EXHIBIT LIST FOR SUB 2022-001/EA 2022-013
Preliminary Plat of Harvest Ridge

			DATED
Planning Commission Memo Exhibit List -June 21, 2022			
PCM 1 Includes:	PCM 1.1	Staff Report	June 13, 2022
	PCM 1.2	Site Map	April 27, 2022
	PCM 1.3	Notice of Public Hearing	June 3, 2022
		APPLICATION SUBMITTAL	
	PCM 1.4	Subdivision Application	April 11, 2022
	PCM 1.5	Plat Map	May 19, 2022
	PCM 1.6	Traffic Impact Analysis	March 1, 2022
	PCM 1.7	Preliminary Stormwater Report	April 27, 2021
	PCM 1.8	Geo Tech Study	June 14, 2021
	PCM 1.9	Summit View Water Works Service Letter	June 13, 2022
		SEPA INFORMATION	
	PCM 1.10	Environmental Checklist EA 2022-013	April 15, 2022
	PCM 1.11	Notice of Application	April 27, 2022
	PCM 1.12	Mitigated Determination of Non Significance	June 3, 2022
		COMMENTS	
	PCM 1.13	City of Richland - Public Works Comments	May 25, 2022
	PCM 1.14	Benton Franklin Health District	March 28, 2022
	PCM 1.15	Dept. of Transportation	May 18, 2022
	PCM 1.16	Benton PUD Comments	May 18, 2022
	PCM 1.17	Dept. of Ecology	May 17, 2022
	PCM 1.18	Benton Franklin Health District	May 17, 2022
	PCM 1.19	Benton Clean Air Agency	May 17, 2022
	PCM 1.20	Badger Mountain Irrigation District	May 17, 2022
	PCM 1.21	Benton County Public Works	May 11, 2022
	PCM 1.22	Benton County Fire Marshal	May 2, 2022
	PCM 1.23	Benton County GIS	April 29, 2022
	PCM 1.24	Benton County Public Works	May 12, 2022
	PCM 1.25	Benton County Public Works	May 17, 2022
Planning Commission Heairng Exhibit List - June 21, 2022			
PCH 1 Includes:	PCH 1.1		
	PCH 1.2		
	PCH 1.3		
	PCH 1.4		
	PCH 1.5		
Board of County Commissioners Memo Exhibit List - DATE			
BCCM 1 Includes:	BCCM 1.1		
	BCCM 1.2		
	BCCM 1.3		
	BCCM 1.4		

The Exhibit Numbers are found in the Top Right Hand Corner of each document.
PCM = Planning Commission Memo Exhibits
PCH = Planning Commission Hearing Exhibits
BCCM = County Commissioner Memo Exhibits

Community Development Department
Prosser Office: 620 Market Street, 1st Floor
Kennewick Office: 102206 East Wiser Parkway
www.co.benton.wa.us

Planning Division
(509) 786-5612
P.O. Box 910, Prosser, WA 99350
planning.department@co.benton.wa.us

PCM 1.1

STAFF REPORT TO THE BENTON COUNTY PLANNING COMMISSION

FILE NO:	**SUB 2022-001** **Preliminary Plat of Harvest Ridge Phase 2**
MEMO DATE:	June 13, 2022
HEARING DATE:	June 21, 2022
APPLICANT/: OWNER	Geoff Clark dba Candy Mountain, LLC PO Box 1307 Gig Harbor, WA 98335
LOCATION:	The site is located east of Interstate 82 and north of Reata Road on the west half of the north half of Lot 1 of the plat of the Ridge at Reata West Phase 1, in Section 5, Township 8 North, Range 28 East, W.M. in Richland, WA on parcel number 1-0588-402-0000-052.
PROPERTY SIZE:	Approximately 120.90 acres
AREA TO BE USED:	Approximately 105.62 acres
LAND USE:	Residential
COMP. PLAN:	Rural Transition
ZONING:	Rural Lands One Acre District
SUGGESTED STAFF RECOMMENDATION:	**Positive recommendation** subject to seven (7) findings of fact and nineteen (19) conditions of approval.

APPLICATION DESCRIPTION

The applicant has submitted a preliminary plat application (PCM 1.4) and map (PCM 1.5) to subdivide approximately 120.90 acres into 101 residential lots. The preliminary plat is known as Harvest Ridge Phase 2. The land is zoned Rural Lands One Acre District.

The average lot size in the development is approximately 1.04 acres and the lots are proposed to be served by new public roads, potable water from Badger Mountain Irrigation District, and individual septic systems.

The site is located east of Interstate 82 and north of Reata Road on west half of the north half of Lot 1 of the plat of the Ridge at Reata West Phase 1, in Section 5, Township 8 North, Range 28 East, W.M. in Richland, WA on parcel number 1-0588-402-0000-052.

PUBLIC NOTICE

1. A Notice of Application was published in the Prosser Record Bulletin on May 4, 2022 (PCM 1.11).
2. Planning Staff mailed out review packets to technical agencies on April 28, 2022.
3. A Notice of Public Hearing was published in the Prosser Record Bulletin on June 8, 2022 (PCM 1.3).
4. Property owners within 300 feet were mailed notice on April 28, 2022.
5. A SEPA Determination of Mitigated Non-Significance (MDNS) (PCM 1.12) was issued on June 3, 2022.

APPLICABLE STANDARDS/ORDINANCES

1. Comprehensive Plan: Benton County Comprehensive Plan.
2. SEPA: BCC, Title 6, Chapter 6.35 Environmental Policy.
3. Subdivision Code: BCC, Title 9, Subdivision Regulations.
4. Zoning Code: BCC, Title 11, Zoning Regulations.
5. Critical Area Ord.: BCC, Title 15, Critical Areas- BCC 15.02 - 15.14.
6. RCW 58.17: Plats and Subdivisions.
7. Planning Commission/Open Record Hearing:

   Pursuant to BCC 9.05.070, an open record hearing on the proposed subdivision shall be held before the Planning Commission. The Planning Commission shall consider all relevant information, including but not limited to:

   a. The staff report by the Planning Division,
   b. Any written comments or concerns expressed by other reviewing agencies,
   c. Oral and written testimony from persons present at the hearing; and

   If the Planning Commission finds that additional information is needed, the Planning Commission may continue the hearing for up to thirty-five (35) days or such longer period as agreed to by the applicant and direct that the additional information be gathered.

AGENCY COMMENTS

1. Benton County Planning Division: See the suggested findings of fact and conditions of approval for the Planning Division's comments and requirements.
2. Benton County Public Works Department: See comments dated May 11, 2022 (PCM 1.21).
3. City of Richland Public Works Department: See comments dated May 25, 2022 (PCM 1.13).

4. Washington State Department of Transportation: See comments dated May 18, 2022 (PCM 1.15).
5. Benton County Fire Marshal: See comments dated May 2, 2022 (PCM 1.22).
6. Badger Mountain Irrigation District: See comments dated May 17, 2022 (PCM 1.20).
7. Benton PUD: See comments dated May 18, 2022 (PCM 1.16).
8. Benton Clean Air Agency: See comments dated May 17, 2022 (PCM 1.19).
9. Summit View Water Works: See comments dated June 13, 2020 (PCM 1.9).
10. Benton Franklin Health District: See comments dated March 28, 2022 (PCM 1.14) and May 17, 2022 (PCM 1.18).
11. Washington State Department of Ecology: See comments dated May 17, 2022 (PCM 1.17).
12. Benton County GIS Department: See comments dated April 29, 2022. (PCM 1.23).

CRITERIA FOR FINDINGS OF FACT

1. Pursuant to **BCC 9.05.080, Consideration of Preliminary Subdivision**, the Benton County Planning Commission, after conducting an open record hearing and considering all information presented, shall forward a recommendation to the Board of County Commissioners regarding whether the preliminary plat be approved, approved with conditions, or denied as proposed. Prior to making any recommendation, the Planning Commission shall make the following written findings:
    a. That the proposed subdivision conforms to the Benton County Comprehensive Plan, any applicable zoning requirements and other applicable land use controls;
    b. That the County Engineer, or designee, has provided a written representation that the proposed subdivision provides adequate means of access and conformance with the road and drainage requirements of Benton County;
    c. That the proposed subdivision meets the requirements of BCC 9.05;
    d. That the public interest will be served by the proposed division and dedication;
    e. That appropriate provisions are made for the public health, safety, and general welfare, for open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water, sanitary wastes, parks and recreation, playgrounds, schools, school grounds, and sidewalks;
    f. That the Benton-Franklin Health District and Badger Mountain Irrigation District have reviewed the proposed subdivision for compliance with their rules and regulations and has not expressed objection to the proposed subdivision; and
    g. If any portion of the proposed subdivision is located within an irrigation district, that the applicant has complied with RCW 58.17.310 as it now exists or is hereafter amended.

2. RCW 58.17.110 (1)(2)(3). Approval or disapproval of subdivision - factors to be considered-conditions of approval.

RECOMMENDATION

Benton County Planning staff will assist the Planning Commission with the determination of findings and conditions for the preliminary plat of Harvest Ridge Phase 2 - File Number SUB 2022-001.

The Benton County Planning Division recommends that the Planning Commission forward a **recommendation of approval** to the Benton County Board of Commissioners for the application SUB 2022-001, with the following suggested findings of fact, conditions of approval, and motion.

SUGGESTED FINDINGS OF FACT:

1. The proposed subdivision (PCM 1.4 application and PCM 1.5 preliminary plat map) conforms to the Benton County Comprehensive Plan, any applicable zoning requirements and other applicable land use controls;
    a. The proposed use is in conformance with the intent of the Comprehensive Plan based on the following facts:
        i. The 120.90-acre site is bordered on the east and west by land zoned Rural Lands One Acre District, on the south by land zoned Urban Growth Area Residential, and on the north by Richland city limits.
        ii. The Benton County Comprehensive Plan designates this area as Rural Transition with a 1-acre minimum lot size. The property is zoned Rural Lands One Acre (RL-1). The preliminary plat complies with the minimum lot size and minimum average lot width required for the RL-1 Zoning District;
        iii. The GMA requires counties to include a rural element in their comprehensive plans to permit appropriate land uses that are compatible with the rural character of such lands and provide for a variety of rural densities. This element has been incorporated as a part of the land use element of the County's plan;
        iv. Rural Transition is designated for infill development in areas that are in close proximity to UGAs and have experienced steady growth in the last decade. The intent of the Rural Transition designation is to enable rural residential living in conjunction with providing a transition area between the rural and urban environments, and potentially suitable for future inclusion into UGAs. Maximum allowable density in this land use category is 1 DU/acre;
        v. The smallest lot size is 1.00 acre and the average lot size for this plat is 1.04 acres;
        vi. This development is consistent with the required minimum lot size and density standards contained in the Benton County Comprehensive Plan; and

vii. The creation of 101 residential lots in the RL-1 Zoning District furthers the implementation of the Benton County Comprehensive Plan.

b. The proposed plat is consistent with the applicable zoning requirements of the Benton County Code, Title 11, based on the following facts:

   i. The property is zoned Rural Lands One Acre (RL-1). The preliminary plat complies with the minimum lot size and minimum average lot width required for the RL-1 Zoning District.

c. The proposed subdivision does comply with the requirements of the Benton County Code, Title 9, Subdivision Regulations;

   i. The proposed subdivision complies with the purpose and preliminary plat requirements included in BCC 9.05 Subdivision - Preliminary Plat.

d. The proposed subdivision complies with the Benton County Critical Area Ordinance BCC Title 15.

   i. Upon completion of a review of BCC Title 15 and the Benton County Critical Area Maps, no critical areas were identified on the property.

   ii. The proposed plat is not located in a special flood hazard area as identified on the Federal Emergency Management Agency Flood Insurance Rate Maps and BCC 3.26.

e. The requirements of the State Environmental Policy Act have been met based on the following:

   i. The proposed subdivision has been reviewed under the requirements of BCC Title 6, Chapter 6.35 and the State Environmental Policy Act.

   ii. During the SEPA comment period the following comments were received:

      1. City of Richland required per the applicant's traffic impact analysis report the development to share in the cost of a new roundabout at the Leslie/Reata intersection. Further the City agrees with the proposed pedestrian connectivity between the Harvest Ridge Phase 2 and West Village Phase 5 and 6 plats;

      2. Washington State Department of Ecology is requesting the applicant obtain a NPDES Construction Stormwater General Permit;

      3. Benton Clean Air Agency has required that fugitive dust emissions be controlled onsite and that a written dust control plan be in place prior to ground disturbing activities; and

      4. State of Washington Department of Transportation required the construction of a six-foot tall fence along the I-82 right-of-way boundary and mitigation of stormwater and surface runoff.

   iii. An MDNS with mitigation/conditions (PCM 1.12) was issued for the project on June 3, 2022.

2. The County Engineer has provided a written representation that the proposed subdivision provides adequate means of access and conformance with the road and drainage requirements of Benton County;
    a. Reference the Benton County Public Works Department comments as it relates to stormwater and drainage easements (PCM 1.21); and
3. The proposed subdivision meets the requirements BCC 9 Subdivision Regulations;
    a. The proposed subdivision complies with the purpose and preliminary plat requirements included in BCC 9.05 Subdivision- Preliminary Plat;
4. The public interest will be served by the proposed division and dedication;
    a. The creation of 101 residential lots in the RL-1 Zoning District furthers the implementation of the Benton County Comprehensive Plan; and
    b. Benton County standards are to be complied with, including the construction and dedication of the new public roads.
5. Appropriate provisions are made for the public health, safety, and general welfare, for open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water, sanitary wastes, parks and recreation, playgrounds, schools, school grounds, and sidewalks;
    a. Appropriate provisions have been made for the public health and safety based on the following facts:
        i. The applicant has proposed that the preliminary plat be served by Badger Mountain Irrigation District for potable water, individual septic systems and irrigation water to be provided by Summit View Water Works;
        ii. The Benton Franklin Health District and Badger Mountain Irrigation District have reviewed the preliminary plat and have no objections provided water is provided by Badger Mountain Irrigation District and sanitary services are provided by individual septic systems; and
        iii. The Benton County Fire Marshal has required fire hydrants to be installed.
    b. Appropriate provisions have been made for open spaces based on the following facts:
        i. The proposed subdivision does not contain land to be designated for open space.
    c. Appropriate provisions have been made for drainage ways based on the following facts:
        i. PBS Engineering and Environmental Inc. prepared a preliminary stormwater drainage report for the applicants of Harvest Ridge dated April 27, 2021 (PCM 1.7). The report discusses the provisions made for both offsite and onsite stormwater as it relates to this property and the proposed development; and

ii. Reference the Benton County Public Works Department comments as it relates to stormwater and drainage easements (PCM 1.21).

d. Appropriate provisions have been made for streets or roads, alleys, and other public ways based on the following facts:

i. The public interest will be served by the proposed division and dedication as the Benton County Public Works Department road standards are to be complied with including the construction and dedication of new public roads; and

ii. Reference the Benton County and City of Richland Public Works Department comments as it relates to road and mitigation requirements (PCM 1.13 and PCM 1.21).

e. Appropriate provisions have been made for transit stops based on the following facts:

i. Ben Franklin Transit did not comment on transit service for the proposed development. The proposed plat and surrounding area are not served by public transit.

f. Adequate provisions have been made for potable water supplies based on the following facts:

i. The project is located in the Lower Yakima Watershed, WRIA 37;

ii. Potable water is proposed to be served by Badger Mountain Irrigation District. BMID has submitted comments stating that it has sufficient capacity within the water distribution system to provide these services; and

iii. The Benton Franklin Health District has no objections provided an off-site public water supply and onsite sewage disposal systems are provided to all future development in the plat.

g. Adequate provisions have been made for sanitary waste based on the following facts:

i. The Benton Franklin Health District has no objections to individual septic systems which are proposed to serve the lots.

h. Adequate provisions have been made for parks, recreation, and playgrounds based on the following facts:

i. The proposed subdivision does not contain land to be designated for parks or recreation. The Benton County Code does not require park dedications; however, the development is located adjacent to the City of Richland and landowners will have access to city parks in the general area.

i. Appropriate provisions have been made for schools and school grounds and for sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school based on the following facts:

i. The proposed plat is within the Kennewick School District. The School District did not provide comments on this proposal as to whether there are adequate provisions to assure safe walking conditions for students who walk to and from school or waiting for school buses; however, the developer has provided sidewalk easements throughout the plat.

6. The applicable water/sanitary system agency has reviewed the proposed subdivision for compliance with its rules and regulations and has not expressed objection to the proposed subdivision; and
   a. Badger Mountain Irrigation has reviewed the application and indicated that it has no objection to the 101 lots connecting to BMID potable water if construction plans are approved by the Washington State Department of Health.
7. This plat is not within an irrigation district however, irrigation water is proposed to be served by a private water system, Summit View Water Works, and the applicant has complied with RCW 58.17.310 as it now exists or is hereafter amended.

SUGGESTED CONDITIONS OF APPROVAL:

1. Applicant shall meet and comply with the requirements of the **Benton County Public Works Department**, including the following:
   a. The developer shall provide a complete set of engineered construction drawings for review and approval by the County and associated utilities. The drawings shall contain all appropriate information listed on the attached Minimum Plan Requirements. Grading plan will include grading to shape any drainage easements to route and fully contain all runoff based upon the 100-year storm within the easement limits. All plans and associated reports shall be prepared by a Professional Engineer licensed to practice in the State of Washington.
   b. All construction shall be in accordance with the most current WSDOT Standard Specifications for Road, Bridge and Municipal Construction, applicable Benton County Standard Plans and the requirements of the County Engineer.
   c. All roads within this plat shall have a paved width of 24 feet with a minimum 2-foot gravel shoulder. Roadways shall be designed for a minimum 25 mile per hour design speed.
   d. The pavement return radius at all intersections shall be a minimum of 35 feet.
   e. All stormwater from the roadways shall be contained on the plat and shall utilize surface infiltration (ditches, swales, ponds) for detention. The developer shall have an infiltration test performed at each proposed detention area. Tests shall be done with an infiltrometer using the falling head or constant head method. Other methods of infiltration rate determination shall be approved by the County.
   f. The developer shall provide a complete stormwater runoff report developed in accordance with the Stormwater Management Manual for Eastern Washington

accosting for all impervious and pervious surfaces draining to the roadside ditches. Design storm shall be a Modified SCS Type IA with a 25-year return frequency.

g. All signage including but not limited to stop signs, speed limit signs and street name signs shall be installed by the developer in accordance with Benton County Standard Plans.

h. All new power, telephone, cable TV and irrigation shall be installed outside of the County right of way in the appropriate easements. Domestic water piping may be installed within the County right of way in accordance with a valid franchise agreement.

i. Survey monuments, with cases and covers per Benton County Standard R-14B, shall be placed at all road intersections, points of curvature, points of tangency, centers of cul-de-sacs, section corners and quarter corners. All monuments shall be set by a Professional Land Surveyor licensed to practice in the state of Washington.

j. The 6' sidewalk easement shall be paved with cement concrete to match phase 1.

k. Provide cross walks for the sidewalk at every road crossing.

l. Mitigate the pathway/sidewalk crossing over the County ditch.

m. Approval of final plat is contingent on the construction of the City Road A in the BMS-South Orchard subdivision, and access to E Reata Road.

n. Lots 22 and 21 shall have a joint access. This access shall be paved as a condition of plat approval using Benton County Standard R-4 (urban local access cross section).

o. The joint access on lot 21 & 22 shall be perpendicular to Harvest Ridge.

