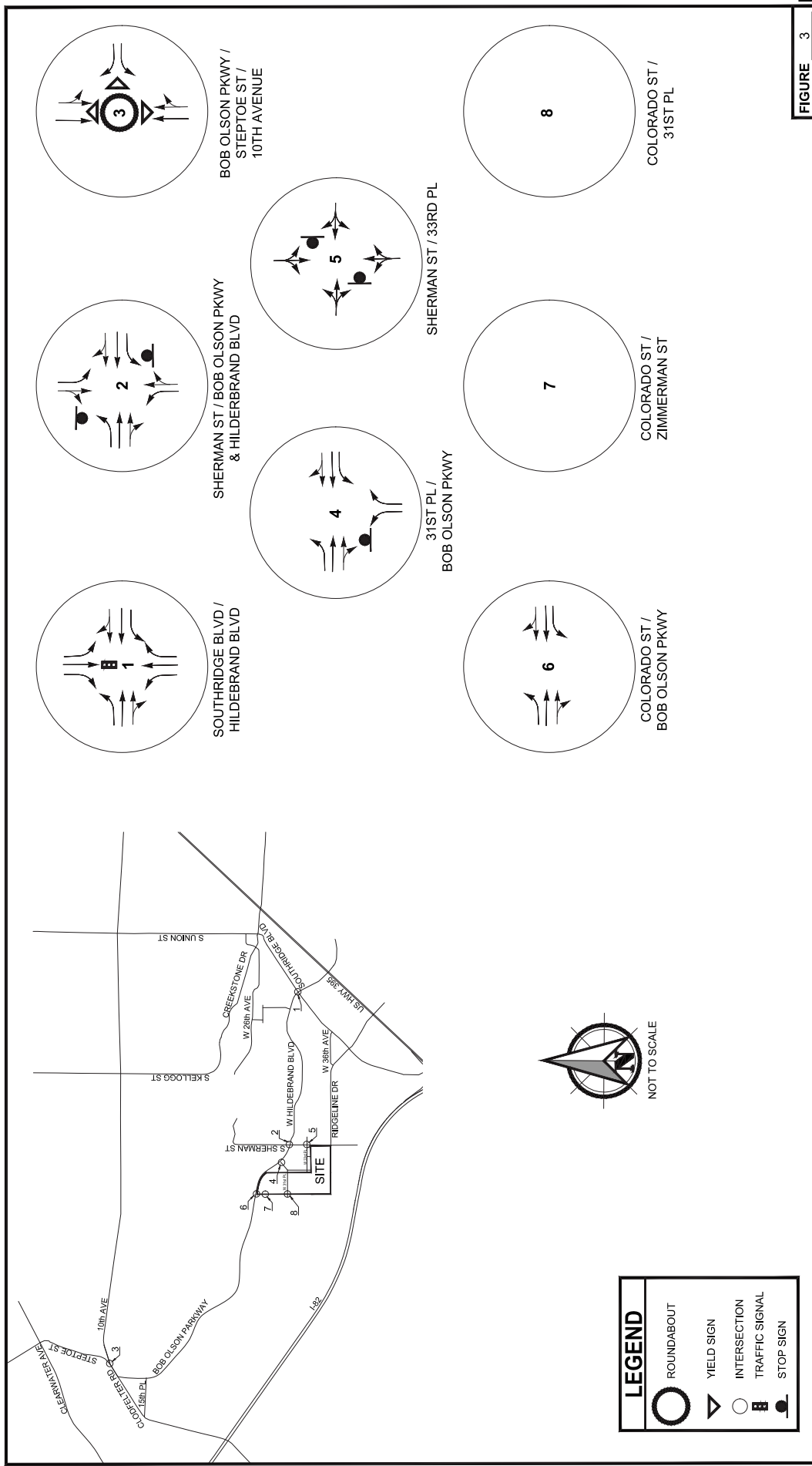
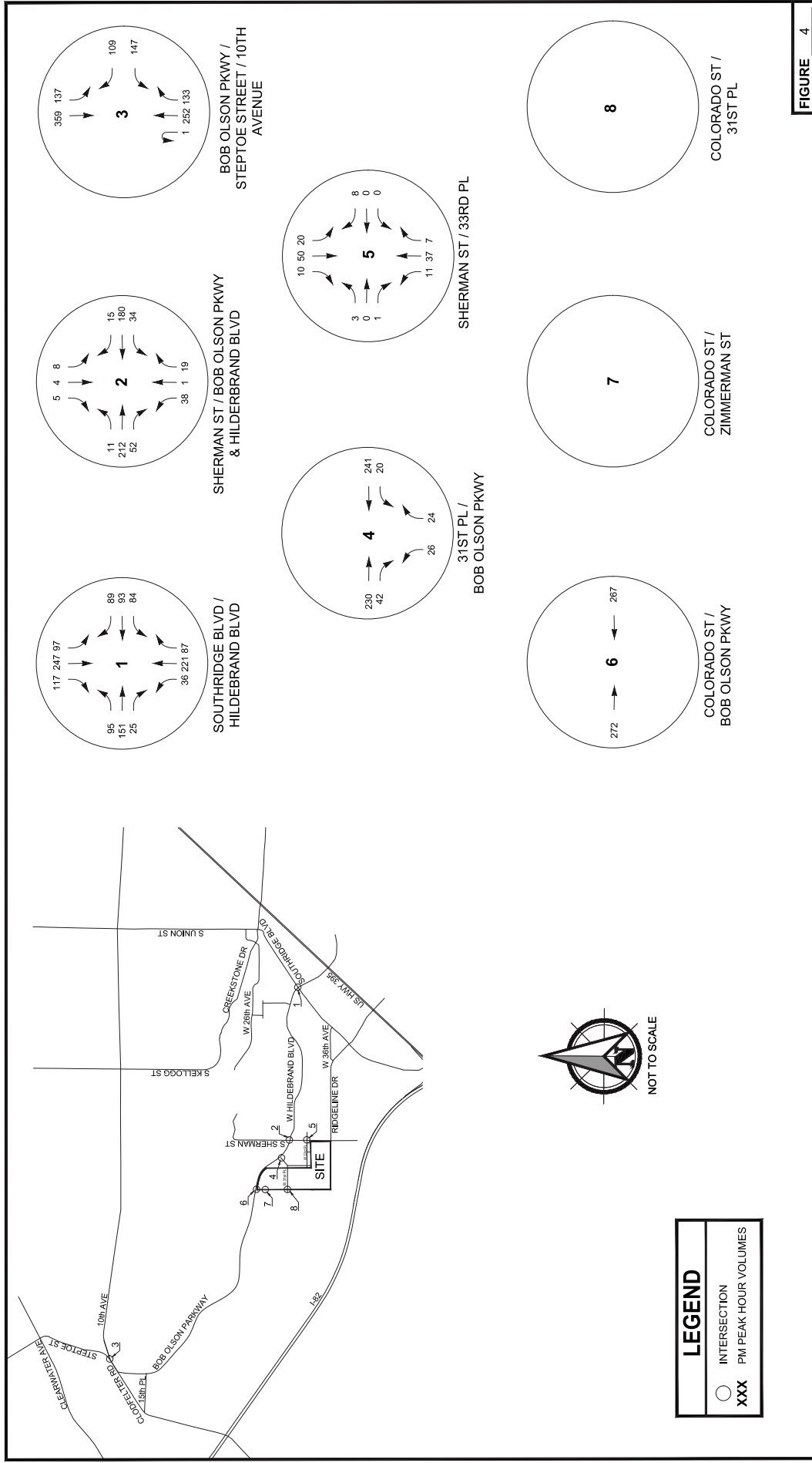