Add the following notes to the face of the final plat:

p. Benton County is not responsible for the maintenance or upkeep of any stormwater retention facility or drainage easements. All such maintenance and upkeep are the responsibility of the underlying property owner.

q. Road approaches shall not be permitted directly across roadway tee intersections.

r. Prior to the construction of any driveway or the issuance of any building permit for any lot within this subdivision the property owner shall obtain a Road Approach Permit from the Benton County Public Works Department and install the required temporary construction access.

s. No trees, shrubs, weeds, fencing or other obstructions more than 24 inches in height are permitted within Benton County right of way.

t. Property owners that install grass, curbing, rock mulch or other landscaping within the County right of way do so at their own risk. The County will not repair or replace damaged landscaping due to construction or maintenance operations.

u. Property owners with sidewalk abutting their property shall be responsible for the maintenance of said sidewalk.

v. Lots 24, 33, 50, 60, 75, 90, 98, 105, 106, 113, 114, 121, 122, 129,130, 133, 135, 141 and 143 shall not have direct access to Harvest Ridge Loop.

w. For more information, please contact Cristina Woods at 509-786-5611 or Cristina.Woods@co.benton.wa.us.

2. Applicant shall meet and comply with the requirements of the **City of Richland**, including the following:

a. The City of Richland Public Works Department has reviewed the updated traffic impact analysis (TIA) for Badger Mountain South (BMS) subarea dated February 16, 2022, and the replacement pages that followed. The TIA for the Badger Mountain South subarea includes the Harvest Ridge development in its overall trip generation and distribution calculation. The mitigation proposed within the Harvest Ridge TIA (dated March 1, 2022) for offsite intersections is a roundabout or signal at Leslie/Reata intersection and cul-de-sac of Arena Road at Dallas Road.

b. The Dallas/Arena intersection lies within the City of West Richland, so the City of Richland will not comment on the mitigation or proportional share other than it is the desire of West Richland to cul-de-sac Arena Road to avoid intersection failures at Dallas Road and Kennedy Road. Arena Road is a desirable cut-through, but signal or roundabout mitigation would introduce undesired coordination issues the

c. Dallas/Bombing Range/Kennedy intersection and the Kennedy/Keene Intersection.

d. The Leslie/Reata intersection lies within City of Richland. Mitigation proposed in both the Badger Mountain South TIA and the Harvest Ridge TIA is proposed as a roundabout or signal. As expressed in the Badger Mountain South TIA comments, the City's recommended mitigation is a roundabout with lane configurations requiring modification from the TIA proposed roundabout design. The City concurs with the pro-rata share of 1.6% for the Harvest Ridge development. The City expects the developer to work with the City to produce a mitigation agreement that will establish their share of the cost this improvement.

e. We agree with pedestrian connectivity that is proposed through the 20' walking trail easements adjacent to Lots 12, 13, 20, and 21. The developer should provide an adequate connection to the sidewalk at the road stubs on the south side of the West Village Phase 5 and 6 plats and not terminate the walking trail at the roadway.

f. Please contact Carlo D'Alessandro at 509- 942-7500 for more information.

3. Applicant shall meet and comply with the requirements of the **Washington State Department of Transportation**, including the following:

a. The subject property is adjacent to Interstate 82 (I-82), a full control limited access facility with a posted speed limit of 70 miles per hour. WSDOT has acquired all access rights to the highway from the abutting properties. Direct access to I-82 is prohibited.

b. I-82 is an existing facility, and the applicant is proposing a more noise-sensitive land use. The proponent and future residents should be aware this is an area with

existing traffic noise. They should also expect traffic noise to continue to grow into the future. Further, as an essential public facility, I-82 may need to be expanded to accommodate future traffic growth. It is the developer's responsibility to dampen or deflect any traffic noise for this development.

c. This residential subdivision adjacent to I-82 increase the likelihood of safety concerns with children and pets. For the safety and security of I-82, the proponent is required to construct a minimum six-foot-tall fence on their property along the interstate right-of-way. The existing WSDOT fence typically lies one foot inside our boundary and must not be altered or moved without prior WSDOT approval.

d. Stormwater and surface runoff generated by this project must be retained and treated on site. Any discharge into I-82 right-of-way will require an approved WSDOT Utility Permit.

e. Any proposed lighting must be directed down towards the site and away from I-82.

f. Please contact Jacob Prilucik at 509-225-0637 for more information.

4. Applicant shall meet and comply with the requirements of the **Benton Franklin Health District**. The BFHD has reviewed the short plat proposal and finds that it generally meets their requirements for plats utilizing on-site sewage systems with an off-site public water supply.

   a. The extension to the Badger Mountain Irrigation District must be developed and approved in accordance with WAC 246-290.

   b. All lots shall have a minimum of a ½ acre in size and contain a minimum of 20,000 square feet of usable land area.

   c. All wells, irrigation lines, canals, and surface waters within 150ft of the plat are shown on the plat map.

   d. Prior to final approval, a long plat final review fee (Code 54.37 for $200) must be submitted to this office for the final walk-through review of the plat for compliance with Benton-Franklin Health Department Rules and Regulations No. 2, and WAC 246-272A, and issue appropriate comments to the Benton County Planning Department.

   e. Prior to the issuance of any onsite sewage disposal permits, additional test holes may be required to verify acceptable area for initial and replacement sewage disposal system and design criteria such as trench depth on each lot.

   f. It is recommended that some provision be made to facilitate future connection to a municipal sewer utility at such time as said utility becomes available.

   g. The following statement is placed on the plat:

      i. "This plat appears to have suitable conditions for the use of on-site sewage disposal systems. However, because of the nature of the testing methods used, we have no way of determining whether each lot can comply with Benton-Franklin Board of Health Rules and Regulation at the time of permit issuance.

Further be advised this department's approval of any lot within this plat for the use of on-site sewage disposal systems may be contingent upon that lot passing additional soil inspections, percolation tests, and/or other requirements at a later date."

h. Please contact Rebecca Warrington at 509-460-4335 for more information.

5. Applicant shall meet and comply with the requirements of the **Benton PUD** including the following:
   a. Benton PUD will need to coordinate with the City of Richland with a request to utilize a portion of their 55' easement along I-82.
   b. PUD requires a 10' utility easement along the property line between Lots 28 and 29.
   c. For more information, please contact Tina Glines at 509-582-1241.
6. Applicant shall meet and comply with the requirements of the **Benton County Fire Marshal** including the following:
   a. Prior to preliminary plat approval, the applicant shall submit to the Benton County Fire Marshal a letter from the water purveyor addressing its willingness and ability to satisfy the requirements of this chapter.
   b. Prior to final plat approval, the following shall be required:
      i. Water system plans and specifications which comply with these regulations must be designed and stamped by a registered, professional engineer licensed in the State of Washington. Said plans shall be signed by the purveyor and shall be filed with the Benton County Fire Marshal and the Department of Health.
      ii. Water system plans shall be approved in writing by the Benton County Fire Marshal.
      iii. The approved water system shall be installed prior to final plat approval, or a statement shall be placed on the plat indicating no building or Manufactured Home/FAS installation permit will be issued until the water system is installed, operating, and approved.
      iv. Two (2) copies of the "as built" drawings must be filed with the Benton County Fire Marshal.
   c. When the distribution system is installed, said installation must be under the direction of a registered, professional engineer licensed in the State of Washington who shall certify the construction of the system is in accordance with the approved design.
   d. Written approval from the Benton County Fire Marshal that the system is operating to specifications shall be submitted.
   e. Water mains shall meet the standards of Benton County Code 3.18.035.
   f. Fire hydrants shall meet the standards of Benton County Code 3.18.036.

g. Location of hydrants shall be determined by the Benton County Fire Marshal. The location of all water mains, fire hydrants, and valves to be installed shall be properly and accurately marked on identifiable plans or drawings. Two (2) copies of all plans or drawings shall be furnished to the Benton County Fire Marshal.

h. Fire hydrant spacing shall meet the standards of Benton County Code 3.18.037.

i. Fire hydrants maintenance shall comply with Benton County Code 3.18.038.

j. Minimum fire flow requirements shall comply with Benton County Code 3.18.039.

k. Purveyor requirements shall comply with Benton County Code 3.18.040.

l. Please contact the Benton County Fire Marshal, Clark Posey, at (509) 735-3500 or Clark.Posey@co.benton.wa.us for more information.

7. Applicant shall meet and comply with the requirements of the **Department of Ecology**, including the following:

a. If the 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: 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.

b. If the applicant plans to use water for dust suppression at your project site, be sure that they have a legal right. In Washington State, prospective water users must obtain authorization from the Department of Ecology before diverting surface water or withdrawing ground water, with one exception. Ground water withdrawals of up to 5,000 gallons per day used for single or group domestic supply, up to 5,000 gallons per day used for industrial purposes, stock watering, and for the irrigation of up to one-half acre of non-commercial lawn and garden are exempt from the permitting process. Water use under the RCW 90.44.050 exemption establishes a

water right that is subject to the same privileges, restrictions, laws and regulations as a water right permit or certificate obtained directly from Ecology.

Temporary permits may be obtainable in a short time-period. The concern of Water Resources is for existing water rights. In some instances, water may need to be obtained from a different area and hauled in or from an existing water right holder.

If you have any questions or would like to respond to these Water Resources comments, please contact Christopher Kossik at (509) 454-7872 or email at christopher.kossik@ecy.wa.gov.

8. Applicant shall meet and comply with the requirements of the **Badger Mountain Irrigation District** which will be providing potable water to the development.
    a. Construction plans will need to be approved by the Washington State Department of Health before BMID can approve and move forward with the plan. The BMID Water System Plan is in the process of being approved.
    b. If you have any questions or need more information, please call BMID at 509-628-0777.
9. Applicant shall meet and comply with the requirements of the **Benton County Planning Division**, including the following:
    a. The applicant shall meet and comply with the SEPA Determination for this application, including the MDNS with mitigation/conditions issued by the Planning Division on June 3, 2022 (PCM 1.12).
        i. City of Richland Public Works recommendation as outlined in their letter dated May 25, 2022 (PCM 1.13);
        ii. Washington State Department of Ecology recommendation as outlined in their letter dated May 17, 2022 (PCM 1.17);
        iii. Benton Clean Air Agency recommendation as outlined in their letter dated May 17, 2022 (PCM 1.19); and
        iv. State of Washington Department of Transportation recommendation as outlined in their letter dated May 18, 2022 (PCM 1.15).
    b. The applicant shall meet and comply with the recommended mitigation measures identified in the Transportation Impact Analysis prepared by Transportation Engineering NorthWest dated March 1, 2022 (PCM 1.6).
    c. The applicant shall meet and comply with the recommended design and project compliance, stormwater system design, proposed erosion control plan and proposed maintenance plan identified in the Preliminary Storm Drainage Report prepared by PBS Engineering and Environmental Inc. dated April 27, 2021 (PCM 1.7).
    d. Per BCC 9.09.030(p) Development - Estate Fencing; double frontage lots are discouraged. To mitigate for this, an estate type fence or a 3-rail traditional ranch

type fence shall be constructed along the following locations prior to final plat approval:

i. The east parcel line of Lots 57 and 56 adjacent to future city of Richland ROW.

ii. The west parcel line of Lot 142.

e. Please revise the lot configuration of Lots 21 and 22 and/or the 20' walking trail easement as the County discourages the use of flag lots and the 20' walking trail easement further encroaches on the limited access.

f. Please show the following roads on the plat map:

i. Haystack Street from Lot 98-103;

ii. Harvest Ridge Loop's double connection to the future City of Richland street.

g. Please update the potable water supply to reflect: Badger Mountain Irrigation District.

h. Please amend the reference to the adjacent interstate on the plat vicinity map to read "I-82."

i. Upon review of the proposed road names, Market Street will need to be renamed. Please submit three proposed road names for the road section to be reviewed and approved by the County prior to final plat.

j. The applicant shall work with Benton County GIS to show the temporary addresses on the final plat map.

k. Show the location, name, right-of-way widths, and type of surfacing of all streets located within and adjacent to the land to be subdivided on the plat map.

l. Indicate any areas within the plat having a slope of fifteen (15) percent or greater.

m. Please ensure there is a subdivision title block located in the bottom right-hand corner of the final plat map.

n. Please include the following signatures blocks on the final plat:

i. Owner/Notary

ii. Chairman of the Benton County Board of County Commissioners

iii. Chairman of the Benton County Planning Commission

iv. Benton County Engineer

v. City of Richland Public Works

vi. Benton PUD

vii. Benton-Franklin Health District

viii. Badger Mountain Irrigation District

ix. Summit View Water Works

x. Benton County Treasurer

xi. Benton County Assessor

o. The following notes shall be placed on the final plat:

i. "During construction on each property, all construction debris shall be maintained on-site and properly disposed of. Dust control measures including an adequate water supply shall be provided".

ii. "Address numbers [noted in brackets] are subject to change until the exact location of access onto the short plat is determined."

iii. "The utility easements shown hereon are hereby granted for the use, access and maintenance by the short-platted property's current utility provider. Said utility easements are for the use, access and maintenance of electric power, telephone, cable and any other defined utilities to and or through said tract."

iv. "Prior to the granting of a building or factory assembled (FAS) permit for each lot by the County, the applicant for a building or FAS permit must provide evidence of potable water from Badger Mountain Irrigation District services."

v. "This short plat is not located within an irrigation district; however, irrigation water is provided by Summit View Water Works."

vi. "I-82 is an existing facility, and the approval of this subdivision proposes a more noise-sensitive land use. Future residents should be aware this is an area with existing traffic noise. It should also be expected for traffic noise to continue to grow into the future, and, as an essential public facility, I-82 may need to be expanded to accommodate future traffic growth."

10. Preliminary plat approval shall be effective for 5 (five) years from the date of Board of County Commissioner approval. Exceptions shall comply and approved subject to the provisions of BCC 9.05.110 (e) as currently existing or hereafter amended.

11. Any amendments to an approved preliminary plat must be completed in accordance with BCC 9.05.140 as currently existing or hereafter amended.

12. Prior to the final plat being reviewed for final approval, the requirements of the Benton County Planning Division, Benton County Fire Marshal, Benton County Engineer, Benton Franklin Health District, and other commenting agencies and conditions shall be met and complied with.

13. Final Plat applications shall be submitted to the Planning Division. An applicant shall submit a final plat application that follows BCC 9.07 - Final Plat standards and requirements, as currently existing or hereafter amended:

14. All lots in the final plat shall meet the design standards for final plat approval as specified in Benton County Code 9.09 - Design and Improvements, as currently existing or hereafter amended, and meet all of the zoning requirements as specified in Benton County Code, Title 11 - Zoning, as currently existing or hereafter amended.

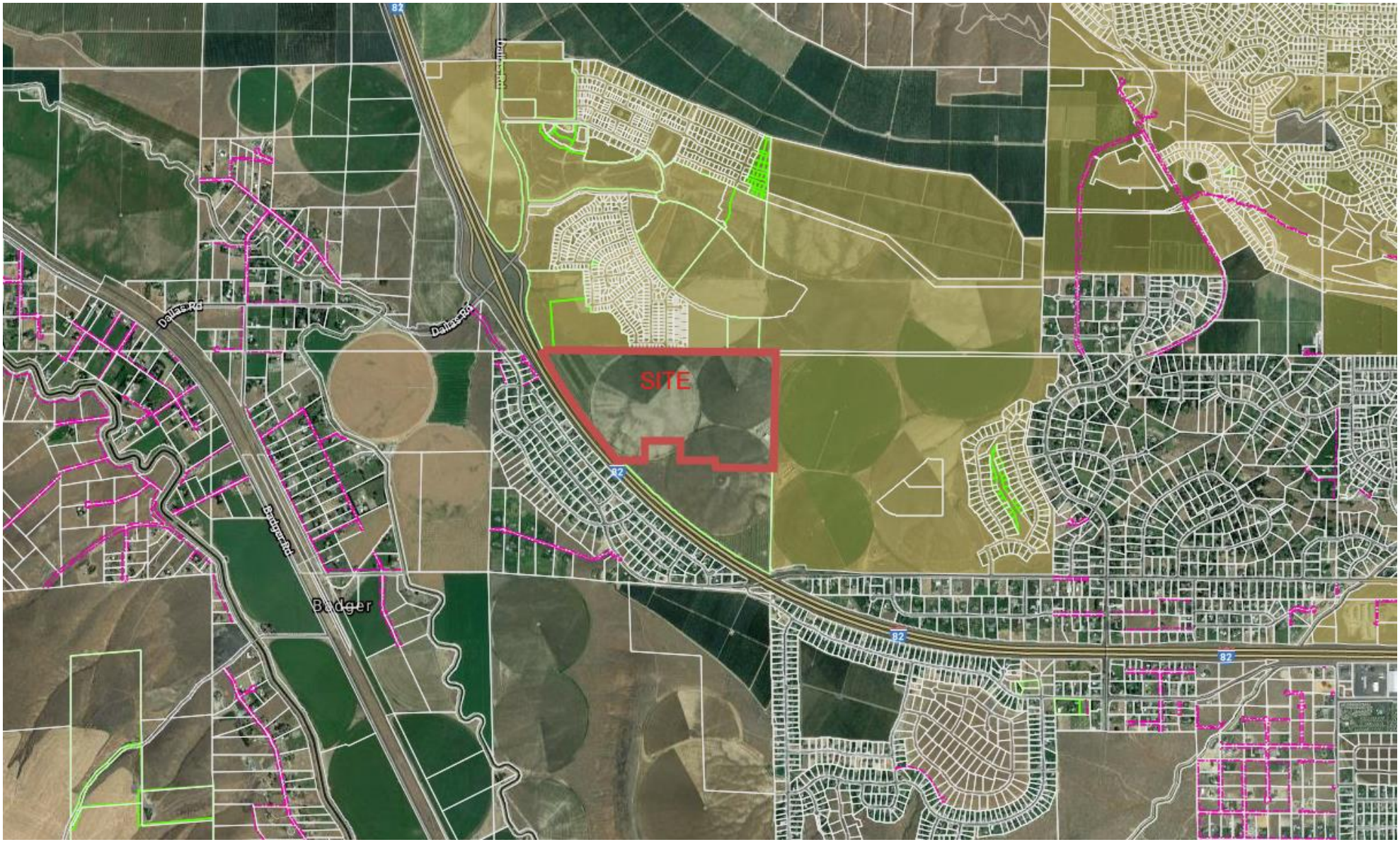
15. The location and size of all irrigation and utility easements necessary for electric power, telephone service, water, sewer and cable TV are to be coordinated with the proper utilities and/or reviewing agencies and shown on the final plat. The developer will need to open the utility trenches, including road crossings, based on individual utility requirements and specifications.
16. Address numbers shall be coordinated with the Benton County GIS Department and placed on the final plat. Addresses [noted in brackets] are subject to change until the exact location of the dwelling and access onto the plat is determined.
17. The applicant shall coordinate with the Post Office regarding centralized box unit (CBU) locations for the development, if necessary.
18. All of the statements that are required to be on the notes of the plat shall be either: 1) recorded as a restrictive covenant on each applicable parcel with the County Auditor, or 2) described in detail in the developer's covenants that are recorded and provided to each lot owner, prospective landowner, and the Planning Division at the time of final plat approval and recording.
19. That the preliminary plat is modified in all necessary respects so that the final plat will reflect the requirements of approval. If the final plat will be in conflict with any of the conditions of approval as adopted by the Planning Commission as a result of the modifications, then the final plat must be reviewed by the Planning Commission at a public meeting for approval prior to sending the final plat to the Board of County Commissioners.

SUGGESTED MOTION:

The Planning Commission forwards a **recommendation of approval** to the Benton County Board of Commissioners for Application SUB 2022-001/EA 2022-013, subject to the seven (7) findings of fact and nineteen (19) conditions of approval as stated in the staff memo (PCM 1.1) dated June 13, 2022, which includes the preliminary plat approval for 101 residential lots and that the Chairman, in conjunction with the Secretary of the Planning Commission, prepare and adopt written findings and conclusions reflecting the commission's recommendation for approval that articulate and are consistent with the findings, conclusions and recommendations made by the Planning Commission tonight.

PCM 1.2

SUB 2022-001/EA 2022-013 Harvest Ridge Phase 2
April 27, 2022



P M 5 19 22

PCM 1.5

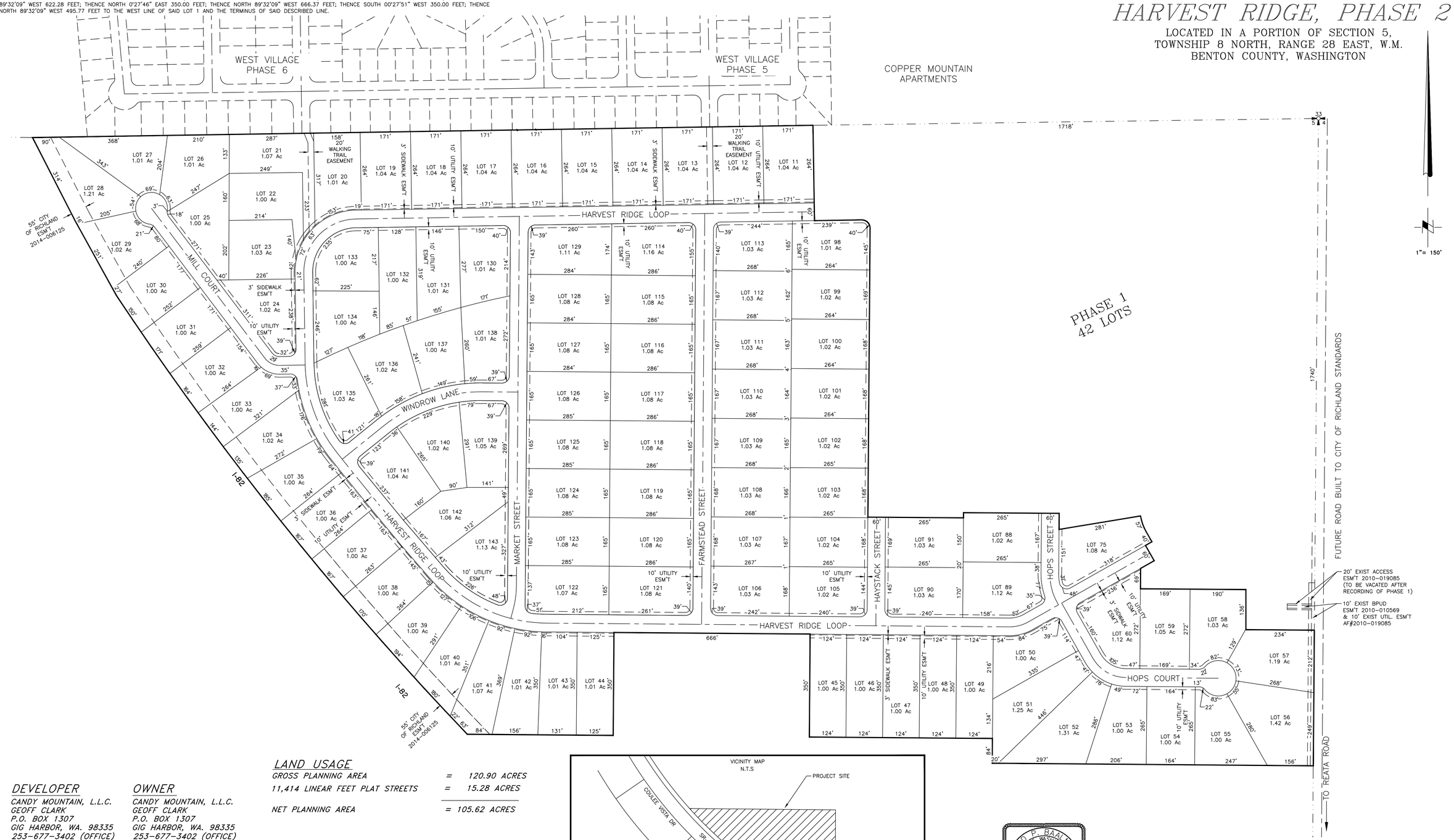
PRELIMINARY PLAT OF HARVEST RIDGE, PHASE 2

LOCATED IN A PORTION OF SECTION 5,
TOWNSHIP 8 NORTH, RANGE 28 EAST, W.M.
BENTON COUNTY, WASHINGTON

LEGAL DESCRIPTION

THAT PORTION OF LOT 1, PLAT OF THE RIDGE AT REATA WEST PHASE 1, ACCORDING TO THE SURVEY THEREOF RECORDED UNDER AUDITOR'S FILE NUMBER 2012-034163, RECORDS OF BENTON COUNTY, WASHINGTON, SITUATE IN SECTION 5, TOWNSHIP 8 NORTH, RANGE 28 EAST, WILLAMETTE MERIDIAN, LYING NORTHERLY OF THE FOLLOWING DESCRIBED LINE:

BEGINNING AT THE NORTHEAST CORNER OF SAID LOT 1 (SAID POINT BEING THE NORTHEAST CORNER OF SAID SECTION 5); THENCE SOUTH 00°27'45" WEST 2200.66 FEET ALONG THE EAST LINE OF SAID LOT 1 TO THE TRUE POINT OF BEGINNING; THENCE NORTH 89°32'10" WEST 1090.85 FEET; THENCE NORTH 00°27'46" EAST 84.01 FEET; THENCE NORTH 89°32'09" WEST 622.28 FEET; THENCE NORTH 0°27'46" EAST 350.00 FEET; THENCE NORTH 89°32'09" WEST 666.37 FEET; THENCE SOUTH 00°27'51" WEST 350.00 FEET; THENCE NORTH 89°32'09" WEST 495.77 FEET TO THE WEST LINE OF SAID LOT 1 AND THE TERMINUS OF SAID DESCRIBED LINE.



LAND USAGE

GROSS PLANNING AREA	=	120.90 ACRES
11,414 LINEAR FEET PLAT STREETS	=	15.28 ACRES
NET PLANNING AREA		= 105.62 ACRES

105.62 ACRES X 43560 SQ. FT. / 101 LOTS = 45,485 SQ. FT. = 1.04 ACRES AVERAGE LOT SIZE

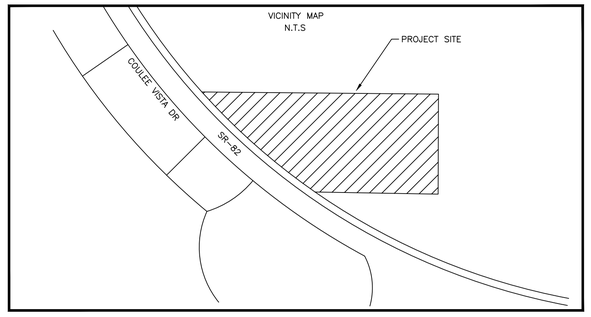
1.42 ACRES LARGEST LOT (56)

1.00 ACRES SMALLEST LOT (37)

ZONING = RURAL LANDS 1

WATER SUPPLY = SUMMIT VIEW WATER WORKS

SEWAGE DISPOSAL = INDIVIDUAL SEPTIC SYSTEMS



DEVELOPER

CANDY MOUNTAIN, L.L.C.
GEOFF CLARK
P.O. BOX 1307
GIG HARBOR, WA. 98335
253-677-3402 (OFFICE)
253-265-3163 (FAX)

OWNER

CANDY MOUNTAIN, L.L.C.
GEOFF CLARK
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PREPARED BY

ROGERS SURVEYING INC.
1455 COLUMBIA PARK TRAIL-STE 201
RICHLAND, WASHINGTON 99352
509-783-4141 (OFFICE)
509-783-2994 (FAX)

DAVID P. BAALMAN STATE OF WASHINGTON 41028 REGISTERED PROFESSIONAL LAND SURVEYOR

PRELIMINARY

150 75 0 150 300 450
SCALE IN FEET

RSI ROGERS SURVEYING INC., P.S.
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www.rogerssurveying.com

Community Development Department
Prosser Office: 620 Market Street, 1st Floor
Kennewick Office: 102206 East Wiser Parkway
www.co.benton.wa.us

Planning Division
(509) 786-5612
P.O. Box 910, Prosser, WA 99350
planning.department@co.benton.wa.us

PCM 1.3

NOTICE OF PUBLIC HEARINGS

NOTICE OF HEARINGS BEFORE THE BENTON COUNTY PLANNING COMMISSION in the matter of county planning at a special meeting on June 21, 2022, at 6:00 p.m., via **in person and virtual meeting format in the Meeting Room on the first floor of the Courthouse, 620 Market Street, Prosser WA. The entry to the meeting room is located off Main Street on the East side of the Courthouse.** To find information on virtual attendance options, including streaming video, WebEx video conferencing and telephone, please visit www.tinyurl.com/BCPublicNotice.

NOTICE IS HEREBY GIVEN that public comment will be taken on the following proposed applications before the Planning Commission at this meeting.

ZC 2022-004 - A proposal by Vicki Brock, requesting a change in the zoning designation from Heavy Industrial to Rural Lands 5 Acre on six parcels located north of E Cochran Rd and east of S Finley Rd in the Finley rural area of unincorporated Benton County, in the northwest Quarter of Section 23, Township 8 North, Range 30 East, W.M. on parcel #'s 123802012006001, 123802012006002, 123802012157001, 123802012157002, 123802000014000, and 123802000017000.

ZC 2022-005 - A proposal by Thomas Fisher and Randall Underwood requesting a change in the zoning designation from Rural Lands 5 Acre to Light Industrial on three (3) contiguous parcels located north of SR 397 and west of S Yew Street, east of the Kennewick City Limits in Sections 5 & 8, Township 8 North, Range 30 East, W.M. parcel #'s 105803012350003, 105803012350002, and 108801020004003.

ZC 2022-006 - A proposal by Jerritt Wiser requesting a change in the zoning designation from Interchange Commercial to Light Industrial on seven (7) parcels located off Wiser Loop and Wiser Parkway in Section 11, Township 8 North, Range 28 East, W.M. parcel #'s 111881020000007 through 111881020000012 and 111881020000014.

NOTICE IS FURTHER GIVEN that the proposed zone change applications have been reviewed under the requirements of the State Environmental Policy Act and Determinations of Non-Significance (DNS) were issued on January 27, 2022. Accordingly, Environmental Impact Statements were not required on any of these proposals. Any comments regarding these determinations and the environmental impacts of the proposals can be made at the Planning Commission Hearing using the method noted below or in writing to the Benton County Planning Division by 3 p.m. on Friday June 17, 2022.

SUB 2022-001 - The preliminary plat of Harvest Ridge Phase 2 the subdivision of approximately 120.90 acres into 101 residential lots with an average lot size of 1.04 acres by Geoff Clark dba Candy Mountain, LLC. The site is located east of Interstate 82 and north of Reata Road on west half of the north half of Lot 1 of the plat of the Ridge at Reata West Phase

1, in Section 5, Township 8 North, Range 28 East, W.M. in Richland, WA on parcel number 1-0588-402-0000-052.

SUB 2022-002 - The preliminary plat of Cottonwood Creek Phase 4 by Badger Properties II for the subdivision of approximately 25.58 acres into 13 residential lots with an average lots size of 1.72 acres. The site is located west of E Badger Road and south of Wiser Parkway on Lot 34 of the plat of the Cottonwood Creek Phase 2, in Section 11, Township 8 North, Range 28 East, W.M. in Kennewick, WA on parcel number 1-1188-303-0000-034.

NOTICE IS FURTHER GIVEN that the proposed subdivision applications have been reviewed under the requirements of the State Environmental Policy Act and Mitigated Determinations of Non-Significance (MDNS) were issued on June 3, 2022. Accordingly, Environmental Impact Statements were not required on any of these proposals. Any comments regarding these determinations and the environmental impacts of the proposals can be made at the Planning Commission Hearing using the method noted below or in writing to the Benton County Planning Division by 3 p.m. on Friday June 17, 2022.

Comments regarding the proposed amendments or SEPA determinations of the proposals may also be submitted in writing to the Benton County Planning Division; P.O. Box 910, Prosser, WA 99350 or via email to planning.department@co.benton.wa.us. No individual with a disability shall be denied the benefit of participating in such meetings. If you wish to use auxiliary aids or require assistance to comment at a public meeting, please contact the Benton County Planning Division at least ten days prior to the meeting date to make arrangements for special needs.

At this hearing, the Planning Commission may recommend approval, or disapproval of the proposals to the Benton County Board of Commissioners. All parties concerned may present any support or objections for the applications. Information concerning the applications can be obtained at the Benton County Planning Division, by calling 736-3086 (Tri-Cities) or 786-5612 (Prosser) or by visiting www.tinyurl.com/BCPublicNotice.

Dated this 3rd day of June 2022.

Martin Sheeran, Chairman
Benton County Planning Commission

Michelle Cooke, Manager
Planning Division

PUBLISH: June 8, 2022

BENTON COUNTY PRELIMINARY PLAT APPLICATION

File No. SUB 2022-001

RECEIVED
APR 11 2022
Benton Co. Planning Dept.

Subdivision Name: Harvest Ridge Ph.2

1. Applicant Name: Geoff Clark
   Applicant Address: PO Box 1307 Gig Harbor, WA 98335
   Telephone number: Home _____ Work 325-677-3402

2. If you wish to be contacted via email, please list your email address: _____
   thefourcs@comcast.net

3. Legal Owners Name: Candy Mountain LLC
   Legal Owners Address: _____
   Telephone number: Home _____ Work _____

4. Name and address of land surveyor David Baalman, PLS Rogers Surveying Inc
   _____
   Telephone 509-783-4141

5. Name and address of engineer _____
   _____
   Telephone _____

6. Parcel number and Legal description of property included in the preliminary plat:
   1-0588-1402-0000-001 52
   See face of prelminary plat for legal description

7. **Land Use Information:**
   a. Total area involved 120.90 AC
   b. Total number of lots 101
   c. Smallest lot area 1.00 AC
   d. Average lot area 1.05 AC

IF YOU HAVE ANY ADDITIONAL COMMENTS PLEASE ATTACH THEM ON A SEPARATE SHEET OF PAPER.

I also certify that the information given in this application is true and complete to the best of my knowledge.

Signature Block for individuals only.

Applicant's Signature	Print Name	Date
Signature of Legal Owners	Print Name	Date
Signature of Person with additional ownership interest	Print Name	Date

ALL persons with an ownership interest in the property on which the land use action is proposed must sign the application other than interests exclusively limited to ownership of the parcel's mineral rights.

If the applicant or owner is a corporation/partnership/LLC etc. please use the following signature block. Please copy this page if more than one corporation/partnership/LLC signature is required.

Applicant or legal owner: Candy Mountain LLC

By: Kirk A. Rathbun, Managing Member
(print name) (Title)

Signature: [signature], Managing Member
(Signature) (Title)

The above signed officer of CANDY MOUNTAIN LLC (name of entity) warrants and represents that all necessary legal and corporate actions have been duly undertaken to permit KIRK A. RATHBUN to submit this application and that the above signed officer has been duly authorized and instructed to execute this application.

Any information submitted to the Benton County Planning Department is subject to public records disclosure law for the State of Washington (RCW Chapter 42.17) and all other applicable law that may require the release of the documents to the public.

FEE: $1,000.00, plus $50.00 per lot submitted with the application. Checks are to be **made payable to the Benton County Treasurer. THIS FEE IS NON-REFUNDABLE. THE RECORDING FEE IS TO BE PAID AT THE TIME OF RECORDING.**

FOR OFFICIAL USE ONLY:

Critical Area Review Completed by _____ on _____.

Application approved for processing by _____ on _____

Zoning _____Comp Plan Designation_____

PCM 1.6

Harvest Ridge Residential

Benton County, WA

Traffic Impact Analysis

March 1, 2022

Prepared for:

Candy Mountain, LLC
PO Box 1308
Gig Harbor, WA 98335

Prepared by:

TENW

Transportation Engineering NorthWest

11400 SE 8th Street, Suite 200
Bellevue, WA 98004
T: (425) 889-6747

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FINDINGS/CONCLUSIONS

This Traffic Impact Analysis (TIA) has been prepared for the proposed Harvest Ridge residential project located northeast of Interstate 82 (I-82) and southwest of the Badger Mountain South subarea in Benton County, WA.

Project Description. The proposed Harvest Ridge residential project would include the development of 143 single-family dwelling units on a site that is currently vacant. The project is anticipated to be constructed in two phases with full buildout anticipated by the end of 2023.

Vehicular access to the proposed project would be provided via two (2) full access driveways on the future Unnamed North/South Road within the Badger Mountain site. At the time of anticipated project buildout in 2023, the Unnamed North/South Road is assumed to only provide access to/from Reata Road to the south. However, it should be noted that with future phases of Badger Mountain South (BMS), the Unnamed North/South Road will connect to Bella Coola Lane and Trowbridge Blvd to the north which will provide access to/from Dallas Road to the west and the future Gage Boulevard Extension to the east (by 2040).

Trip Generation. The proposed Harvest Ridge residential project is estimated to generate 1,402 weekday daily trips, with 103 trips occurring during the AM peak hour (27 entering, 76 exiting) and 139 trips occurring during the PM peak hour (88 entering, 51 exiting).

Intersection Level of Service (LOS). Weekday AM and PM peak hour LOS analyses were conducted at twelve (12) off-site study intersections for future year 2025 conditions. The all-way stop controlled and roundabout study intersections and all controlled movements at the unsignalized study intersections are anticipated to operate at LOS D or better during the weekday AM and PM peak hours in 2025 with or without the proposed Harvest Ridge project with exception to the following:

- Dallas Road / Arena Road (#2) – the side-street stop-controlled westbound approach is anticipated to operate at LOS F during the PM peak hour with or without the Harvest Ridge project. Harvest Ridge is estimated to add 17 AM peak hour trips (2.2% of total entering traffic volume) and 26 PM peak hour trips (2.2% of total entering traffic volume) to this intersection. The City of Richland has identified an improvement project to dead end Arena Road as a cul-de-sac just east of Dallas Road. As a result, the Dallas Road / Arena Road intersection would be a three-leg unsignalized intersection with the west leg of Arena Road stop-controlled and Dallas Road free-flow. Traffic currently using Arena Road between Dallas Road and Kennedy Road would be re-routed to use the Dallas Road / Kennedy Road intersection. This improvement project would be expected to improve the future LOS at the Dallas Road / Arena Road intersection to LOS D or better.
- Dallas Road at Ava Way (#3), I-82 WB Ramps (#5), and I-82 EB Ramps (#6) – the side-street stop-controlled approaches at these three intersections along Dallas Road are anticipated to operate at LOS F during the AM and/or PM peak hours with or without the Harvest Ridge project. Improvements at these three intersections could include either a roundabout or signal and are expected to be constructed by the BMS development by 2025. As a roundabout or a signal, these three intersections are anticipated to operate at LOS D or better in 2025 with or without the Harvest Ridge residential development.
- Leslie Road / Reata Road (#10) – the side-street stop-controlled eastbound left-turn is anticipated to operate at LOS F during the AM and PM peak hours with or without the

Harvest Ridge project. Harvest Ridge is estimated to add 25 AM peak hour trips (1.6% of total entering traffic volume) and 32 PM peak hour trips (1.6% of total entering traffic volume) to this intersection. Future improvements at this intersection could include either a roundabout or signal. As a roundabout or a signal, this intersection is anticipated to operate at LOS D or better in 2025 with or without the Harvest Ridge residential development.