FIGURE 2

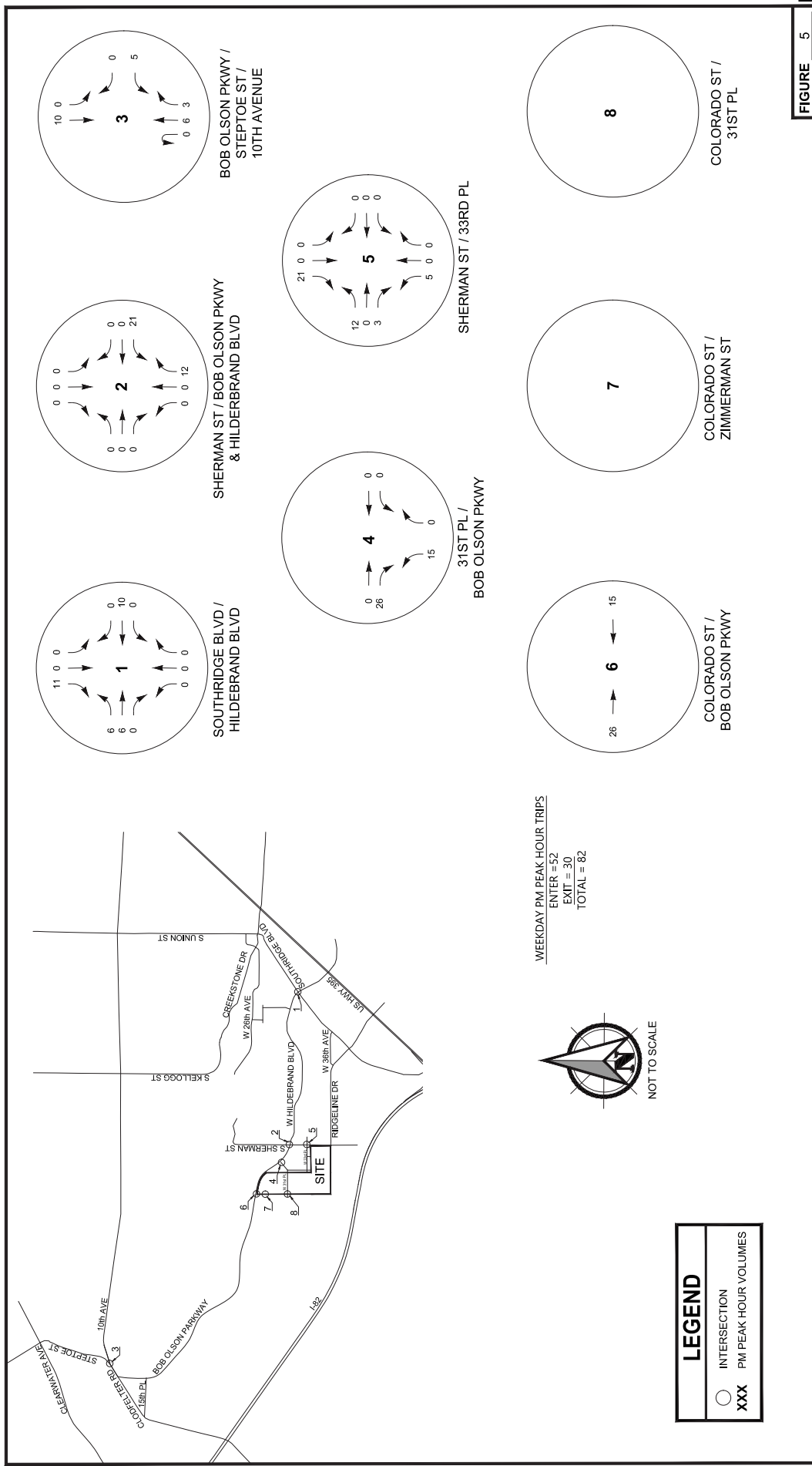
Site Plan
Apple Valley Phase 6 & 7



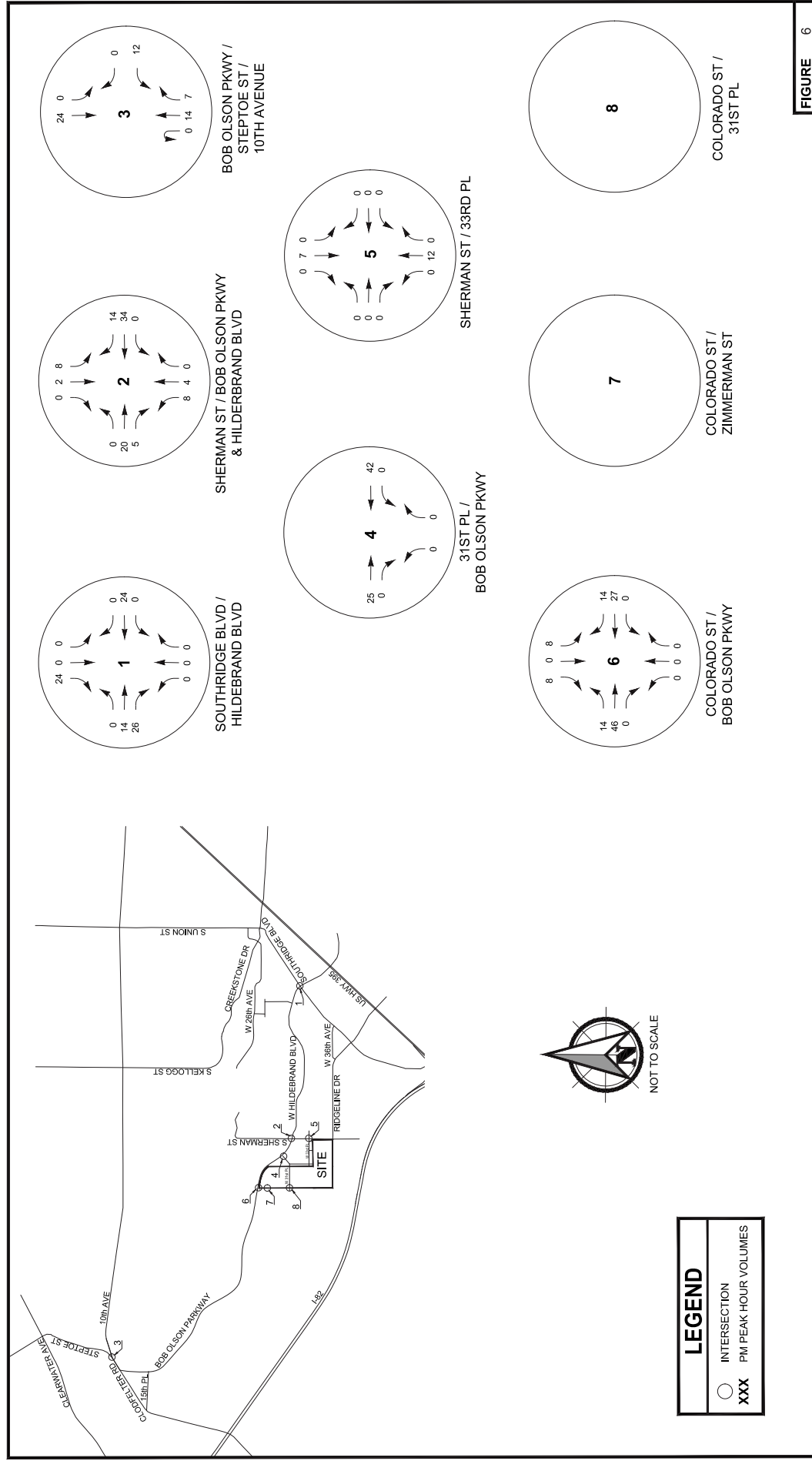
Existing Lane Configurations and Traffic Controls
Apple Valley Phase 6 & 7