- Badger Road / I-82 WB Ramps (#11) – the side-street stop-controlled westbound approach (the westbound off-ramp) is anticipated to operate at LOS F during the AM and PM peak hours with or without the Harvest Ridge project. Benton County has identified a roundabout at this intersection on their 2022-2027 Six-Year Transportation Improvement Program (TIP). As a roundabout, this intersection is anticipated to operate at LOS D or better in 2025 with or without the Harvest Ridge project.

Mitigation. To mitigate impacts of the proposed Harvest Ridge residential project on roadways and intersections in the project vicinity, a proportionate share contribution towards future improvements at the following intersections could be considered:

- Dallas Rd / Arena Rd (#2) – The City of Richland has identified an improvement project to dead end Arena Road as a cul-de-sac just east of Dallas Road. This improvement project would be expected to improve the future LOS at the Dallas Road / Arena Road intersection to LOS D or better. Harvest Ridge is estimated to have a 2.2% contribution at this intersection.
- Leslie Road / Reata Road (#10) – Future improvements at this intersection could include either a roundabout or signal. As a roundabout or a signal, this intersection is anticipated to operate at LOS D or better in 2025 with or without the Harvest Ridge residential development. Harvest Ridge is estimated to have a 1.6% contribution at this intersection.

INTRODUCTION

This Traffic Impact Analysis (TIA) has been prepared for the proposed Harvest Ridge residential project located northeast of Interstate 82 (I-82) and southwest of the Badger Mountain South subarea in Benton County, WA. A project vicinity map is provided in Figure 1.

Project Description

The proposed Harvest Ridge residential project would include the development of 143 single-family dwelling units on a site that is currently vacant. The project is anticipated to be constructed in two phases with full buildout anticipated by the end of 2023. A preliminary site plan is included in Figure 2.

Vehicular access to the proposed project would be provided via two (2) full access driveways on the future Unnamed North/South Road within the Badger Mountain site. At the time of project buildout in 2023, the Unnamed North/South Road is assumed to only provide access to/from Reata Road to the south. However, it should be noted that with future phases of Badger Mountain South (BMS), the Unnamed North/South Road will connect to Bella Coola Lane and Trowbridge Blvd to the north which will provide access to/from Dallas Road to the west and the future Gage Boulevard Extension to the east (by 2040).

Project Approach

The specific scope items used in the evaluation of traffic impacts for the proposed Harvest Ridge residential were confirmed through scoping discussions with Benton County staff. To analyze the transportation impacts from the proposed Harvest Ridge residential project, the following tasks were undertaken:

- Assessed existing conditions through field reconnaissance and reviewed existing planning documents.
- Described existing roads, pedestrian facilities, and transit facilities in the project vicinity.
- Documented existing (2022) traffic volumes and intersection level of service (LOS) at the following twelve (12) study intersections during the weekday AM and PM peak hours:
    1. Dallas Rd / Kennedy Rd
    2. Dallas Rd / Arena Rd
    3. Dallas Rd / Ava Way
    4. Dallas Rd / Trowbridge Blvd
    5. Dallas Rd / I-82 Westbound Ramps
    6. Dallas Rd / I-82 Eastbound Ramps
    7. Dallas Rd / Reata Rd
    8. Unnamed North/South Rd / Reata Rd *(future intersection)*
    9. Gage Blvd / Reata Rd *(future intersection)*
    10. Leslie Blvd / Reata Rd
    11. Badger Road / I-82 Westbound Ramps
    12. Badger Road / I-82 Eastbound Ramps
- Documented planned roadway improvements in the project vicinity.

- Developed weekday daily, AM peak hour, and PM peak hour trip generation estimates based on the proposed land use.
- Documented trip distribution and assignment of AM and PM peak hour project-generated trips.
- Documented weekday AM and PM peak hour traffic forecasts and assumptions for future year 2025 conditions without and with the proposed project.
- Analyzed weekday AM and PM peak hour LOS for future year 2025 conditions without and with the project at the study intersections.
- Identified improvements to mitigate impacts of the project onto the adjacent street system.

Primary Data and Information Sources

- Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition, 2021.
- Peak Hour traffic counts from WSDOT, the City of Richland, and All Traffic Data, 2019-2022.
- *Highway Capacity Manual (HCM), 6th Edition*.
- Benton County *2022-2027 Six Year Transportation Improvement Program (TIP)*.
- City of Richland *2022-2027 Six Year Transportation Improvement Program (TIP)*.
- *Benton Franklin Council of Governments (BFCG) 2021-2024 Transportation Improvement Program (TIP)*
- WSDOT *2022-2025 Statewide Transportation Improvement Program (STIP)*.
- Benton County Comprehensive Plan, February 2018, updated June 2021.
- WSDOT Synchro and SimTraffic Protocol.
- Benton Franklin Council of Governments traffic modeling.
- Ben Franklin Transit webpage, <www.bft.org>, February 2022.

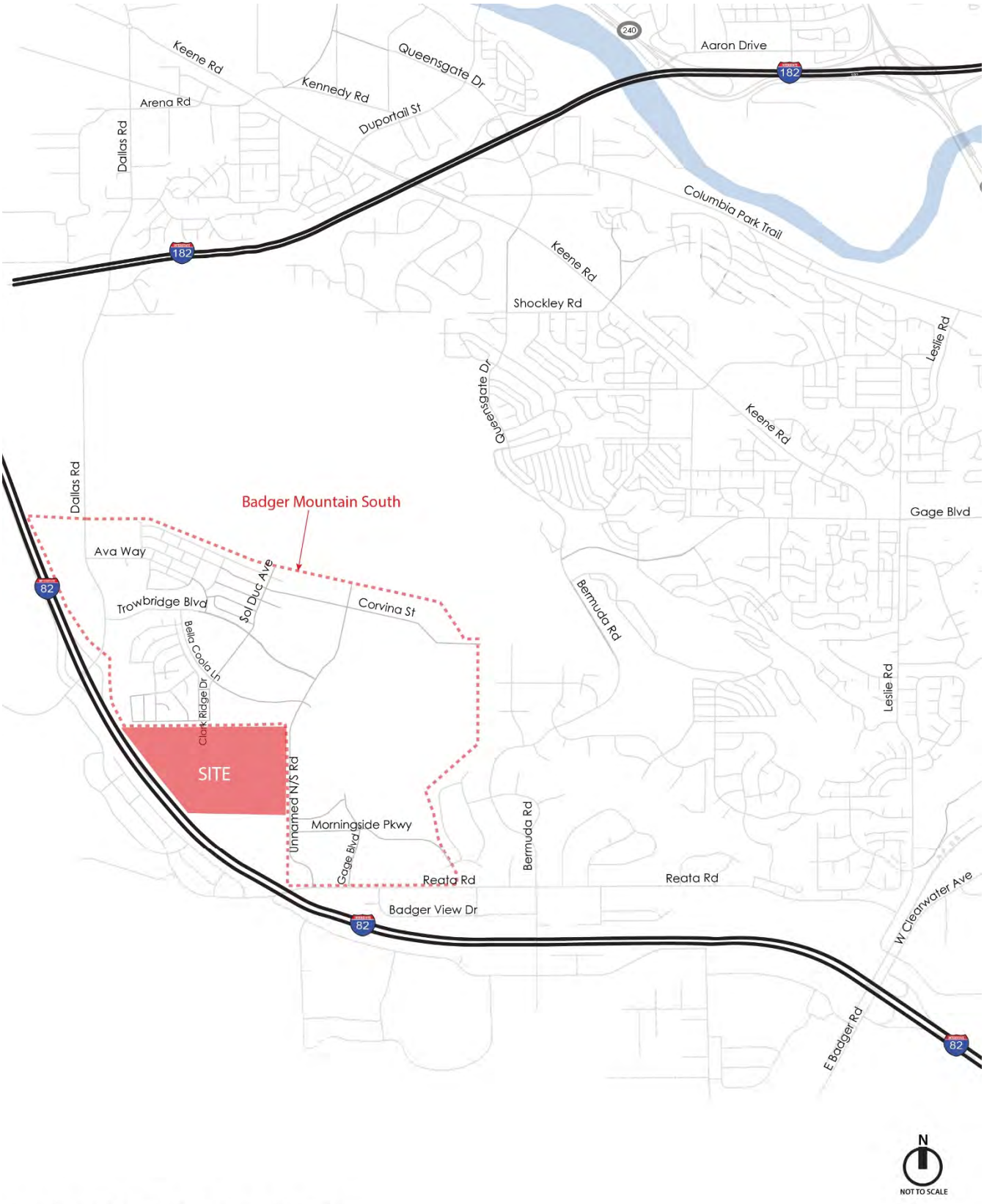


Figure 1: Project Site Vicinity

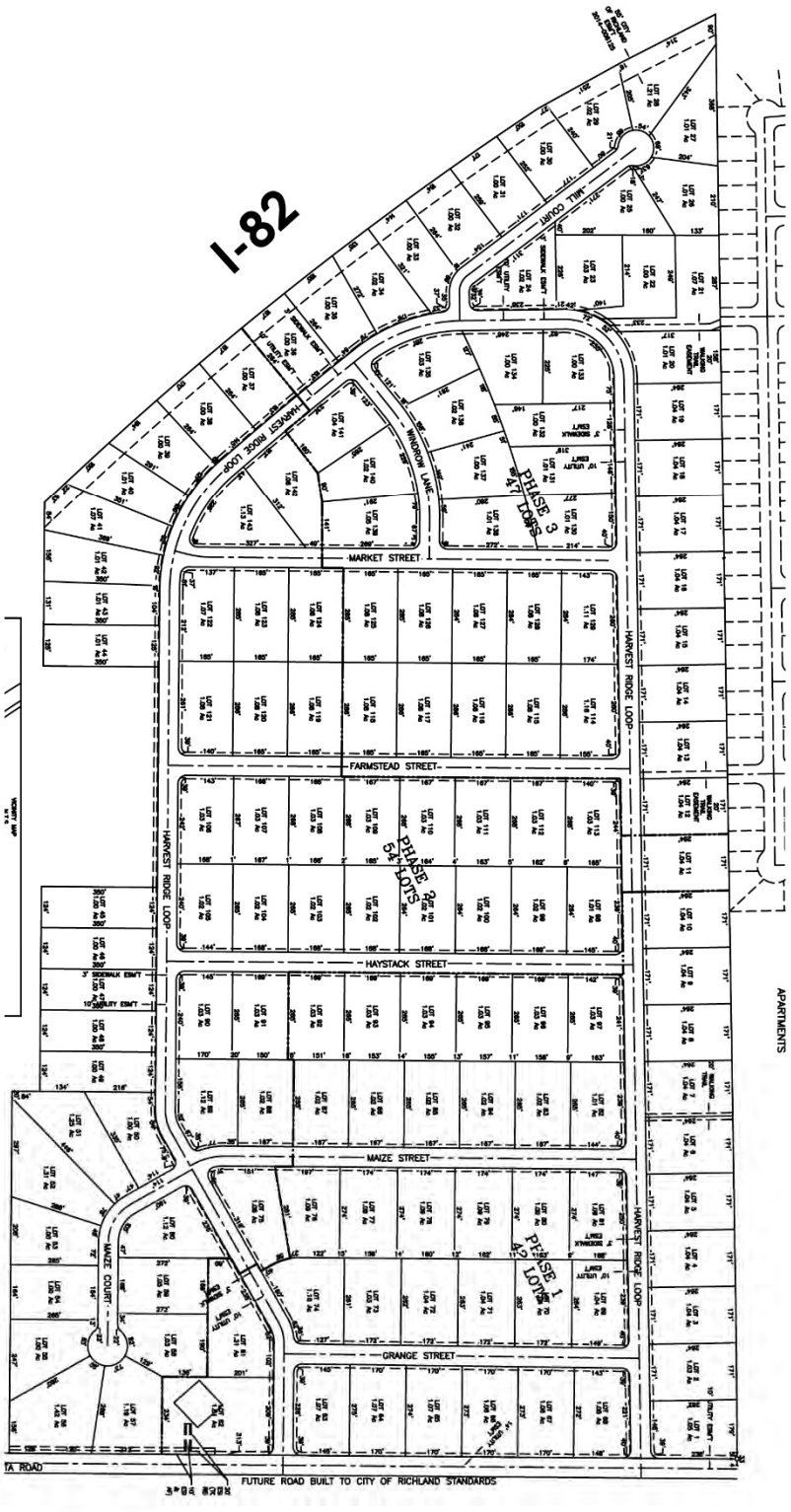


Figure 2: Preliminary Site Plan

EXISTING CONDITIONS

Roadway Network

Table 1 describes the existing characteristics of the streets that would be used as primary routes to and from the site. Roadway characteristics are described in terms of orientation, arterial classification, posted speed limits, number of lanes, paved shoulders, and pedestrian facilities. The relationship of these roadways to the project site is shown in Figure 1.

Table 1
Existing Study Area Roadway Network

Roadway	Orientation	Existing Functional Classification	# of Travel Lanes	Posted Speed Limit (mph)	Parking	Sidewalks	Bicycle Facilities
Interstate 82 (I-82)	EW	Interstate	4	70	No	No	None
Dallas Rd	N/S	Minor Arterial	2	35/50	No	No	None
Trowbridge Blvd	E/W	Minor Arterial	2-4	30	No	Intermittent	None
Ava Way	E/W	Major Collector	2	25	No	Intermittent	None
Kennedy Rd	E/W	Major Collector	2	40	No	Intermittent	None
Reata Rd	E/W	Major Collector	2	40	No	No	None
Gage Blvd	E/W	Minor Arterial	2-5	30-40	No	Intermittent	Bike Lanes on Both Sides east of Leslie
Leslie Rd	N/S	Minor Arterial	2+	35	No	Intermittent	Bike Lanes on Both Sides
Badger Rd	N/S	Major Collector	2-5	50	No	East side south of Clearwater /Leslie roundabout	No

+ includes center two-way left-turn lane (TWLTL)

The following describes the primary roads providing access to the proposed Harvest Ridge residential project in more detail.

Interstate 82 (I-82) is an east-west limited access freeway that connects I-90 in central Washington I-84 in Oregon. In the project vicinity, I-82 consists of two travel lanes in each direction with a posted speed limit of 70 mph (60 mph for trucks). Paved shoulders exist on both sides of the highway. In the vicinity of Badger Mountain there is an interchange with I-82 at E Badger Rd (Exit 109), an interchange with I-82 at Dallas Road (Exit 104) and an interchange with I-82 at I-182 (Exit 102). The I-82 interchange at Dallas Rd provides primary access to the project site.

Dallas Road is a north-south major collector consisting of two lanes (one in each direction) and a posted speed limit of 35 to 50 mph. Dallas Road provides access to the project site from its interchange with I-82. Paved shoulders exist on both sides of the roadway.

Gage Blvd is an east-west minor arterial consisting of two lanes in each direction with a center two way left turn lane. Gage Blvd connects the commercial area of Kennewick to residential Richland.

The posted speed is 30 mph and sidewalks exist on both sides of the roadway east of Keene Road. A future planned extension will connect Gage Blvd to Reata Road through the Badger Mountain South site.

Reata Road is an east-west major collector consisting of two lanes (one in each direction) and a posted speed limit of 40 mph. Gravel shoulders exist on both sides of the roadway. Reata Road provides a connection between Dallas Road and Leslie Road and will provide the primary access to the proposed Harvest Ridge project until the future BMS internal roadway network is completed.

Non-Motorized Facilities

Pedestrian facilities in the immediate project vicinity include intermittent sidewalks on the north side of Ava Way, a paved pedestrian path on the southern side of Ava Way, and a paved pedestrian path on the south side of Trowbridge Blvd. The Badger Mountain Trailhead Park Loop, Canyon Trail, Langdon Trail, Sagebrush Trail and Skyline Trail are located directly north of the project site and are protected trails for pedestrians and bicycles. Other pedestrian facilities include curb ramps and crosswalks at the majority of the study intersections. There are no designated bicycle lanes in the immediate vicinity of the site.

Transit Service

Transit service in the vicinity of the proposed Harvest Ridge residential site is provided by Ben Franklin Transit (BFT). There is no existing transit service in the vicinity of the Harvest Ridge project site.

Existing Traffic Volumes

Existing (2022) peak hour traffic volumes at the existing study intersections were based on AM and PM peak hour counts collected in November 2020 or January 2022. The AM peak hour represents the highest one-hour time period between 7:00 and 9:00 AM and the PM peak hour represents the highest one-hour time period between 4:00 and 6:00 PM (standard ITE-defined peak period). The detailed peak hour traffic count sheets are included in Appendix A.

The existing November 2020 traffic counts were collected during the COVID-19 pandemic and reflected lower than normal traffic volumes. Consistent with the *Badger Mountain South Traffic Impact Analysis* (TENW, May 14, 2021), to estimate "normal" 2020 existing traffic volumes for non-COVID conditions, the November 2020 traffic counts at the study intersections were increased by 25 percent during the AM peak hour and 15 percent during the PM peak hour.

To estimate year 2022 existing "normal" traffic volumes, an annual background growth rate of 3 percent was applied to the 2020 existing "normal" traffic volumes. The annual background growth rate was calculated by comparing year 2016 and year 2018 average daily traffic (ADT) volumes provided by the City of Richland in the project vicinity. The volumes and calculations (included in Appendix B) showed an average annual background growth rate of 2.5 percent, so the annual background growth rate was conservatively estimated to be 3 percent.

The resulting "normal" 2022 existing weekday AM and PM peak hour traffic volumes at the study 10 existing study intersections are illustrated in Figure 3 and Figure 4, respectively. It should be noted that 2 of the 12 study intersections will be future intersections with the development of the Harvest Ridge project and Badger Mountain South.

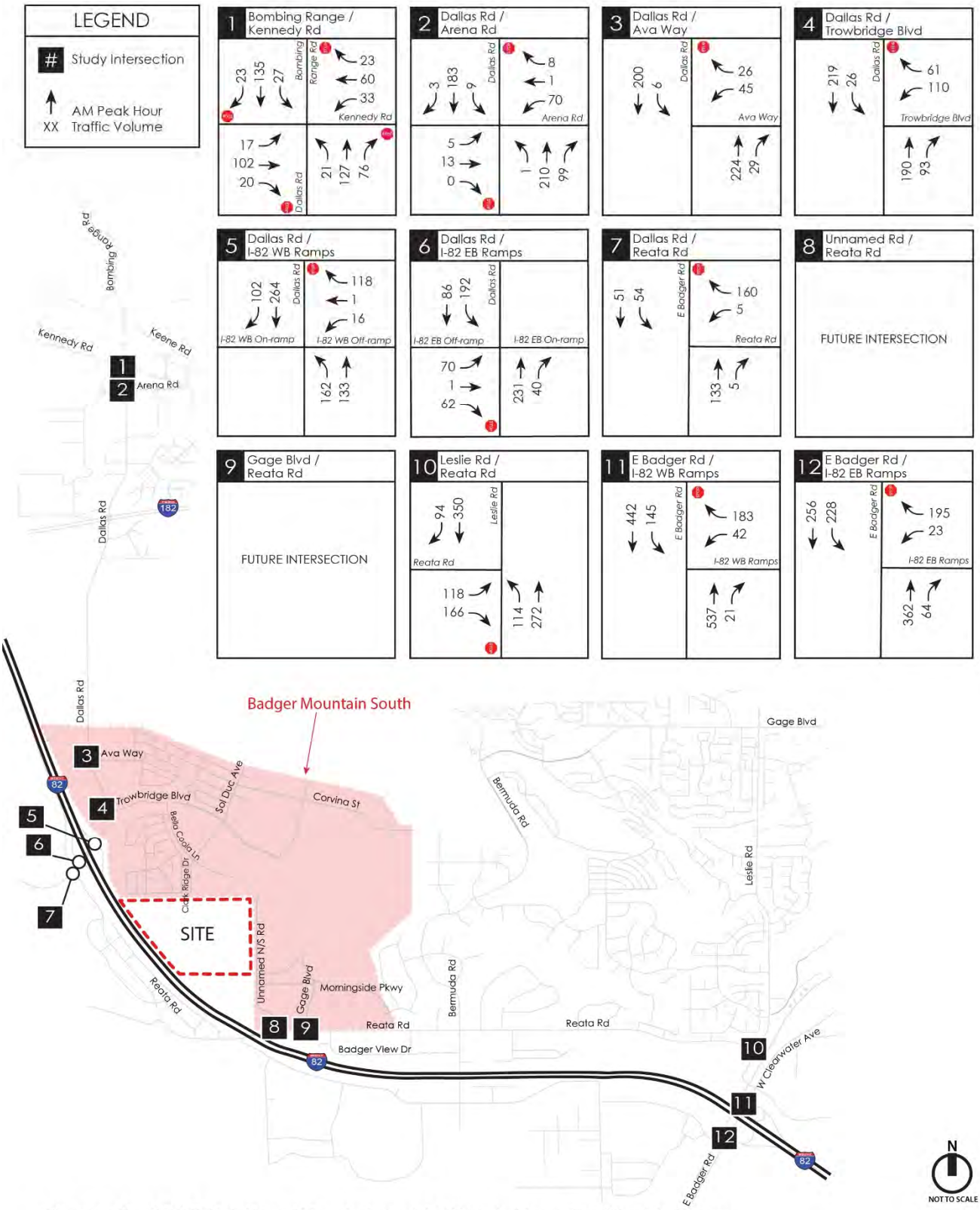


Figure 3: 2022 Existing Weekday AM Peak Hour Traffic Volumes

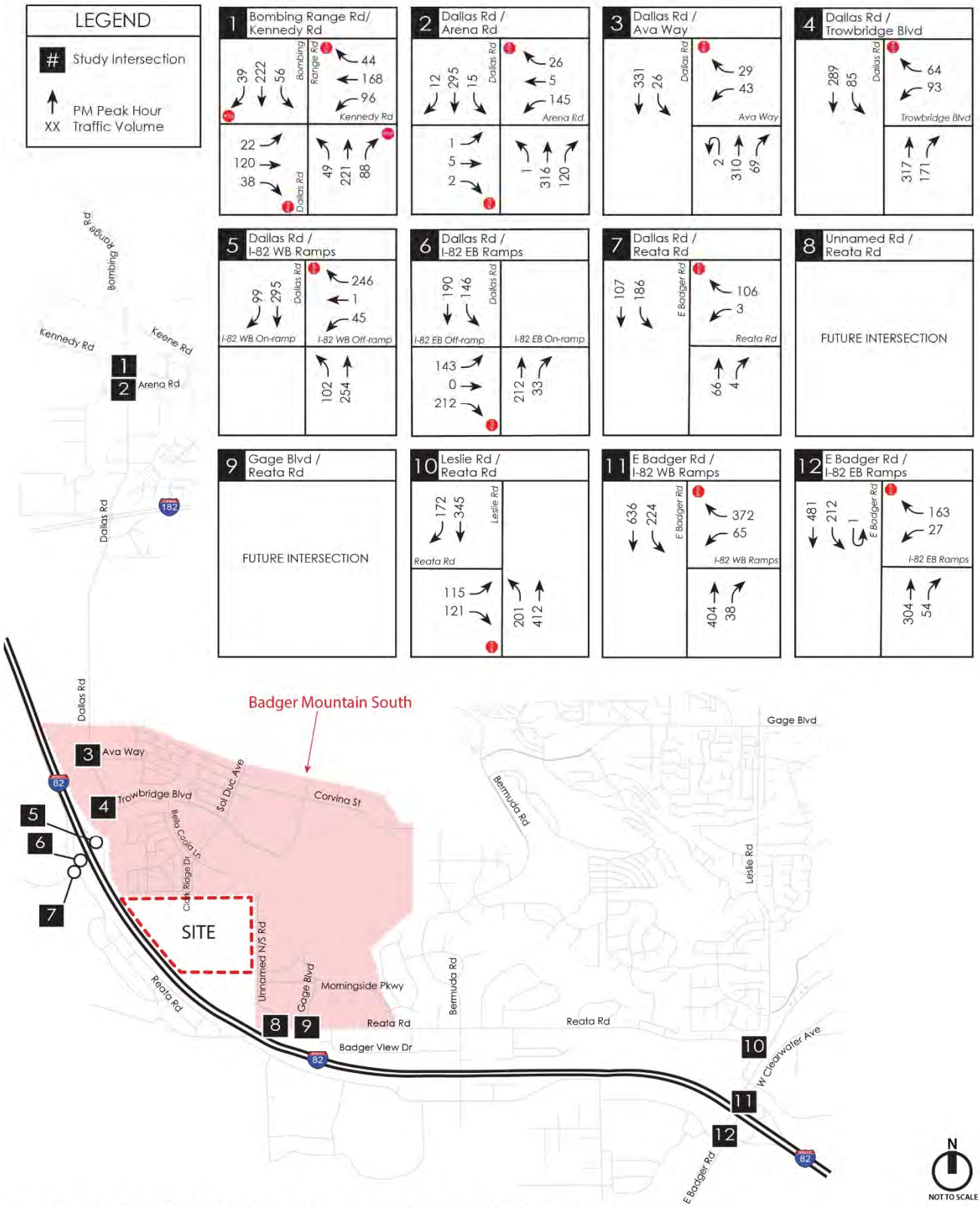


Figure 4: 2022 Existing Weekday PM Peak Hour Traffic Volumes

Existing Level of Service

Based on scoping discussions with Benton County, existing weekday AM and PM peak hour level of service (LOS) analyses were conducted at the following study intersections:

1. Dallas Rd / Kennedy Rd (West Richland)
2. Dallas Rd / Arena Rd (West Richland/Benton County)
3. Dallas Rd / Ava Way (Richland)
4. Dallas Rd / Trowbridge Blvd (Richland)
5. Dallas Rd / I-82 Westbound Ramps (Benton County/WSDOT)
6. Dallas Rd / I-82 Eastbound Ramps (Benton County/WSDOT)
7. Dallas Rd / Reata Rd (Benton County)
8. Unnamed North/South Rd / Reata Rd (future Richland intersection)
9. Gage Blvd / Reata Rd (future Richland intersection)
10. Leslie Blvd / Reata Rd (Richland)
11. Badger Road / I-82 Westbound Ramps (Benton County/WSDOT)
12. Badger Road / I-82 Eastbound Ramps (Benton County/WSDOT)

LOS generally refers to the degree of congestion on a roadway or intersection. It is a measure of vehicle operating speed, travel time, travel delays, and driving comfort. A letter scale from A to F generally describes intersection LOS. At signalized intersections, LOS A represents free-flow conditions (motorists experience little or no delays), and LOS F represents forced-flow conditions where motorists experience an average delay in excess of 80 seconds per vehicle.

The LOS reported for signalized intersections represents the average control delay (sec/veh) and can be reported for the overall intersection, for each approach, and for each lane group (additional v/c ratio criteria apply to lane group LOS only).

The LOS reported at stop-controlled intersections is based on the average control delay and can be reported for each controlled minor approach, controlled minor lane group, and controlled major-street movement (and for the overall intersection at all-way stop controlled intersections. Additional v/c ratio criteria apply to lane group or movement LOS only).

Table 2 outlines the current HCM 6th Edition LOS criteria for signalized and unsignalized intersections based on these methodologies.

Table 2
LOS Criteria for Signalized and Stop Controlled Intersections

SIGNALIZED INTERSECTIONS			UNSIGNALIZED INTERSECTIONS		
	LOS by Volume-to Capacity (V/C) Ratio[1]			LOS by Volume-to Capacity (V/C) Ratio[2]	
Control Delay (sec/veh)	≤ 1.0	> 1.0	Control Delay (sec/veh)	≤ 1.0	> 1.0
≤ 10	A	F	≤ 10	A	F
> 10 to ≤ 20	B	F	> 10 to ≤ 15	B	F
> 20 to ≤ 35	C	F	> 15 to ≤ 25	C	F
> 35 to ≤ 55	D	F	> 25 to ≤ 35	D	F
> 55 to ≤ 80	E	F	> 35 to ≤ 50	E	F
> 80	F	F	> 50	F	F

Source: Highway Capacity Manual, Transportation Research Board, 6th Edition, 2016.

[1] For approach-based and intersection-wide assessments at signals, LOS is defined solely by control delay.
[2] For two-way stop controlled intersections, the LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole at two-way stop controlled intersections. For approach-based and intersection-wide assessments at all-way stop controlled intersections and roundabouts, LOS is solely defined by control delay.

LOS calculations were based on methodology and procedures outlined in the 6th Edition of the *Highway Capacity Manual* using *Synchro 10* and *SIDRA 9* traffic analysis software. Based on information provided in *Chapter 7 – Transportation Element* of the *Benton County Comprehensive Plan Update* (February 2018) the County has adopted a level of service (LOS) standard of LOS C and the City of Richland's Comprehensive Plan identifies a LOS standard of LOS C for local streets and LOS D for arterials and collectors. Additionally, WSDOT's adopted level of service standard for I-82 is LOS D.

The 2022 existing weekday AM and PM peak hour LOS analysis results for the 10 existing study intersections are summarized in Table 3 (note study intersections #8 and #9 on Reata Rd are included in the future conditions analysis). The LOS worksheets are included in Appendix C.

As shown in Table 3, the all-way stop controlled study intersection and all controlled movements at all the unsignalized study intersections currently operate at LOS D or better during the weekday AM and PM peak hours under existing conditions with exception to the following:

- Dallas Rd / Arena Rd (#2) – the side-street stop-controlled westbound approach currently operates at LOS F during the PM peak hour
- Dallas Road / I-82 EB Ramps (#6) – the side-street stop-controlled eastbound approach (the eastbound off-ramp) currently operates at LOS F during the PM peak hour.
- Badger Road / I-82 WB Ramps (#11) – the side-street stop-controlled westbound approach (the westbound off-ramp) currently operates at LOS F during the PM peak hour.

Table 3
Year 2022 Existing Peak Hour LOS Summary

Study Intersection / Movement	AM Peak Hour LOS	AM Peak Hour Delay (sec)	PM Peak Hour LOS	PM Peak Hour Delay (sec)
All-Way Stop Controlled:				
1. Bombing Range Road / Kennedy Road	A	9.9	C	17.3
Side-Street Stop-Controlled:				
2. Dallas Road / Arena Road				
Eastbound Approach	B	14.0	C	16.3
Westbound Approach	C	16.4	F	52.5
Northbound Left-Turn	A	7.6	A	8.0
Southbound Left-Turn	A	8.0	A	8.4
3. Dallas Road / Ava Way				
Westbound Approach	B	11.9	C	16.4
Southbound Left-Turn	A	8.0	A	8.3
4. Dallas Road / Trowbridge Blvd				
Westbound Approach	B	14.7	C	23.4
Southbound Left-Turn	A	8.1	A	8.9
5. Dallas Road / I-82 WB Ramps				
Westbound Approach	B	11.4	A	8.8
Northbound Left-Turn	A	8.9	C	18.4
6. Dallas Road / I-82 EB Ramps				
Eastbound Approach	C	24.2	F	55.5
Southbound Left-Turn	A	8.6	A	8.2
7. Dallas Road / Reata Road				
Westbound Approach	B	10.1	A	9.4
Southbound Left-Turn	A	7.7	A	7.7
10. Leslie Road / Reata Road				
Eastbound Left-Turn	C	18.5	D	27.2
Eastbound Right-Turn	B	12.4	B	11.6
Northbound Left-Turn	A	8.9	A	9.5
11. Badger Road / I-82 WB Ramps				
Westbound Approach	D	32.2	F	82.6
Southbound Left-Turn	A	9.9	A	9.2
12. Badger Road / I-82 EB Ramps				
Westbound Approach	C	17.7	C	16.0
Southbound Left-Turn	A	9.5	A	8.8

FUTURE YEAR CONDITIONS

Planned Transportation Improvements

This section describes the planned transportation improvements located within the project study area. The following planning documents were reviewed to document planned capacity-related transportation improvements located within the project study area.

- Benton-Franklin Council of Governments (BFCG) 2021-2024 Transportation Improvement Program (TIP)
- City of Richland 2022-2027 Six-Year Transportation Improvement Program (TIP)
- Benton County 2022-2027 Six-Year Transportation Improvement Program (TIP)
- WSDOT 2022-2025 Statewide Transportation Improvement Program (STIP)

BFCG 2021-2024 TIP

No capacity related projects were identified within the project vicinity in the BFCG's 2021-2024 *TIP.*

City of Richland 2022 – 2027 TIP

Dallas Road / Trowbridge Blvd Intersection Improvements (Priority #18). Improvements of the Dallas Rd and Trowbridge Blvd intersection. The project involves the reconstruction of the intersection to provide for added capacity. Construction is anticipated to start in 2025. *This project is currently unfunded but is part of the City of Richland's Traffic Impact Fee Program (RMC 12.03). Thus, this project is anticipated to be constructed with development activity.*

Dallas Road / Ava Way Intersection Improvements (Priority #20). Improvements of the Dallas Rd and Ava Way intersection. The project involves the reconstruction of the intersection to provide for added capacity. Construction is anticipated to start in 2024. *This project is currently unfunded but is part of the City of Richland's Traffic Impact Fee Program (RMC 12.03). Thus, this project is anticipated to be constructed with development activity.*

Dallas Road / I-82 WB Ramps Intersection Improvements (Priority #21). Improvements of the Dallas Rd and I-82 WB ramps intersection. The project involves the reconstruction of the ramp and intersection to provide for added capacity. Construction is anticipated to start in 2025. *This project is currently unfunded but is part of the City of Richland's Traffic Impact Fee Program (RMC 12.03). Thus, this project is anticipated to be constructed with development activity.*

Dallas Road / I-82 EB Ramps Intersection Improvements (Priority #22). Improvements of the Dallas Rd and I-82 EB ramps intersection. The project involves the reconstruction of the ramp and intersection to provide for added capacity. Construction is anticipated to start in 2025. *This project is currently unfunded but is part of the City of Richland's Traffic Impact Fee Program (RMC 12.03). Thus, this project is anticipated to be constructed with development activity.*

Dallas Road Widening (Priority #23). Widening of Dallas Rd from city limits to I-82. The new roadway will have four lanes with curbs, gutter, sidewalks, bike lanes, street lights, and storm drainage. Construction is anticipated to start in 2026.

Trowbridge Blvd – Sol Duc Ave to Gage Blvd (Priority #26). Construction of Trowbridge Blvd between Sol Duc Ave and Gage Blvd. The new roadway will have two lanes with curbs, gutter,

sidewalks, bike lanes, street lights, and storm drainage. Construction is anticipated to start in 2025.

Bella Coola Lane – Copper Mountain Apartments to Gage Blvd (Priority #27). Construction of Bella Coola Ln from the Copper Mountain Apartments to Gage Blvd. The new roadway will have two lanes with curbs, gutter, sidewalks, bike lanes, street lights, and storm drainage. Construction is anticipated to start in 2025.

City of West Richland 2022-2027 TIP

Bombing Range Road / Keene Road Intersection Modifications (Priority #2). This project would signalize the intersection and construct associated lane improvements. Construction is anticipated to occur in 2025.

Bombing Range Road / Kennedy Road Intersection Modifications (Priority #16). This project would construct intersection modifications which may include signalization of the intersection.

Benton County 2022-2027 TIP

Badger Road – I-82 Roundabouts and Pathway (Priority #5). This project would construct four roundabouts along Badger Road, three at the interchange with I-82 and one at Cottonwood Drive. A non-motorized pathway would be constructed along the north side of the road to remove pedestrians and other non-motorized traffic from the roadway. Construction is anticipated to start in 2026. *This project is anticipated to be constructed by a combination of federal and state funding.*

Reata Road Widening and Pathway (Priority #17). This project would add a twelve-foot pathway on the north side of Reata Road and widen the roadway to accommodate three (3) eleven-foot lanes from the I-82 Overpass to Richland City Limits. Construction is anticipated to start in 2026. *This project is currently unfunded.*

Badger Road Pathway (Priority #19). This project would add two six-foot bike lanes along seven miles of Badger Road, from the City of Kennewick to Dallas Road. Construction is anticipated to start in 2026. *This project is anticipated to be constructed by County funding.*

WSDOT 2022 – 2025 STIP

No capacity related projects were identified within the project vicinity in WSDOT's 2021-2024 *STIP.*

Project Trip Generation

The trip generation estimates for the proposed Harvest Ridge residential project were based on methodology documented in the current ITE *Trip Generation Manual* (11th edition) for LUC 210 (Single-Family Detached Housing). The new weekday daily, AM peak hour, and PM peak hour trip generation estimates for the proposed project are summarized in Table 4 and the detailed trip generation calculations are included in Appendix D.

Table 4
Project Trip Generation Summary

	New Trips Generated		
Time Period	In	Out	Total
Weekday Daily	701	701	1,402
Weekday AM Peak Hour	27	76	103
Weekday PM Peak Hour	88	51	139

As shown in Table 4, the proposed Harvest Ridge residential is estimated to generate 1,402 weekday daily trips, with 103 trips occurring during the AM peak hour (27 entering, 76 exiting) and 139 trips occurring during the PM peak hour (88 entering, 51 exiting).

It should be noted that the trip generation estimate shown in Table 4 should be considered conservative since it does not account for any internal trips that are likely to occur in the future with full buildout of the Badger Mountain South development.

Project Trip Distribution and Assignment

Although the proposed Harvest Ridge residential development is anticipated to be fully occupied in year 2023, the future year analyses are disclosed in this report is based on future year 2025 conditions.

The distribution of the new project trips generated by the Harvest Ridge project was estimated based on year 2025 select zone traffic modeling provided by the Benton Franklin Council of Governments (BFCG) for the *Badger Mountain South (BMS) Traffic Impact Analysis* (TENW, May 14, 2021). The BFCG traffic model distributed BMS project trips through off-site study intersections based on specific project land use assumptions associated with each of the model's TAZs within the BMS subarea and assumed roadway network connections. Because the 2025 select zone traffic modeling for Badger Mountain South was based on almost entirely residential development, it is reasonable to consider the same estimated project trip distribution for the Harvest Ridge residential development.