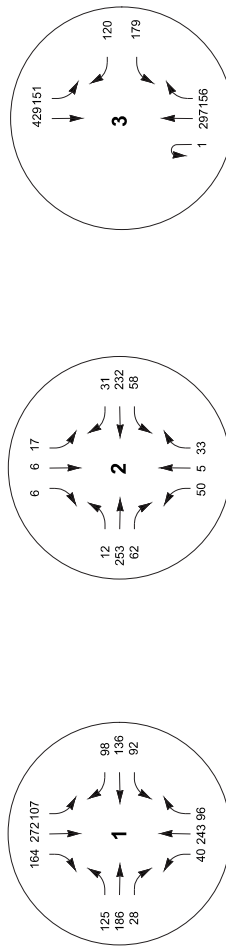
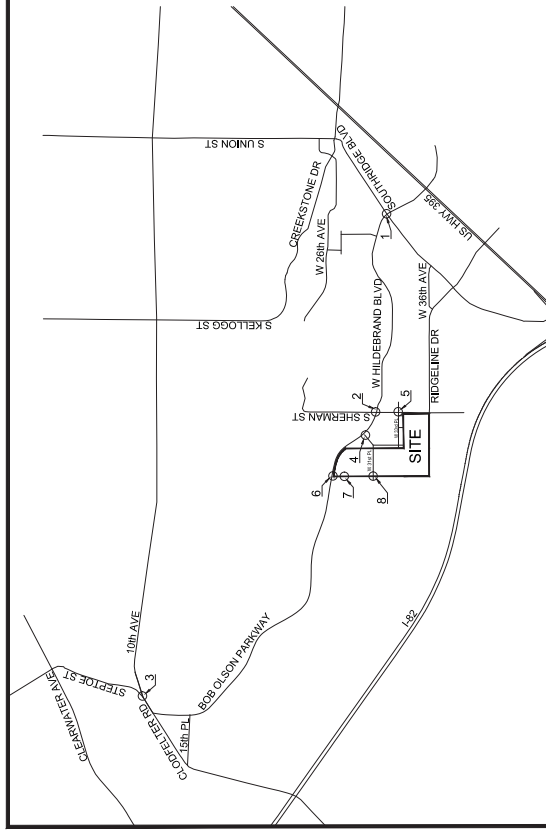
2020 Baseline Volumes
Apple Valley Phase 6 & 7



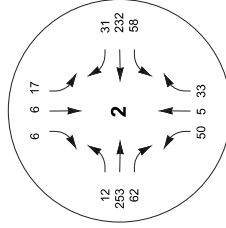
Apple Valley Unoccupied Lots Background Growth Apple Valley Phase 6 & 7



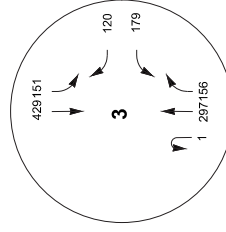
Adjacent Development Trips (Sherman Heights)