It shall be noted that the 2025 select zone traffic modeling for BMS assumed that the future Unnamed North/South Road would be constructed from Reata Road to Trowbridge Blvd. However, based on information provided by the project applicant, at the time of project buildout in 2023, the Unnamed North/South Road is anticipated to only provide access to/from Reata Road to the south; the connection to the north to connect to Trowbridge Blvd would occur with future phases BMS development. Thus the 2025 trip distribution was modified to reflect alternate routing with the Unnamed North/South Road assumed to connect only south to Reata Road in 2025.

The estimated trip distribution and assignment of AM and PM peak hour project trips in 2025 are illustrated in Figure 5.

Future Traffic Volumes

Future year 2025 No Action (without project) AM and PM peak hour traffic volumes were estimated by applying a 3 percent annual growth rate to the existing year 2022 "normal" peak hour traffic volumes. The 3 percent annual background growth rate was calculated by comparing year 2016 and year 2018 average daily traffic (ADT) volumes provided by the City of Richland in the project vicinity (see Existing Volumes section of this TIA for additional detail).

In addition to the 3 percent annual background growth rate, trips from the Badger Mountain South (BMS) development anticipated to be constructed and occupied by 2025 were included in the future year 2025 No Action traffic volumes. The 2025 BMS land use assumptions, trip generation, and trip assignment are included in Appendix E.

The future 2025 No Action AM and PM peak hour traffic volumes at the study intersections are shown in Figures 6 and 7.

The new peak hour project trips associated with the proposed Harvest Ridge residential project (see Figure 5) were added to the No Action traffic volumes (Figures 6 and 7) to estimate the future year 2022 With Project peak hour traffic volumes. The resulting 2022 With Project weekday AM and PM peak hour traffic volumes at the study intersections and proposed site driveways are illustrated in Figures 8 and 9, respectively.

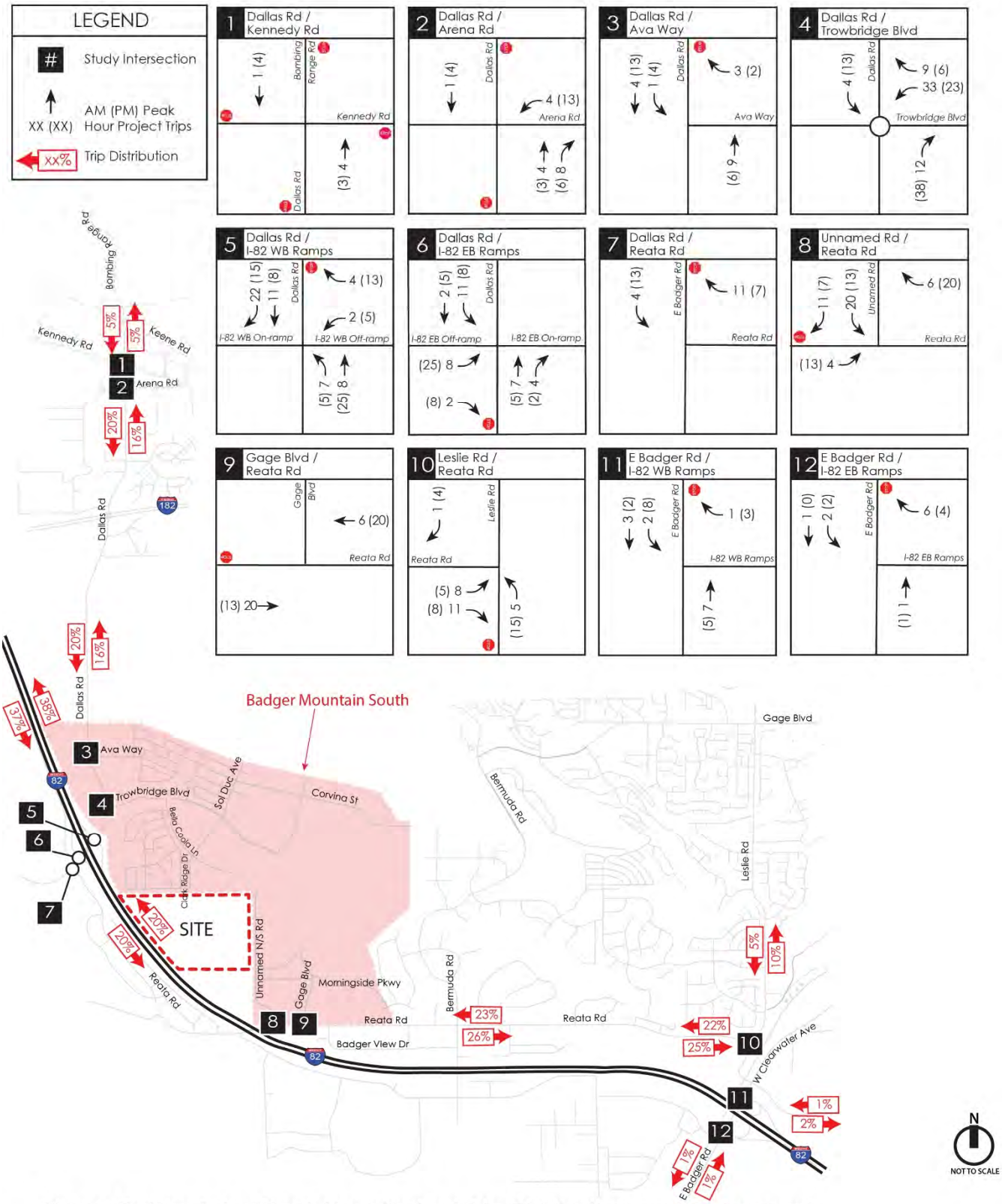


Figure 5: Weekday Peak Hour Project Trip Distribution and Assignment

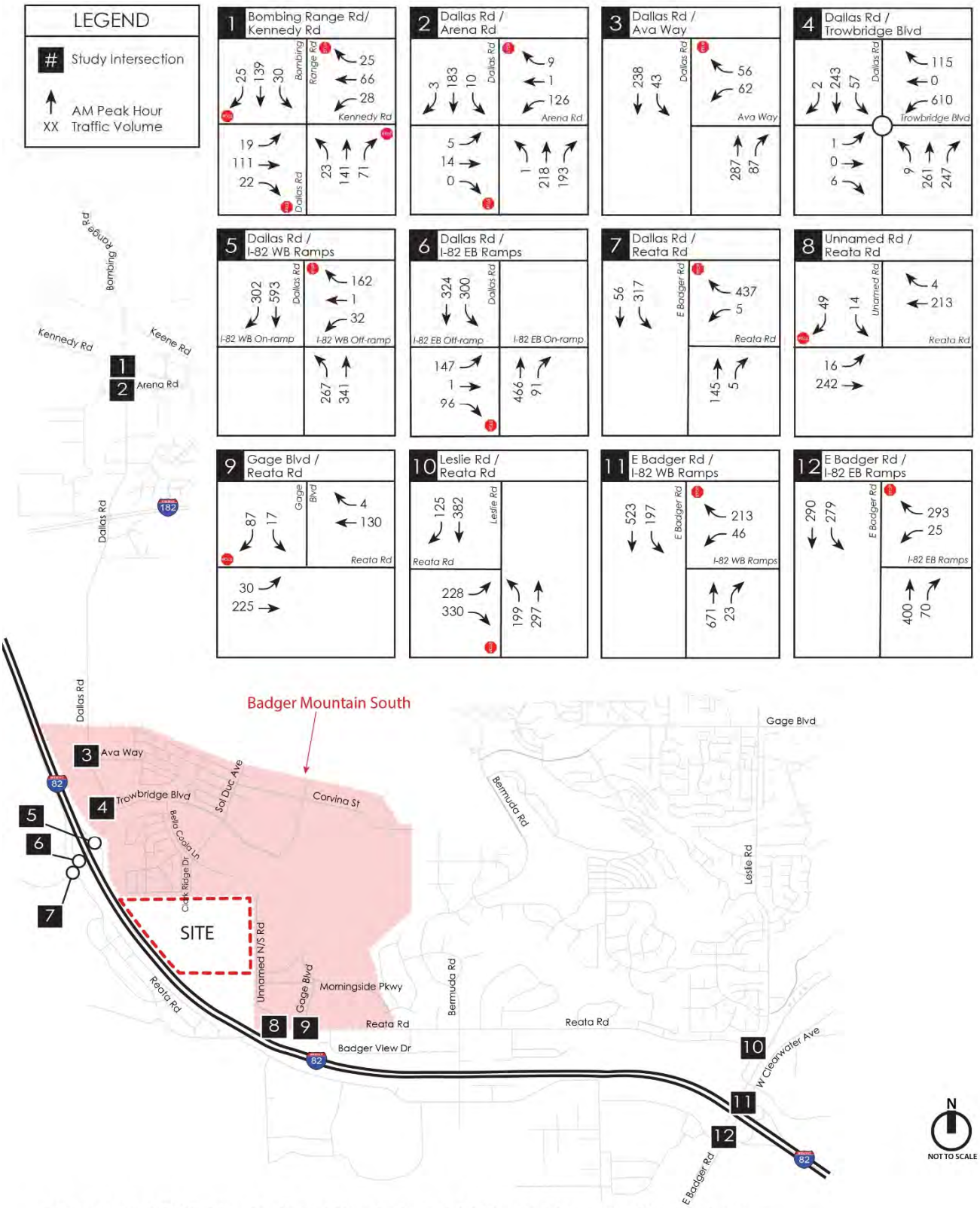


Figure 6: 2025 No Action Weekday AM Peak Hour Traffic Volumes

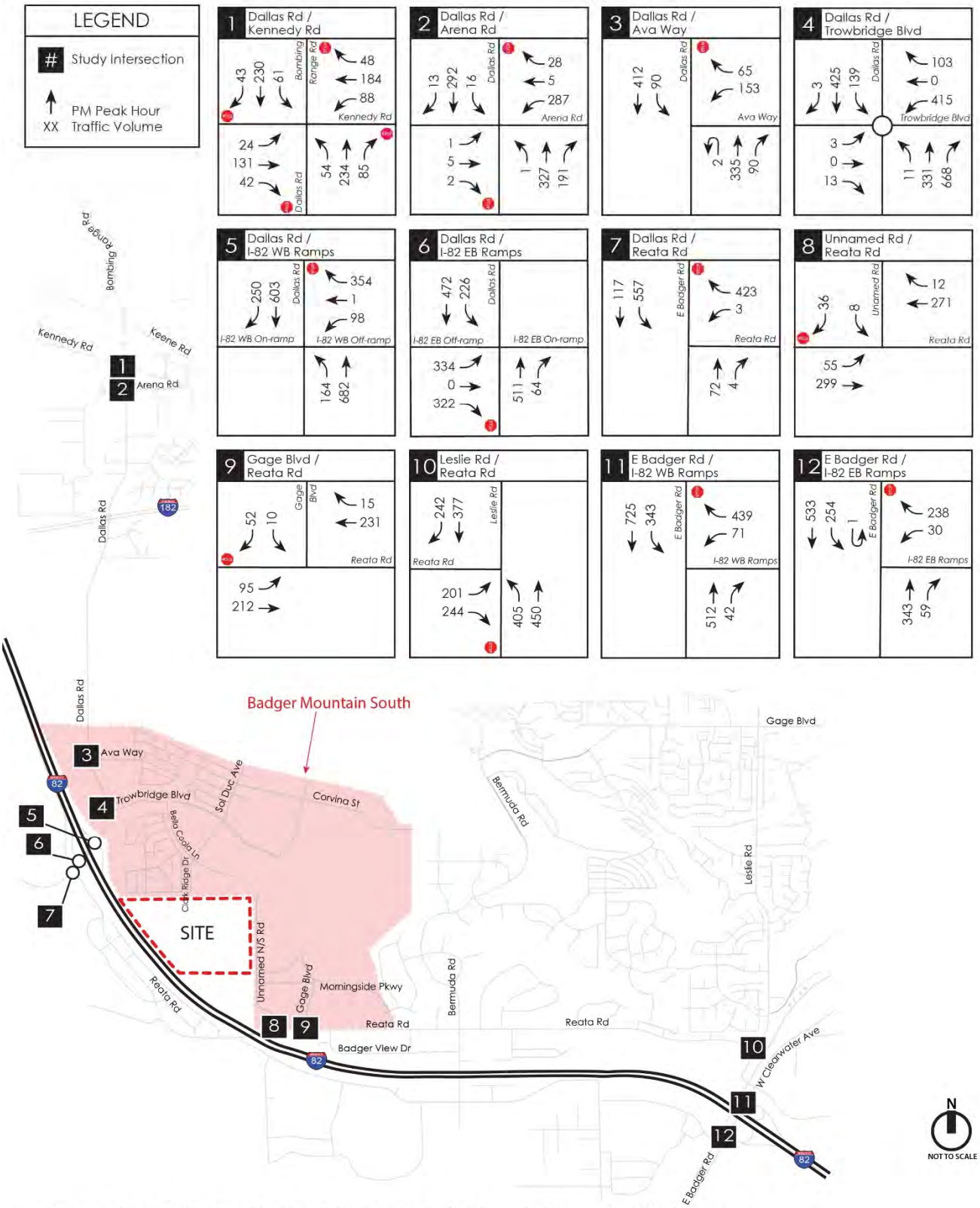


Figure 7: 2025 No Action Weekday PM Peak Hour Traffic Volumes

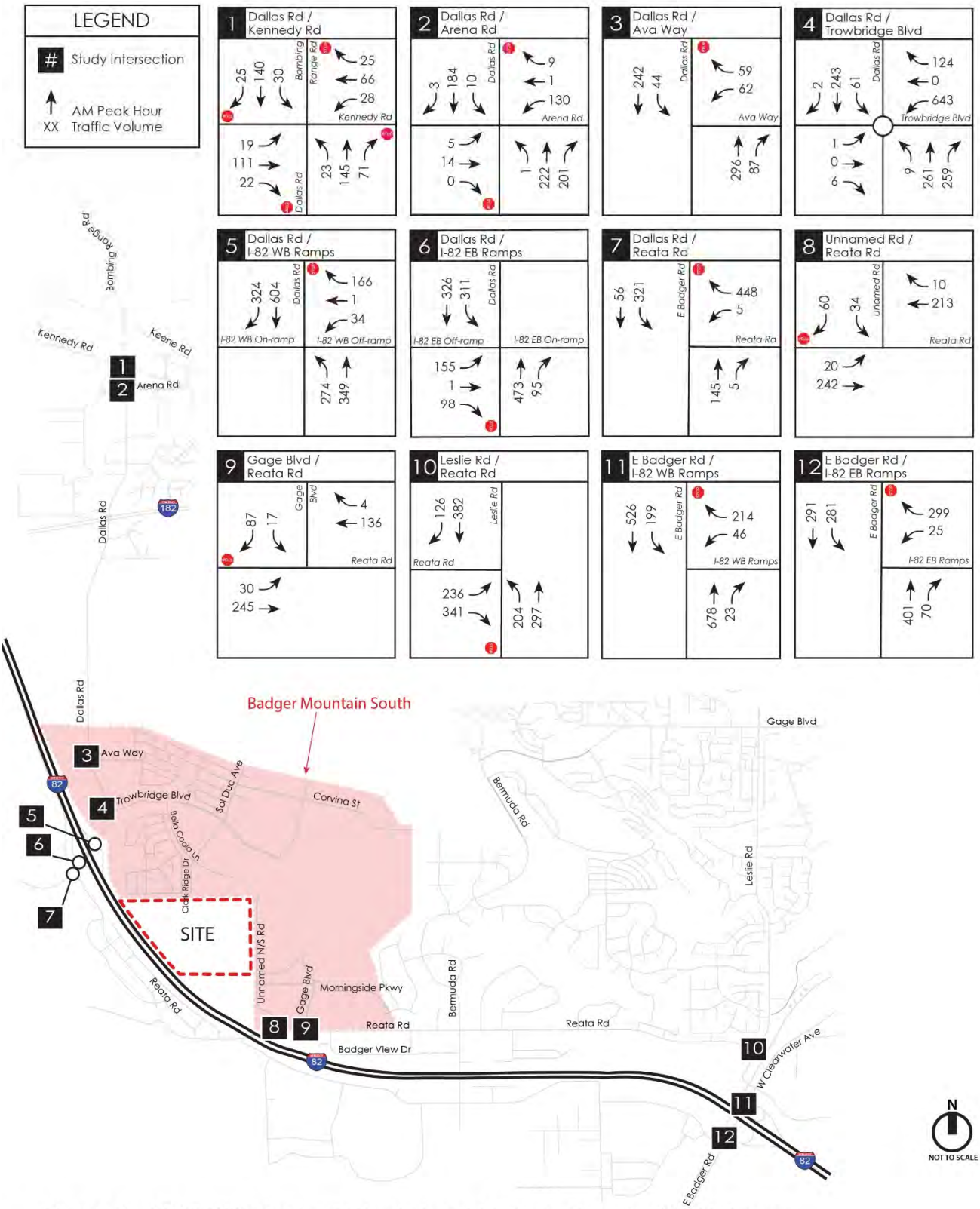


Figure 8: 2025 With Project Weekday AM Peak Hour Traffic Volumes

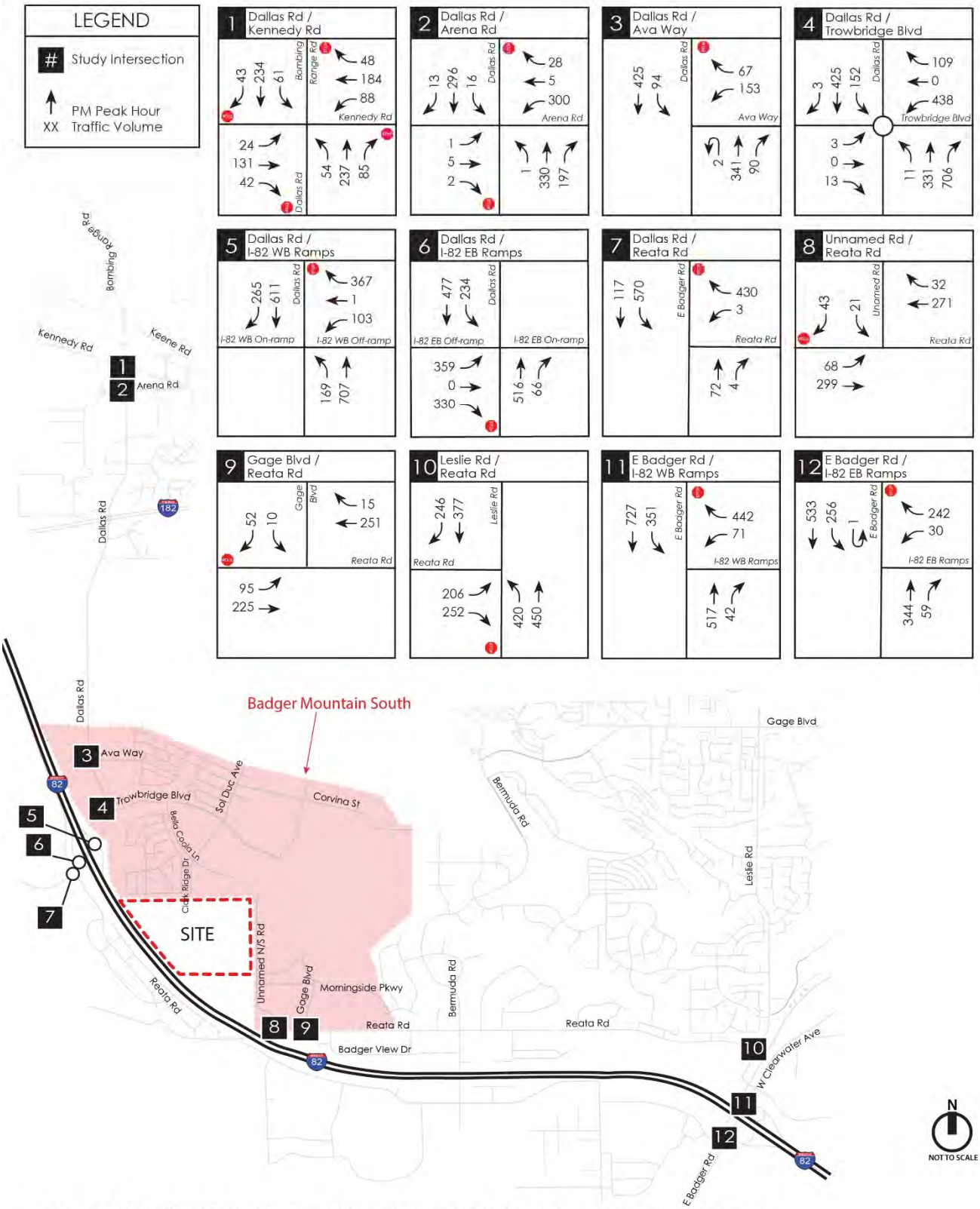


Figure 9: 2025 With Project Weekday PM Peak Hour Traffic Volumes

Level of Service at Study Intersections

Future year weekday AM and PM peak hour Level of Service (LOS) analyses were conducted at the 12 study intersections for year 2025 No Action (without project) and With Project conditions. The channelization and signal timing assumptions for the future year 2025 analyses were based on existing conditions except at the following intersection:

- Dallas Road / Trowbridge Blvd (#4) – this intersection was assumed to be reconstructed as a multilane roundabout by 2025 with development of Badger Mountain South.

The weekday LOS results at the study intersections for 2025 No Action and With Project conditions are summarized in Table 5 for the AM peak hour and Table 6 for the PM peak hour. The detailed LOS worksheets are included in Appendix C.

As shown in Table 5 and Table 6, the all-way stop controlled and roundabout study intersections and all controlled movements at the unsignalized study intersections are anticipated to operate at LOS D or better during the weekday AM and PM peak hours in 2025 with exception to the following:

- Dallas Road / Arena Road (#2) – the side-street stop-controlled westbound approach is anticipated to operate at LOS F during the PM peak hour with or without the Harvest Ridge project. Harvest Ridge is estimated to add 17 AM peak hour trips (2.2% of total entering traffic volume) and 26 PM peak hour trips (2.2% of total entering traffic volume) to this intersection. The City of Richland has identified an improvement project to dead end Arena Road as a cul-de-sac just east of Dallas Road. As a result, the Dallas Road / Arena Road intersection would be a three-leg unsignalized intersection with the west leg of Arena Road stop-controlled and Dallas Road free-flow. Existing traffic using Arena Road between Dallas Road and Kennedy Road would be re-routed to use the Dallas Road / Kennedy Road intersection. This improvement project would be expected to improve the future LOS at the Dallas Road / Arena Road intersection to LOS D or better.
- Dallas Road at Ava Way (#3), I-82 WB Ramps (#5), and I-82 EB Ramps (#6) – the side-street stop-controlled approaches at these three intersections along Dallas Road are anticipated to operate at LOS F during the AM and/or PM peak hours with or without the Harvest Ridge project. Improvements at these three intersections could include either a roundabout or signal and are expected to be constructed by the BMS development by 2025. As a roundabout or a signal, these three intersections are anticipated to operate at LOS D or better in 2025 with or without the Harvest Ridge residential development.
- Leslie Road / Reata Road (#10) – the side-street stop-controlled eastbound left-turn is anticipated to operate at LOS F during the AM and PM peak hours with or without the Harvest Ridge project. Harvest Ridge is estimated to add 25 AM peak hour trips (1.6% of total entering traffic volume) and 32 PM peak hour trips (1.6% of total entering traffic volume) to this intersection. Future improvements at this intersection could include either a roundabout or signal. As a roundabout or a signal, this intersection is anticipated to operate at LOS D or better in 2025 with or without the Harvest Ridge residential development.
- Badger Road / I-82 WB Ramps (#11) – the side-street stop-controlled westbound approach (the westbound off-ramp) is anticipated to operate at LOS F during the AM and PM peak hours with or without the Harvest Ridge project. Benton County has identified a roundabout at this intersection on their 2022-2027 Six-Year Transportation Improvement Program (TIP). As a roundabout, this intersection is anticipated to operate at LOS D or better in 2025 with or without the Harvest Ridge project.

Table 5
Year 2025 AM Peak Hour LOS Summary

Study Intersection / Movement	2025 No Action LOS	2025 No Action Delay (sec)	2025 With Project LOS	2025 With Project Delay (sec)
All-Way Stop Controlled:				
1. Bombing Range Road / Kennedy Road	B	10.2	B	10.2
Roundabout:				
4. Dallas Road / Trowbridge Boulevard 1	A	5.8	A	6.0
Side-Street Stop-Controlled:				
2. Dallas Road / Arena Road				
Eastbound Approach	C	15.5	C	15.8
Westbound Approach	C	23.0	C	23.9
Northbound Left-Turn	A	7.6	A	7.6
Southbound Left-Turn	A	8.3	A	8.3
3. Dallas Road / Ava Way [2]				
Westbound Approach	C	15.2	C	15.5
Southbound Left-Turn	A	8.5	A	8.6
5. Dallas Road / I-82 WB Ramps [2]				
Westbound Approach	F	>100	F	>100
Northbound Left-Turn	C	16.4	C	17.7
6. Dallas Road / I-82 EB Ramps [2]				
Eastbound Approach	F	>100	F	>100
Southbound Left-Turn	B	11.5	B	11.8
7. Dallas Road / Reata Road				
Westbound Approach	B	14.1	B	14.3
Southbound Left-Turn	A	8.4	A	8.4
8. Unnamed North/South Rd / Reata Road				
Eastbound Left-Turn	A	7.8	A	7.8
Southbound Approach	B	10.6	B	11.6
9. Gage Blvd / Reata Road				
Eastbound Left-Turn	A	7.6	A	7.6
Southbound Approach	B	10.1	B	10.2
10. Leslie Road / Reata Road				
Eastbound Left-Turn	F	54.7	F	61.6
Eastbound Right-Turn	C	17.9	C	18.4
Northbound Left-Turn	A	9.62	A	9.7
11. Badger Road / I-82 WB Ramps				
Westbound Shared Left-Right	F	>100	F	>100
Southbound Left-Turn	B	11.4	B	11.4
12. Badger Road / I-82 EB Ramps				
Westbound Approach	D	30.0	D	30.8
Southbound Left-Turn	B	10.1	B	10.2

Notes:
1) Dallas Road/Trowbridge Blvd is assumed to be reconstructed by BMS as a multilane roundabout by 2025.
2) Assumed to be reconstructed by BMS as a future roundabout or signalized intersection.

Table 6
Year 2025 PM Peak Hour LOS Summary

Study Intersection / Movement	2025 No Action LOS	2025 No Action Delay (sec)	2025 With Project LOS	2025 With Project Delay (sec)
All-Way Stop Controlled:				
1. Bombing Range Road / Kennedy Road	C	19.3	C	19.6
Roundabout:				
4. Dallas Road / Trowbridge Boulevard	A	5.2	A	5.4
Side-Street Stop-Controlled:				
2. Dallas Road / Arena Road				
Eastbound Approach	C	17.7	C	17.9
Westbound Approach	F	>100	F	>100
Northbound Left-Turn	A	8.0	A	8.0
Southbound Left-Turn	A	8.7	A	8.7
3. Dallas Road / Ava Way [2]				
Westbound Approach	F	>100	F	>100
Southbound Left-Turn	A	8.7	A	8.8
5. Dallas Road / I-82 WB Ramps [2]				
Westbound Approach	F	>100	F	>100
Northbound Left-Turn	B	13.0	B	13.4
6. Dallas Road / I-82 EB Ramps [2]				
Eastbound Approach	F	>100	F	>100
Southbound Left-Turn	B	10.3	B	10.4
7. Dallas Road / Reata Road				
Westbound Approach	B	13.1	B	13.3
Southbound Left-Turn	A	8.8	A	8.9
8. Unnamed North/South Rd / Reata Road				
Eastbound Left-Turn	A	8.0	A	8.1
Southbound Approach	B	11.3	B	12.9
9. Gage Blvd / Reata Road				
Eastbound Left-Turn	A	8.0	A	8.1
Southbound Approach	B	11.1	B	11.3
10. Leslie Road / Reata Road				
Eastbound Left-Turn	F	>100	F	>100
Eastbound Right-Turn	B	14.3	B	14.5
Northbound Left-Turn	B	12.3	B	12.6
11. Badger Road / I-82 WB Ramps				
Westbound Shared Left-Right	F	>100	F	>100
Southbound Left-Turn	B	10.7	B	10.8
12. Badger Road / I-82 EB Ramps				
Westbound Approach	C	21.8	C	22.2
Southbound Left-Turn	A	9.2	A	9.2

Notes:
1) Dallas Road/Trowbridge Blvd is assumed to be reconstructed as a multilane roundabout by BMS by 2025.
2) Assumed to be reconstructed by BMS as a future roundabout or signalized intersection.

Site Access and Connections with City Streets

Vehicular access to the proposed Harvest Ridge residential would be provided via two (2) new driveways along the future Unnamed North/South Road. At the time of anticipated buildout of Harvest Ridge in 2023, the future Unnamed North/South Road would only provide access to/from the Reata Road to the south. However, with future phases of Badger Mountain South (BMS) development, the Unnamed North/South Road will connect to Bella Coola Lane and Trowbridge Blvd to the north which will provide access to/from Dallas Road to the west and the future Gage Boulevard Extension to the east. Therefore, the project does not propose to connect to the existing Clark Ridge Drive or Brodie Lane roadways located in the BMS residential plat to the north.

Non-Motorized Improvements

The future Unnamed North/South Road that will provide access to the Harvest Ridge residential development will be constructed by BMS and will meet City of Richland standards. Pedestrian pathways and/or sidewalks are expected to be provided along the entire length of the Unnamed North/South Road and would provide non-motorized access to the County's planned separated non-motorized pathway along the northern side of Reata Road (to the south of the Harvest Ridge site) and would ultimately provide non-motorized access to the entire Badger Mountain South development with full buildout of BMS (by 2040).

Transit Improvements

The Harvest Ridge developer will work with the Badger Mountain South (BMS) developer to consult with Ben Franklin Transit (BFT) on future bus routes that may be added to serve the BMS subarea and appropriate locations for transit stops along collector/arterial streets including but not limited to, Trowbridge Blvd, Gage Blvd, and Reata Road.

MITIGATION

Off-Site Improvements

To mitigate impacts of the proposed Harvest Ridge residential project on roadways and intersections in the project vicinity, a proportionate share contribution towards future improvements at the following intersections could be considered:

- Dallas Rd / Arena Rd (#2) – The City of Richland has identified an improvement project to dead end Arena Road as a cul-de-sac just east of Dallas Road. This improvement project would be expected to improve the future LOS at the Dallas Road / Arena Road intersection to LOS D or better. Harvest Ridge is estimated to have a 2.2% contribution at this intersection.
- Leslie Road / Reata Road (#10) – Future improvements at this intersection could include either a roundabout or signal. As a roundabout or a signal, this intersection is anticipated to operate at LOS D or better in 2025 with or without the Harvest Ridge residential development. Harvest Ridge is estimated to have a 1.6% contribution at this intersection.

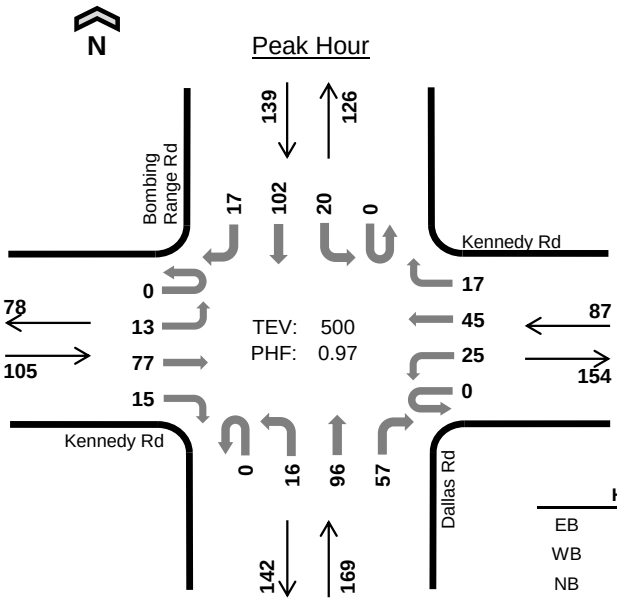
Appendix A

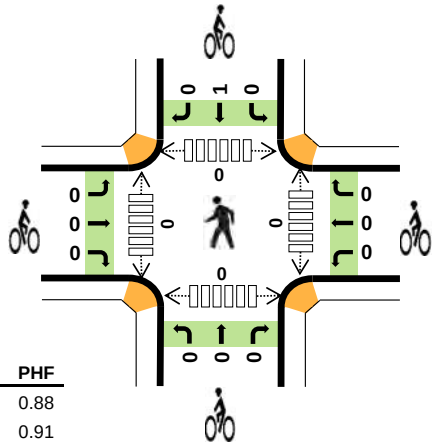
Existing Peak Hour Traffic Counts

#1 AM

Dallas Rd
Kennedy Rd

Date: 11-04-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	2.9%	0.88
WB	4.6%	0.91
NB	4.7%	0.85
SB	1.4%	0.85
TOTAL	3.4%	0.97

Two-Hour Count Summaries

Interval Start		Kennedy Rd Eastbound				Kennedy Rd Westbound				Dallas Rd Northbound				Bombing Range Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	3	13	7	0	4	8	0	0	4	20	6	0	4	27	4	100	0
7:15 AM		**0**	**4**	**19**	**5**	**0**	**6**	**11**	**2**	**0**	**5**	**22**	**8**	**0**	**3**	**25**	**8**	**118**	0
7:30 AM		**0**	**3**	**22**	**5**	**0**	**6**	**6**	**10**	**0**	**4**	**24**	**17**	**0**	**6**	**22**	**4**	**129**	0
7:45 AM		**0**	**6**	**17**	**3**	**0**	**8**	**10**	**4**	**0**	**2**	**33**	**15**	**0**	**1**	**27**	**2**	**128**	475
8:00 AM		**0**	**0**	**19**	**2**	**0**	**5**	**18**	**1**	**0**	**5**	**17**	**17**	**0**	**10**	**28**	**3**	**125**	**500**
8:15 AM		0	2	13	6	0	6	5	3	0	1	24	16	0	8	18	2	104	486
8:30 AM		0	1	24	6	0	11	13	6	0	0	32	17	0	6	23	4	143	500
8:45 AM		0	5	17	5	0	6	11	4	0	7	17	10	0	6	23	6	117	489
Count Total		0	24	144	39	0	52	82	30	0	28	189	106	0	44	193	33	964	0
Peak Hour	**All**	**0**	**13**	**77**	**15**	**0**	**25**	**45**	**17**	**0**	**16**	**96**	**57**	**0**	**20**	**102**	**17**	**500**	**0**
	HV	**0**	**1**	**1**	**1**	**0**	**1**	**2**	**1**	**0**	**1**	**4**	**3**	**0**	**1**	**1**	**0**	**17**	**0**
	HV%	**-**	**8%**	**1%**	**7%**	**-**	**4%**	**4%**	**6%**	**-**	**6%**	**4%**	**5%**	**-**	**5%**	**1%**	**0%**	**3%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	1	0	2	*6*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**2**	**1**	**2**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**1**	**1**	**1**	**1**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**1**	**4**	**0**	***5***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**1**	**1**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:15 AM	1	3	0	2	*6*	0	0	0	0	*0*	2	0	0	0	*2*
8:30 AM	2	1	1	3	*7*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	0	0	2	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	9	9	11	9	*38*	0	0	0	1	*1*	2	0	0	0	*2*
Peak Hour	**3**	**4**	**8**	**2**	***17***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***

#1 AM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Kennedy Rd Eastbound				Kennedy Rd Westbound				Dallas Rd Northbound				Bombing Range Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	0	2	0	1	0	0	0	0	0	0	0	1	1	0	6	0
7:15 AM	**0**	**1**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**5**	0
7:30 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**4**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**5**	20
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**17**
8:15 AM	0	0	0	1	0	1	1	1	0	0	0	0	0	0	2	0	6	18
8:30 AM	0	0	1	1	0	0	1	0	0	0	1	0	0	1	1	1	7	21
8:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	18
Count Total	0	2	2	5	0	3	4	2	0	3	5	3	0	3	5	1	38	0
Peak Hour	**0**	**1**	**1**	**1**	**0**	**1**	**2**	**1**	**0**	**1**	**4**	**3**	**0**	**1**	**1**	**0**	**17**	**0**

Two-Hour Count Summaries - Bikes

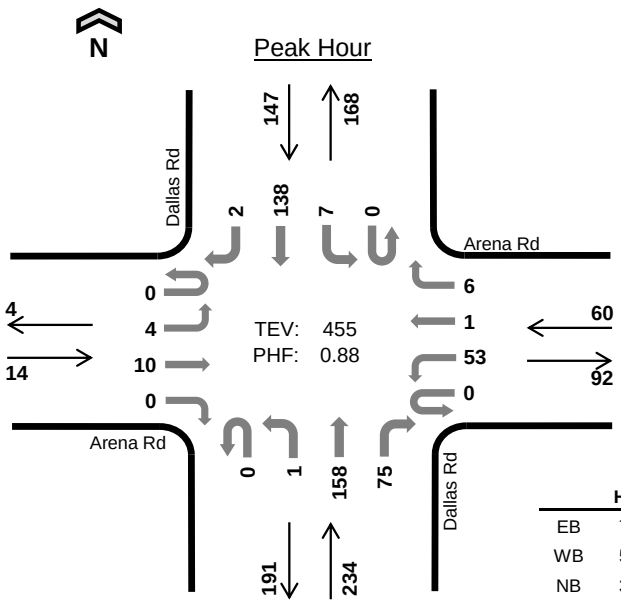
Interval Start	Kennedy Rd Eastbound			Kennedy Rd Westbound			Dallas Rd Northbound			Bombing Range Rd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**

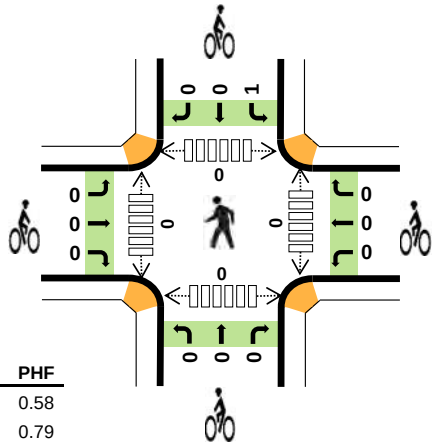
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