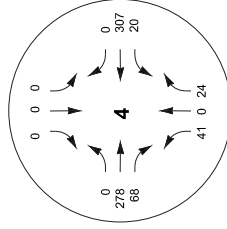
SOUTHRIDGE BLVD /
HILDEBRAND BLVD



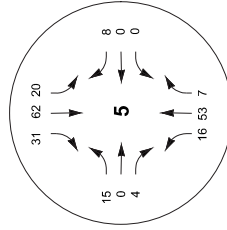
SHERMAN ST / BOB OLSON PKWY
& HILDEBRAND BLVD



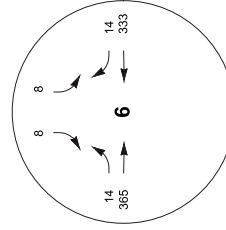
BOB OLSON PKWY /
STEPTOE ST /
10TH AVENUE



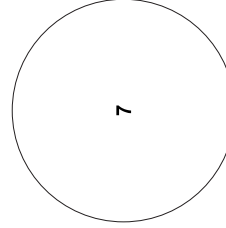
31ST PL /
BOB OLSON PKWY



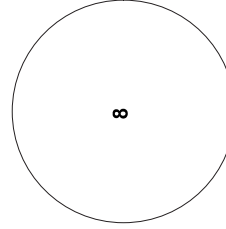
SHERMAN ST / 33RD PL



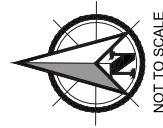
COLORADO ST /
BOB OLSON PKWY



COLORADO ST /
ZIMMERMAN ST



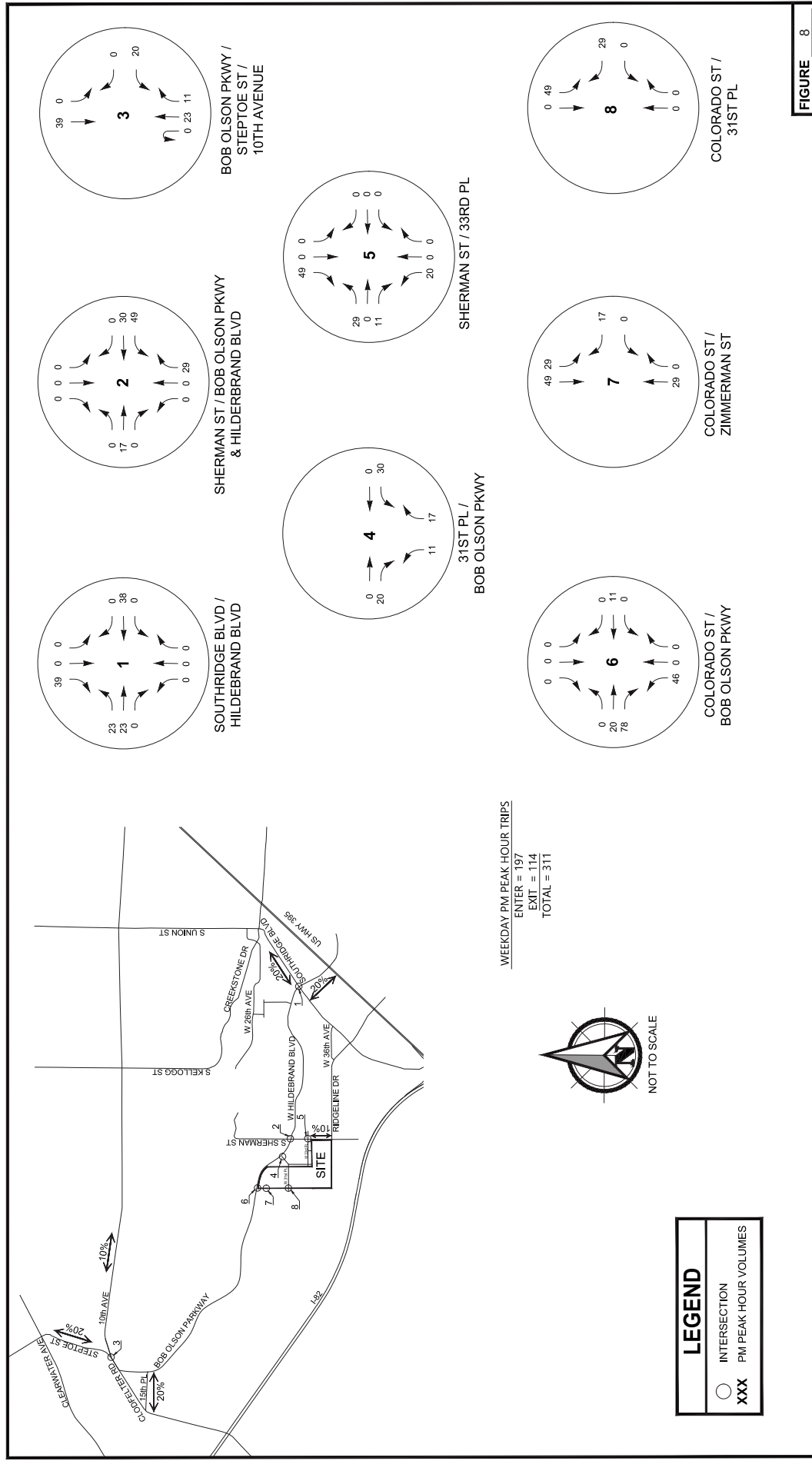
COLORADO ST /
31ST PL



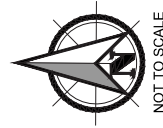
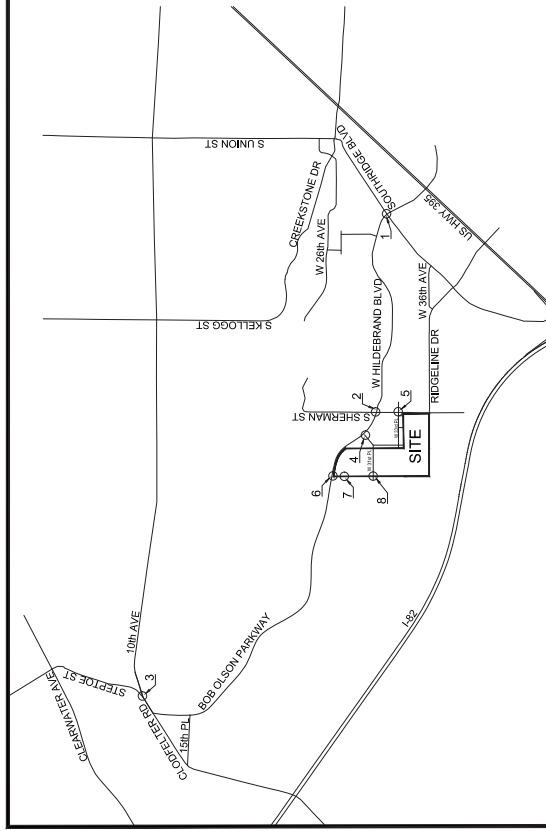
LEGEND	
	INTERSECTION
XXX	PM PEAK HOUR VOLUMES

FIGURE 7

2025 Without Project Volumes Apple Valley Phase 6 & 7



Trip Distribution and Assignment of All Unoccupied Homes (Phases 1 to 7)
Apple Valley Phase 6 & 7



LEGEND	
	INTERSECTION
XXX	PM PEAK HOUR VOLUMES

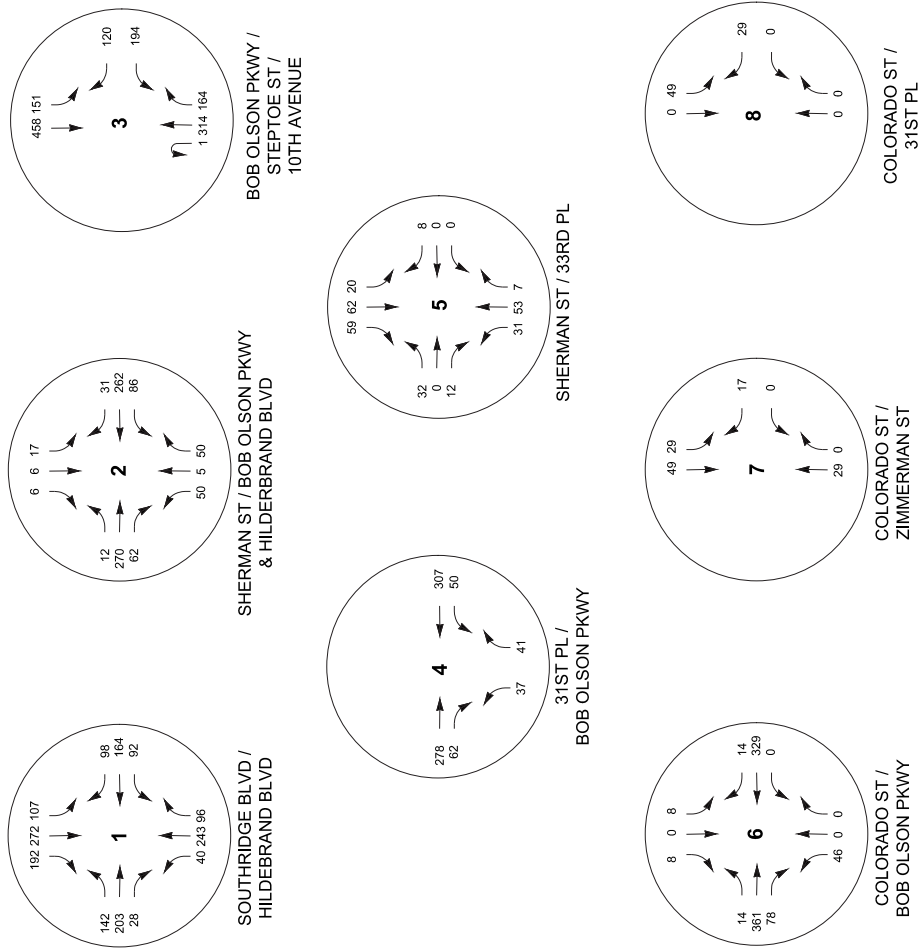


FIGURE 9

2025 With Project Volumes Apple Valley Phase 6 & 7

Detailed Land Use Data

For 80 Dwelling Units of Unoccupied lots at Apple Valley Phase 1 to 5B
(210) Single-Family Detached Housing

Open Date: 1/21/2021
Analysis Date: 1/21/2021

Project: Apple Valley

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R ²
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	847	0	9.44	4.81	19.39	2.1	264	50	50	True	$\ln(T) = 0.92 \ln(X) + 2.71$	0.95
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	62	0	0.74	0.33	2.27	0.27	219	25	75	True	$T = 0.71(X) + 4.8$	0.89
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	82	0	0.99	0.44	2.98	0.31	242	63	37	True	$\ln(T) = 0.96 \ln(X) + 0.2$	0.92

Trip Generation Summary

Alternative: Alternative 1

Phase:

Project: Apple Valley

Open Date: 8/25/2020

Analysis Date: 8/25/2020

ITE	Land Use	Weekday Average Daily Trips				Weekday AM Peak Hour of Adjacent Street Traffic				Weekday PM Peak Hour of Adjacent Street Traffic			
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
210	Unoccupied lots at Apple Valley Phase 1 to 5B		424	423	847		16	46	62		52	30	82
	80 Dwelling Units												
	Unadjusted Volume		424	423	847		16	46	62		52	30	82
	Internal Capture Trips		0	0	0		0	0	0		0	0	0
	Pass-By Trips		0	0	0		0	0	0		0	0	0
	Volume Added to Adjacent Streets		424	423	847		16	46	62		52	30	82

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition

TRIP GENERATION 10, TRAFFICWARE, LLC

Detailed Land Use Data

For 96 Dwelling Units of Apple Valley Phase 6
(210) Single-Family Detached Housing

Open Date: 1/21/2021
Analysis Date: 1/21/2021

Project: Apple Valley Phase 6

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R ²
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	1001	0	9.44	4.81	19.39	2.1	264	50	50	True	$\ln(T) = 0.92 \ln(X) + 2.71$	0.95
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	73	0	0.74	0.33	2.27	0.27	219	25	75	True	$T = 0.71(X) + 4.8$	0.89
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	98	0	0.99	0.44	2.98	0.31	242	63	37	True	$\ln(T) = 0.96 \ln(X) + 0.2$	0.92

Trip Generation Summary

Alternative: Alternative 1

Phase:

Project: Apple Valley Phase 6

Open Date: 5/15/2020

Analysis Date: 5/15/2020

ITE	Land Use	Weekday Average Daily Trips				Weekday AM Peak Hour of Adjacent Street Traffic				Weekday PM Peak Hour of Adjacent Street Traffic			
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
210	SFHOUSE 1		501	500	1001		18	55	73		62	36	98
96 Dwelling Units													
Unadjusted Volume													
	Internal Capture Trips		501	500	1001		18	55	73		62	36	98
	Pass-By Trips		0	0	0		0	0	0		0	0	0
	Volume Added to Adjacent Streets		0	0	0		0	0	0		0	0	0
			501	500	1001		18	55	73		62	36	98

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition

TRIP GENERATION 10, TRAFFICWARE, LLC

Detailed Land Use Data

For 130 Dwelling Units of Apple Valley Phase 7 (All Remaining Future Phases)
(210) Single-Family Detached Housing

Open Date: 1/21/2021
Analysis Date: 1/21/2021

Project: Apple Valley

Day / Period	Total Trips	Pass-By Trips	Avg Rate	Min Rate	Max Rate	Std Dev	Avg Size	% Enter	% Exit	Use Eq.	Equation	R ²
Weekday Average Daily Trips Source : Trip Generation Manual 10th Edition	1324	0	9.44	4.81	19.39	2.1	264	50	50	True	$\ln(T) = 0.92 \ln(X) + 2.71$	0.95
Weekday AM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	97	0	0.74	0.33	2.27	0.27	219	25	75	True	$T = 0.71(X) + 4.8$	0.89
Weekday PM Peak Hour of Adjacent Street Traffic Source : Trip Generation Manual 10th Edition	131	0	0.99	0.44	2.98	0.31	242	63	37	True	$\ln(T) = 0.96 \ln(X) + 0.2$	0.92

Trip Generation Summary

Alternative: Alternative 1

Phase:

Project: Apple Valley

Open Date: 1/15/2021

Analysis Date: 1/15/2021

ITE	Land Use	Weekday Average Daily Trips				Weekday AM Peak Hour of Adjacent Street Traffic				Weekday PM Peak Hour of Adjacent Street Traffic			
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
210	Apple Valley Phase 7 (All Future Phases) 130 Dwelling Units		662	662	1324		24	73	97		83	48	131
	Unadjusted Volume		662	662	1324		24	73	97		83	48	131
	Internal Capture Trips		0	0	0		0	0	0		0	0	0
	Pass-By Trips		0	0	0		0	0	0		0	0	0
	Volume Added to Adjacent Streets		662	662	1324		24	73	97		83	48	131

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition
TRIP GENERATION 10, TRAFFICWARE, LLC

HCM 6th Signalized Intersection Summary

1: Southridge Blvd & Hilderbrand Blvd

01/20/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	186	28	92	136	98	40	243	96	107	272	164
Future Volume (veh/h)	125	186	28	92	136	98	40	243	96	107	272	164
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.99	1.00		0.98
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	1870	1870	1870
Adj Flow Rate, veh/h	144	214	32	106	156	113	46	279	110	123	313	189
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	461	571	84	470	346	234	371	419	535	431	510	626
Arrive On Green	0.13	0.18	0.18	0.12	0.17	0.17	0.07	0.22	0.22	0.12	0.27	0.27
Sat Flow, veh/h	1781	3099	456	1781	2012	1357	1781	1870	1574	1781	1870	1556
Grp Volume(v), veh/h	144	121	125	106	136	133	46	279	110	123	313	189
Grp Sat Flow(s),veh/h/ln	1781	1777	1778	1781	1777	1593	1781	1870	1574	1781	1870	1556
Q Serve(g_s), s	3.5	3.4	3.5	2.5	3.9	4.2	1.0	7.7	2.8	2.7	8.2	4.7
Cycle Q Clear(g_c), s	3.5	3.4	3.5	2.5	3.9	4.2	1.0	7.7	2.8	2.7	8.2	4.7
Prop In Lane	1.00		0.26	1.00		0.85	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	461	327	328	470	306	274	371	419	535	431	510	626
V/C Ratio(X)	0.31	0.37	0.38	0.23	0.45	0.48	0.12	0.67	0.21	0.29	0.61	0.30
Avail Cap(c_a), veh/h	488	789	790	519	789	707	494	964	994	468	964	1003
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	15.2	20.1	20.1	14.8	20.9	21.0	13.0	19.9	13.2	13.6	17.9	11.5
Incr Delay (d2), s/veh	0.4	0.7	0.7	0.2	1.0	1.3	0.1	1.8	0.2	0.4	1.2	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	1.3	1.3	1.4	0.9	1.6	1.6	0.3	3.1	0.9	0.9	3.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.6	20.8	20.9	15.0	21.9	22.4	13.2	21.7	13.4	13.9	19.1	11.8
LnGrp LOS	B	C	C	B	C	C	B	C	B	B	B	B
Approach Vol, veh/h		390			375			435			625	
Approach Delay, s/veh		18.9			20.1			18.7			15.9	
Approach LOS		B			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	14.7	11.8	17.6	11.5	15.4	9.1	20.3				
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	5.5	6.2	4.7	9.7	4.5	5.5	3.0	10.2				
Green Ext Time (p_c), s	0.1	1.5	0.1	1.8	0.1	1.3	0.0	2.2				
Intersection Summary												
HCM 6th Ctrl Delay			18.1									
HCM 6th LOS			B									

HCM 6th TWSC

2: Sherman St & Bob Olson Pkwy/Hildebrand Blvd

01/20/2021

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱		↰	↰↱		↰	↰		↰	↰	
Traffic Vol, veh/h	12	253	62	58	232	31	50	5	33	17	6	6
Future Vol, veh/h	12	253	62	58	232	31	50	5	33	17	6	6
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	25
Mvmt Flow	13	278	68	64	255	34	55	5	36	19	7	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	289	0	0	346	0	0	597	755	173	568	772	145
Stage 1	-	-	-	-	-	-	338	338	-	400	400	-
Stage 2	-	-	-	-	-	-	259	417	-	168	372	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	7.4
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	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.55
Pot Cap-1 Maneuver	1270	-	-	1210	-	-	387	336	840	406	329	808
Stage 1	-	-	-	-	-	-	650	639	-	597	600	-
Stage 2	-	-	-	-	-	-	723	590	-	817	617	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1270	-	-	1210	-	-	360	315	840	365	309	808
Mov Cap-2 Maneuver	-	-	-	-	-	-	360	315	-	365	309	-
Stage 1	-	-	-	-	-	-	644	633	-	591	568	-
Stage 2	-	-	-	-	-	-	671	559	-	767	611	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			1.5			14.1			14.5		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	360	689	1270	-	-	1210	-	-	365	447
HCM Lane V/C Ratio	0.153	0.061	0.01	-	-	0.053	-	-	0.051	0.03
HCM Control Delay (s)	16.8	10.6	7.9	-	-	8.1	-	-	15.4	13.3
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.5	0.2	0	-	-	0.2	-	-	0.2	0.1

MOVEMENT SUMMARY

 **Site: 3 [2025 PM 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		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
East: 10th Avenue														
1a	L1	179	2.0	208	2.0	0.159	9.6	LOS A	0.7	17.0	0.38	0.66	0.38	34.5
16	R2	120	2.0	140	2.0	0.128	3.0	LOS A	0.5	12.9	0.39	0.44	0.39	30.8
Approach		299	2.0	348	2.0	0.159	6.9	LOS A	0.7	17.0	0.38	0.57	0.38	33.0
North: Steptoe Street														
7	L2	151	2.0	176	2.0	0.247	9.8	LOS A	1.5	38.6	0.43	0.59	0.43	31.9
14a	R1	429	2.0	499	2.0	0.247	3.6	LOS A	1.6	39.8	0.42	0.47	0.42	36.6
Approach		580	2.0	674	2.0	0.247	5.2	LOS A	1.6	39.8	0.42	0.50	0.42	35.2
SouthWest: Bob Olson Parkway														
5ux	U	1	2.0	1	2.0	0.188	13.4	LOS B	1.1	27.1	0.37	0.61	0.37	36.0
5ax	L1	297	3.0	345	3.0	0.188	9.5	LOS A	1.1	28.0	0.36	0.57	0.36	35.2
12ax	R1	156	3.0	181	3.0	0.188	3.3	LOS A	1.1	28.0	0.35	0.49	0.35	36.5
Approach		454	3.0	528	3.0	0.188	7.3	LOS A	1.1	28.0	0.35	0.55	0.35	35.6
All Vehicles		1333	2.3	1550	2.3	0.247	6.3	LOS A	1.6	39.8	0.39	0.53	0.39	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.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: PBS ENGINEERING AND ENVIRONMENTAL INC. | Licence: PLUS / 1PC | Processed: Thursday, January 21, 2021 10:09:37 AM

Project: L:\Projects\66000\66090\66090-005\Traffic\Documents\LOS\BobOlson-Steptoe-10th.sip9

HCM 6th TWSC

4: 31st Pl & Bob Olson Pkwy

01/20/2021

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱		↰	↰↱		↰	↰			↰↱	
Traffic Vol, veh/h	0	278	68	20	307	0	41	0	24	0	0	0
Future Vol, veh/h	0	278	68	20	307	0	41	0	24	0	0	0
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	-	-	135	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	290	71	21	320	0	43	0	25	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	320	0	0	361	0	0	528	688	181	507	723	160
Stage 1	-	-	-	-	-	-	326	326	-	362	362	-
Stage 2	-	-	-	-	-	-	202	362	-	145	361	-
Critical Hdwy	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	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1237	-	-	1194	-	-	433	368	831	449	351	857
Stage 1	-	-	-	-	-	-	661	647	-	629	624	-
Stage 2	-	-	-	-	-	-	781	624	-	843	624	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1237	-	-	1194	-	-	427	361	831	430	345	857
Mov Cap-2 Maneuver	-	-	-	-	-	-	427	361	-	430	345	-
Stage 1	-	-	-	-	-	-	661	647	-	629	613	-
Stage 2	-	-	-	-	-	-	767	613	-	818	624	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			12.6			0		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	427	831	1237	-	-	1194	-	-	-
HCM Lane V/C Ratio	0.1	0.03	-	-	-	0.017	-	-	-
HCM Control Delay (s)	14.4	9.5	0	-	-	8.1	-	-	0
HCM Lane LOS	B	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0.1	0	-	-	0.1	-	-	-

HCM 6th TWSC
5: Sherman St & 33rd PI

01/20/2021

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	4	0	0	8	16	53	7	20	62	31
Future Vol, veh/h	15	0	4	0	0	8	16	53	7	20	62	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	50	2	2	2	2	2	2	3	2	2	4	2
Mvmt Flow	17	0	5	0	0	9	18	61	8	23	71	36

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	241	240	89	239	254	65	107	0
Stage 1	135	135	-	101	101	-	-	-
Stage 2	106	105	-	138	153	-	-	-
Critical Hdwy	7.6	6.52	6.22	7.12	6.52	6.22	4.12	-
Critical Hdwy Stg 1	6.6	5.52	-	6.12	5.52	-	-	-
Critical Hdwy Stg 2	6.6	5.52	-	6.12	5.52	-	-	-
Follow-up Hdwy	3.95	4.018	3.318	3.518	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	624	661	969	715	650	999	1484	-
Stage 1	766	785	-	905	811	-	-	-
Stage 2	795	808	-	865	771	-	-	-
Platoon blocked, %								-
Mov Cap-1 Maneuver	605	642	969	696	631	999	1484	-
Mov Cap-2 Maneuver	605	642	-	696	631	-	-	-
Stage 1	756	772	-	893	800	-	-	-
Stage 2	777	797	-	847	759	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	8.6	1.6	1.3
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1484	-	-	657	999	1532	-
HCM Lane V/C Ratio	0.012	-	-	0.033	0.009	0.015	-
HCM Control Delay (s)	7.5	0	-	10.7	8.6	7.4	0
HCM Lane LOS	A	A	-	B	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-

HCM 6th TWSC

6: Colorado Street & Bob Olson Pkwy

01/20/2021

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	367	0	0	333	14	0	0	0	8	0	8
Future Vol, veh/h	14	367	0	0	333	14	0	0	0	8	0	8
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	120	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	382	0	0	347	15	0	0	0	8	0	8
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	362	0	0	382	0	0	586	774	191	576	767	181
Stage 1	-	-	-	-	-	-	412	412	-	355	355	-
Stage 2	-	-	-	-	-	-	174	362	-	221	412	-
Critical Hdwy	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	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1193	-	-	1173	-	-	394	328	818	400	331	831
Stage 1	-	-	-	-	-	-	588	593	-	635	628	-
Stage 2	-	-	-	-	-	-	811	624	-	761	593	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1193	-	-	1173	-	-	386	324	818	396	327	831
Mov Cap-2 Maneuver	-	-	-	-	-	-	386	324	-	396	327	-
Stage 1	-	-	-	-	-	-	580	585	-	627	628	-
Stage 2	-	-	-	-	-	-	803	624	-	751	585	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0			0			11.9		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1193	-	-	1173	-	-	536				
HCM Lane V/C Ratio	-	0.012	-	-	-	-	-	0.031				
HCM Control Delay (s)	0	8.1	-	-	0	-	-	11.9				
HCM Lane LOS	A	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.1				

HCM 6th Signalized Intersection Summary

1: Southridge Blvd & Hilderbrand Blvd

01/20/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	203	28	92	164	98	40	243	96	107	272	192
Future Volume (veh/h)	142	203	28	92	164	98	40	243	96	107	272	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.99	1.00		0.98
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	1870	1870	1870
Adj Flow Rate, veh/h	163	233	32	106	189	113	46	279	110	123	313	221
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	456	603	82	469	383	217	363	417	532	426	506	627
Arrive On Green	0.13	0.19	0.19	0.11	0.18	0.18	0.07	0.22	0.22	0.12	0.27	0.27
Sat Flow, veh/h	1781	3137	425	1781	2168	1229	1781	1870	1574	1781	1870	1556
Grp Volume(v), veh/h	163	131	134	106	153	149	46	279	110	123	313	221
Grp Sat Flow(s),veh/h/ln	1781	1777	1785	1781	1777	1620	1781	1870	1574	1781	1870	1556
Q Serve(g_s), s	4.0	3.7	3.8	2.5	4.4	4.8	1.0	7.8	2.8	2.8	8.4	5.7
Cycle Q Clear(g_c), s	4.0	3.7	3.8	2.5	4.4	4.8	1.0	7.8	2.8	2.8	8.4	5.7
Prop In Lane	1.00		0.24	1.00		0.76	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	456	341	343	469	314	286	363	417	532	426	506	627
V/C Ratio(X)	0.36	0.38	0.39	0.23	0.49	0.52	0.13	0.67	0.21	0.29	0.62	0.35
Avail Cap(c_a), veh/h	475	778	782	515	778	710	484	951	981	462	951	996
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	15.4	20.1	20.1	14.7	21.2	21.3	13.3	20.2	13.5	13.8	18.2	12.0
Incr Delay (d2), s/veh	0.5	0.7	0.7	0.2	1.2	1.5	0.2	1.9	0.2	0.4	1.2	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	1.5	1.5	1.5	0.9	1.8	1.8	0.3	3.2	0.9	1.0	3.3	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.8	20.8	20.9	15.0	22.3	22.8	13.4	22.1	13.7	14.2	19.5	12.3
LnGrp LOS	B	C	C	B	C	C	B	C	B	B	B	B
Approach Vol, veh/h		428			408			435			657	
Approach Delay, s/veh		18.9			20.6			19.1			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	12.4	15.1	11.9	17.7	11.5	16.0	9.1	20.4				
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	6.0	6.8	4.8	9.8	4.5	5.8	3.0	10.4				
Green Ext Time (p_c), s	0.1	1.7	0.1	1.8	0.1	1.4	0.0	2.3				
Intersection Summary												
HCM 6th Ctrl Delay			18.3									
HCM 6th LOS			B									

HCM 6th TWSC

2: Sherman St & Bob Olson Pkwy/Hildebrand Blvd

01/20/2021

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱		↰	↰↱		↰	↰		↰	↰	
Traffic Vol, veh/h	12	270	62	86	262	31	50	5	50	17	6	6
Future Vol, veh/h	12	270	62	86	262	31	50	5	50	17	6	6
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	25
Mvmt Flow	13	297	68	95	288	34	55	5	55	19	7	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	322	0	0	365	0	0	695	869	183	672	886	161
Stage 1	-	-	-	-	-	-	357	357	-	495	495	-
Stage 2	-	-	-	-	-	-	338	512	-	177	391	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	7.4
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	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.55
Pot Cap-1 Maneuver	1235	-	-	1190	-	-	329	289	828	342	282	788
Stage 1	-	-	-	-	-	-	633	627	-	525	544	-
Stage 2	-	-	-	-	-	-	650	535	-	808	606	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1235	-	-	1190	-	-	298	263	828	293	257	788
Mov Cap-2 Maneuver	-	-	-	-	-	-	298	263	-	293	257	-
Stage 1	-	-	-	-	-	-	626	620	-	519	500	-
Stage 2	-	-	-	-	-	-	585	492	-	740	599	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			1.9			15			16.7		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	298	693	1235	-	-	1190	-	-	293	388
HCM Lane V/C Ratio	0.184	0.087	0.011	-	-	0.079	-	-	0.064	0.034
HCM Control Delay (s)	19.8	10.7	7.9	-	-	8.3	-	-	18.1	14.6
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.7	0.3	0	-	-	0.3	-	-	0.2	0.1

MOVEMENT SUMMARY

 **Site: 3 [2025 PM With Project (Site Folder: BobOlson-Step toe-10th)]**

Bob Olson Parkway-Step toe Street-10th Avenue Intersection
 Site Category: Roundabout Intersection
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
East: 10th Avenue														
1a	L1	194	2.0	226	2.0	0.174	9.6	LOS A	0.7	18.8	0.39	0.67	0.39	34.5
16	R2	120	2.0	140	2.0	0.131	3.0	LOS A	0.5	13.2	0.40	0.45	0.40	30.7
Approach		314	2.0	365	2.0	0.174	7.1	LOS A	0.7	18.8	0.39	0.58	0.39	33.0
North: Steptoe Street														
7	L2	151	2.0	176	2.0	0.263	9.9	LOS A	1.6	41.7	0.46	0.59	0.46	32.0
14a	R1	458	2.0	533	2.0	0.263	3.7	LOS A	1.7	43.2	0.44	0.48	0.44	36.5
Approach		609	2.0	708	2.0	0.263	5.2	LOS A	1.7	43.2	0.44	0.51	0.44	35.3
SouthWest: Bob Olson Parkway														
5ux	U	1	2.0	1	2.0	0.199	13.4	LOS B	1.1	29.1	0.37	0.61	0.37	36.0
5ax	L1	314	3.0	365	3.0	0.199	9.5	LOS A	1.2	30.0	0.36	0.58	0.36	35.1
12ax	R1	164	3.0	191	3.0	0.199	3.3	LOS A	1.2	30.0	0.35	0.49	0.35	36.5
Approach		479	3.0	557	3.0	0.199	7.4	LOS A	1.2	30.0	0.36	0.55	0.36	35.6
All Vehicles		1402	2.3	1630	2.3	0.263	6.4	LOS A	1.7	43.2	0.40	0.54	0.40	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.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: PBS ENGINEERING AND ENVIRONMENTAL INC. | Licence: PLUS / 1PC | Processed: Thursday, January 21, 2021 10:09:38 AM

Project: L:\Projects\66000\66090\66090-005\Traffic\Documents\LOS\BobOlson-Step toe-10th.sip9

HCM 6th TWSC

4: 31st Pl & Bob Olson Pkwy

01/20/2021

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	278	62	50	307	0	37	0	41	0	0	0
Future Vol, veh/h	0	278	62	50	307	0	37	0	41	0	0	0
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	-	-	135	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	290	65	52	320	0	39	0	43	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	320	0	0	355	0	0	587	747	178	569	779	160
Stage 1	-	-	-	-	-	-	323	323	-	424	424	-
Stage 2	-	-	-	-	-	-	264	424	-	145	355	-
Critical Hdwy	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	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1237	-	-	1200	-	-	393	340	834	405	326	857
Stage 1	-	-	-	-	-	-	663	649	-	578	585	-
Stage 2	-	-	-	-	-	-	718	585	-	843	628	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1237	-	-	1200	-	-	380	325	834	371	312	857
Mov Cap-2 Maneuver	-	-	-	-	-	-	380	325	-	371	312	-
Stage 1	-	-	-	-	-	-	663	649	-	578	560	-
Stage 2	-	-	-	-	-	-	687	560	-	800	628	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			1.1			12.3			0		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	380	834	1237	-	-	1200	-	-	-
HCM Lane V/C Ratio	0.101	0.051	-	-	-	0.043	-	-	-
HCM Control Delay (s)	15.5	9.5	0	-	-	8.1	-	-	0
HCM Lane LOS	C	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0.2	0	-	-	0.1	-	-	-

HCM 6th TWSC

5: Sherman St & 33rd PI

01/20/2021

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	32	0	12	0	0	8	31	53	7	20	62	59
Future Vol, veh/h	32	0	12	0	0	8	31	53	7	20	62	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	50	2	2	2	2	2	2	3	2	2	4	2
Mvmt Flow	37	0	14	0	0	9	36	61	8	23	71	68
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	293	292	105	295	322	65	139	0	0	69	0	0
Stage 1	151	151	-	137	137	-	-	-	-	-	-	-
Stage 2	142	141	-	158	185	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.6	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	574	619	949	657	595	999	1445	-	-	1532	-	-
Stage 1	750	772	-	866	783	-	-	-	-	-	-	-
Stage 2	759	780	-	844	747	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	550	593	949	627	570	999	1445	-	-	1532	-	-
Mov Cap-2 Maneuver	550	593	-	627	570	-	-	-	-	-	-	-
Stage 1	731	760	-	843	763	-	-	-	-	-	-	-
Stage 2	732	760	-	818	735	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	11.3		8.6			2.6			1			
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1445	-	-	621	999	1532	-	-				
HCM Lane V/C Ratio	0.025	-	-	0.081	0.009	0.015	-	-				
HCM Control Delay (s)	7.6	0	-	11.3	8.6	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	0	-	-				

HCM 6th TWSC

6: Colorado Street & Bob Olson Pkwy

01/20/2021

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	361	78	0	329	14	46	0	0	8	0	8
Future Vol, veh/h	14	361	78	0	329	14	46	0	0	8	0	8
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	120	-	-	130	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	376	81	0	343	15	48	0	0	8	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	358	0	0	457	0	0	619	805	229	569	838	179
Stage 1	-	-	-	-	-	-	447	447	-	351	351	-
Stage 2	-	-	-	-	-	-	172	358	-	218	487	-
Critical Hdwy	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	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1197	-	-	1100	-	-	373	315	774	405	301	833
Stage 1	-	-	-	-	-	-	560	572	-	639	631	-
Stage 2	-	-	-	-	-	-	813	626	-	764	549	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1197	-	-	1100	-	-	366	311	774	401	297	833
Mov Cap-2 Maneuver	-	-	-	-	-	-	366	311	-	401	297	-
Stage 1	-	-	-	-	-	-	553	565	-	631	631	-
Stage 2	-	-	-	-	-	-	805	626	-	754	542	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	16.3	11.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	366	1197	-	-	1100	-	-	541
HCM Lane V/C Ratio	0.131	0.012	-	-	-	-	-	0.031
HCM Control Delay (s)	16.3	8	-	-	0	-	-	11.9
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.1