#2 AM

Dallas Rd
Arena Rd

Date: 11-04-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	7.1%	0.58
WB	5.0%	0.79
NB	3.4%	0.93
SB	4.8%	0.85
TOTAL	4.2%	0.88

Two-Hour Count Summaries

Interval Start		Arena Rd Eastbound				Arena Rd Westbound				Dallas Rd Northbound				Dallas Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	2	0	0	12	0	0	0	1	26	5	0	0	34	1	81	0
7:15 AM		0	2	3	2	0	14	1	0	0	0	30	12	0	0	33	1	98	0
7:30 AM		0	0	3	1	0	12	1	1	0	0	39	12	0	1	29	1	100	0
7:45 AM		**0**	**2**	**4**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**44**	**17**	**0**	**0**	**37**	**1**	**116**	395
8:00 AM		**0**	**0**	**2**	**0**	**0**	**11**	**0**	**1**	**0**	**0**	**32**	**15**	**0**	**0**	**36**	**0**	**97**	411
8:15 AM		**0**	**0**	**2**	**0**	**0**	**15**	**1**	**2**	**0**	**0**	**41**	**22**	**0**	**3**	**27**	**0**	**113**	426
8:30 AM		**0**	**2**	**2**	**0**	**0**	**16**	**0**	**3**	**0**	**1**	**41**	**21**	**0**	**4**	**38**	**1**	**129**	**455**
8:45 AM		0	1	0	0	0	20	0	1	0	0	32	15	0	4	32	0	105	444
Count Total		0	7	18	3	0	111	3	8	0	2	285	119	0	12	266	5	839	0
Peak Hour	**All**	**0**	**4**	**10**	**0**	**0**	**53**	**1**	**6**	**0**	**1**	**158**	**75**	**0**	**7**	**138**	**2**	**455**	**0**
	HV	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**7**	**1**	**0**	**0**	**7**	**0**	**19**	**0**
	HV%	**-**	**0%**	**10%**	**-**	**-**	**6%**	**0%**	**0%**	**-**	**0%**	**4%**	**1%**	**-**	**0%**	**5%**	**0%**	**4%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	4	*4*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	0	0	2	1	*3*	0	0	0	0	*0*	0	0	0	1	*1*
7:30 AM	1	1	1	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	**0**	**1**	**5**	**0**	***6***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**1**	**1**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**1**	**1**	**1**	**3**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**0**	**0**	**1**	**3**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:45 AM	0	1	3	1	*5*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	2	5	14	14	*35*	0	0	0	1	*1*	0	0	0	1	*1*
Peak Hour	**1**	**3**	**8**	**7**	***19***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***

#2 AM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Arena Rd Eastbound				Arena Rd Westbound				Dallas Rd Northbound				Dallas Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	4	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	0
7:30 AM	0	0	1	0	0	1	0	0	0	0	1	0	0	0	1	0	4	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**6**	17
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**3**	16
8:15 AM	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**6**	19
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**4**	**19**
8:45 AM	0	0	0	0	0	1	0	0	0	0	3	0	0	0	1	0	5	18
Count Total	0	0	2	0	0	5	0	0	0	0	13	1	0	0	13	1	35	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**7**	**1**	**0**	**0**	**7**	**0**	**19**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Arena Rd Eastbound			Arena Rd Westbound			Dallas Rd Northbound			Dallas Rd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	1	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**

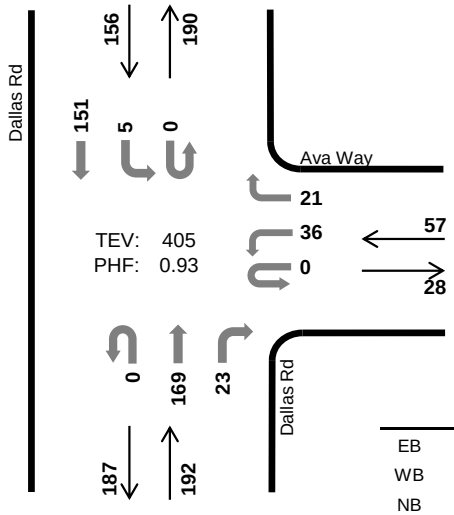
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

#3 AM

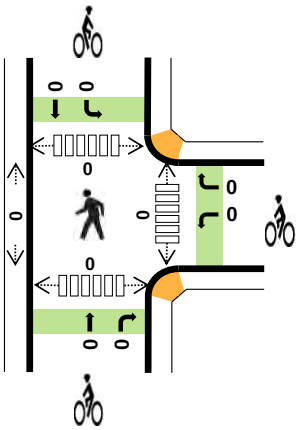
Dallas Rd
Ava Way

N

Peak Hour



Date: 11-04-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	-	-
WB	5.3%	0.68
NB	4.7%	0.91
SB	5.1%	0.91
TOTAL	4.9%	0.93

Two-Hour Count Summaries

Interval Start		0 Eastbound				Ava Way Westbound				Dallas Rd Northbound				Dallas Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	0	0	0	9	0	1	0	0	22	2	0	3	35	0	72	0
7:15 AM		0	0	0	0	0	9	0	5	0	0	33	3	0	0	40	0	90	0
7:30 AM		0	0	0	0	0	14	0	2	0	0	30	2	0	0	37	0	85	0
7:45 AM		**0**	**0**	**0**	**0**	**0**	**9**	**0**	**4**	**0**	**0**	**46**	**7**	**0**	**1**	**42**	**0**	**109**	356
8:00 AM		**0**	**0**	**0**	**0**	**0**	**10**	**0**	**4**	**0**	**0**	**31**	**5**	**0**	**2**	**40**	**0**	**92**	376
8:15 AM		**0**	**0**	**0**	**0**	**0**	**11**	**0**	**10**	**0**	**0**	**48**	**3**	**0**	**2**	**29**	**0**	**103**	389
8:30 AM		**0**	**0**	**0**	**0**	**0**	**6**	**0**	**3**	**0**	**0**	**44**	**8**	**0**	**0**	**40**	**0**	**101**	**405**
8:45 AM		0	0	0	0	0	8	0	4	0	0	33	9	0	10	28	0	92	388
Count Total		0	0	0	0	0	76	0	33	0	0	287	39	0	18	291	0	744	0
Peak Hour	**All**	**0**	**0**	**0**	**0**	**0**	**36**	**0**	**21**	**0**	**0**	**169**	**23**	**0**	**5**	**151**	**0**	**405**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**8**	**1**	**0**	**1**	**7**	**0**	**20**	**0**
	HV%	**-**	**-**	**-**	**-**	**-**	**6%**	**-**	**5%**	**-**	**-**	**5%**	**4%**	**-**	**20%**	**5%**	**-**	**5%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	0	2	2	3	*7*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	0	1	2	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	**0**	**0**	**5**	**1**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**2**	**2**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**1**	**1**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**0**	**0**	**1**	**3**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:45 AM	0	1	3	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	7	16	12	*35*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**0**	**3**	**9**	**8**	***20***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

#3 AM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	0				Ava Way				Dallas Rd				Dallas Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:15 AM	0	0	0	0	0	1	0	1	0	0	2	0	0	0	3	0	7	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	3	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**1**	**0**	**6**	17
8:00 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**1**	**0**	**6**	22
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**4**	19
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**4**	**20**
8:45 AM	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	4	18
Count Total	0	0	0	0	0	5	0	2	0	0	14	2	0	1	11	0	35	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**8**	**1**	**0**	**1**	**7**	**0**	**20**	**0**

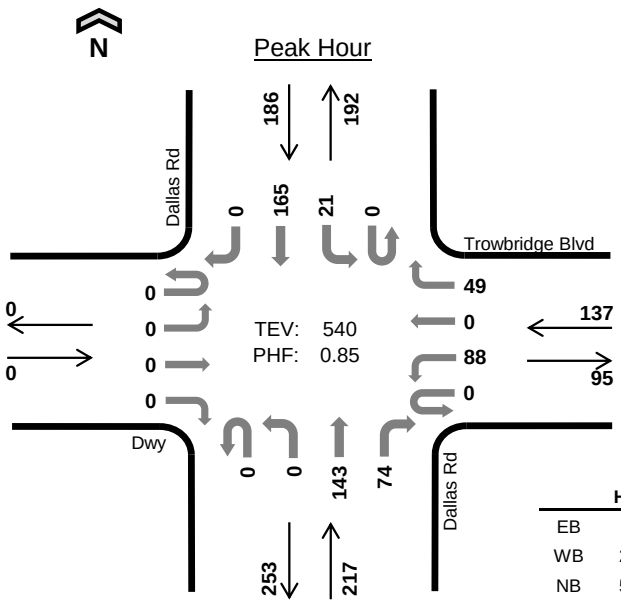
Two-Hour Count Summaries - Bikes

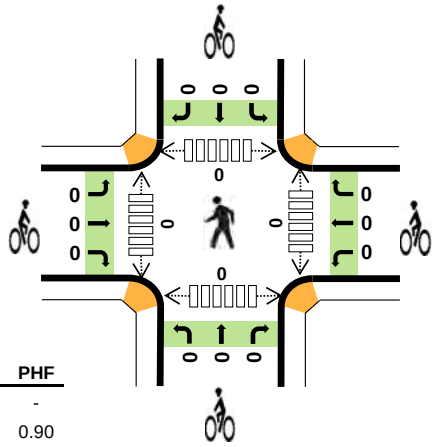
Interval Start	0			Ava Way			Dallas Rd			Dallas Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

Dallas Rd
Trowbridge Blvd

Date: 11-04-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	-	-
WB	2.2%	0.90
NB	5.5%	0.79
SB	4.8%	0.89
TOTAL	4.4%	0.85

Two-Hour Count Summaries

Interval Start	Dwy Eastbound				Trowbridge Blvd Westbound				Dallas Rd Northbound				Dallas Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	20	0	1	0	0	21	15	0	4	38	0	99	0
7:15 AM	0	0	0	0	0	25	0	11	0	0	26	13	0	6	45	0	126	0
7:30 AM	0	0	0	0	0	24	0	5	0	0	26	11	0	2	47	0	115	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**31**	**0**	**7**	**0**	**0**	**44**	**25**	**0**	**5**	**47**	**0**	**159**	499
8:00 AM	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**12**	**0**	**0**	**24**	**20**	**0**	**7**	**43**	**0**	**121**	521
8:15 AM	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**18**	**0**	**0**	**34**	**9**	**0**	**4**	**36**	**0**	**121**	516
8:30 AM	**0**	**0**	**0**	**0**	**0**	**22**	**0**	**12**	**0**	**0**	**41**	**20**	**0**	**5**	**39**	**0**	**139**	**540**
8:45 AM	0	0	0	0	0	30	0	7	0	0	35	15	0	11	28	0	126	507
Count Total	0	0	0	0	0	187	0	73	0	0	251	128	0	44	323	0	1,006	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**88**	**0**	**49**	**0**	**0**	**143**	**74**	**0**	**21**	**165**	**0**	**540**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**7**	**5**	**0**	**2**	**7**	**0**	**24**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**1%**	**-**	**4%**	**-**	**-**	**5%**	**7%**	**-**	**10%**	**4%**	**-**	**4%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	1	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	0	0	3	4	*7*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	0	1	3	1	*5*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	**0**	**1**	**4**	**1**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**0**	**4**	**3**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**2**	**0**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**0**	**0**	**4**	**3**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:45 AM	0	2	4	1	*7*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	6	23	16	*45*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**0**	**3**	**12**	**9**	***24***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

#4 AM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Dwy Eastbound				Trowbridge Blvd Westbound				Dallas Rd Northbound				Dallas Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	4	0	7	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	1	2	0	0	1	0	5	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**0**	**6**	20
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**1**	**2**	**0**	**7**	25
8:15 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**4**	22
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**3**	**0**	**7**	**24**
8:45 AM	0	0	0	0	0	2	0	0	0	0	3	1	0	0	1	0	7	25
Count Total	0	0	0	0	0	3	0	3	0	0	13	10	0	2	14	0	45	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**7**	**5**	**0**	**2**	**7**	**0**	**24**	**0**

Two-Hour Count Summaries - Bikes

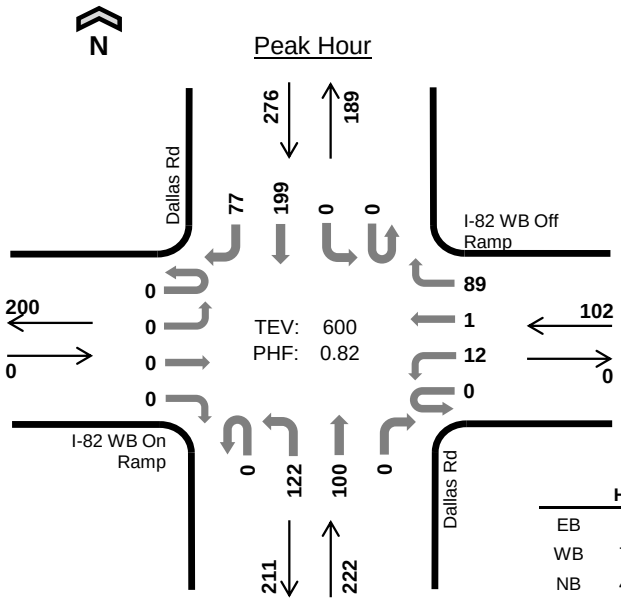
Interval Start	Dwy Eastbound			Trowbridge Blvd Westbound			Dallas Rd Northbound			Dallas Rd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

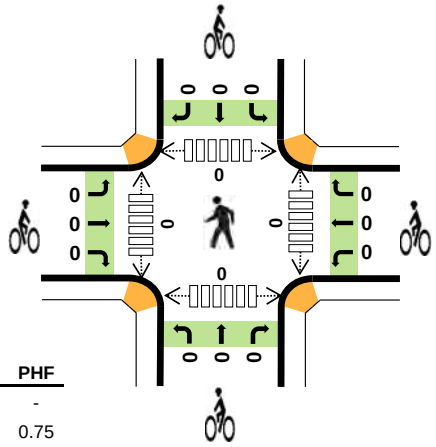
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

#5 AM

Dallas Rd
I-82 WB On Ramp

Date: 11-04-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	-	-
WB	7.8%	0.75
NB	4.1%	0.78
SB	2.5%	0.87
TOTAL	4.0%	0.82

Two-Hour Count Summaries

Interval Start	I-82 WB On Ramp				I-82 WB Off Ramp				Dallas Rd				Dallas Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	4	0	12	0	33	23	0	0	0	39	20	131	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**18**	**0**	**25**	**22**	**0**	**0**	**0**	**51**	**19**	**139**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**18**	**0**	**35**	**18**	**0**	**0**	**0**	**52**	**17**	**144**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**32**	**0**	**34**	**37**	**0**	**0**	**0**	**54**	**25**	**184**	598
8:00 AM	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**21**	**0**	**28**	**23**	**0**	**0**	**0**	**42**	**16**	**133**	**600**
8:15 AM	0	0	0	0	0	7	1	18	0	18	24	0	0	0	32	24	124	585
8:30 AM	0	0	0	0	0	7	0	28	0	24	35	0	0	0	43	19	156	597
8:45 AM	0	0	0	0	0	4	0	19	0	23	30	0	0	0	40	17	133	546
Count Total	0	0	0	0	0	34	2	166	0	220	212	0	0	0	353	157	1,144	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**12**	**1**	**89**	**0**	**122**	**100**	**0**	**0**	**0**	**199**	**77**	**600**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**3**	**6**	**0**	**0**	**0**	**7**	**0**	**24**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**0%**	**0%**	**9%**	**-**	**2%**	**6%**	**-**	**-**	**-**	**4%**	**0%**	**4%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	1	1	1	*3*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**0**	**1**	**2**	**4**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**0**	**1**	**5**	**1**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**2**	**2**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**4**	**0**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:15 AM	0	0	1	2	*3*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	0	2	2	4	*8*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	0	1	6	3	*10*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	12	19	17	*48*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**0**	**8**	**9**	**7**	***24***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

#5 AM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	I-82 WB On Ramp				I-82 WB Off Ramp				Dallas Rd				Dallas Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	3	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**7**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**2**	**0**	**0**	**0**	**1**	**0**	**7**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	21
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**6**	**24**
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	3	20
8:30 AM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	4	0	8	21
8:45 AM	0	0	0	0	0	0	0	1	0	3	3	0	0	0	2	1	10	27
Count Total	0	0	0	0	0	0	0	12	0	8	11	0	0	0	15	2	48	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**3**	**6**	**0**	**0**	**0**	**7**	**0**	**24**	**0**

Two-Hour Count Summaries - Bikes

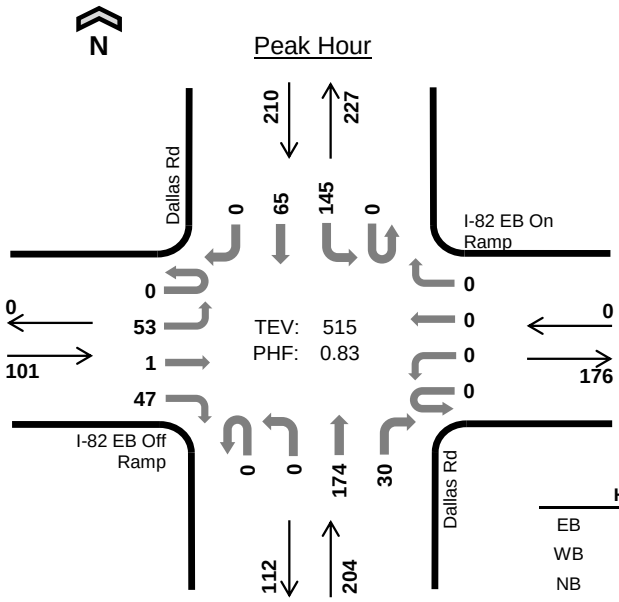
Interval Start	I-82 WB On Ramp			I-82 WB Off Ramp			Dallas Rd			Dallas Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

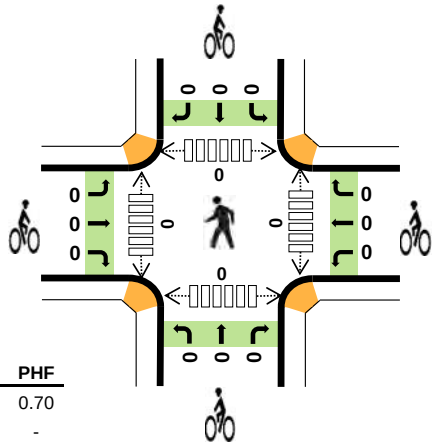
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

#6 AM

Dallas Rd
I-82 EB Off Ramp

Date: 11-04-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM





	HV %:	PHF
EB	5.0%	0.70
WB	-	-
NB	3.9%	0.82
SB	2.9%	0.92
TOTAL	3.7%	0.83

Two-Hour Count Summaries

Interval Start		I-82 EB Off Ramp				I-82 EB On Ramp				Dallas Rd				Dallas Rd				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		**0**	**13**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**43**	**10**	**0**	**31**	**13**	**0**	**117**	0
7:15 AM		**0**	**10**	**1**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**35**	**4**	**0**	**38**	**17**	**0**	**112**	0
7:30 AM		**0**	**12**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**45**	**5**	**0**	**38**	**16**	**0**	**131**	0
7:45 AM		**0**	**18**	**0**	**18**	**0**	**0**	**0**	**0**	**0**	**0**	**51**	**11**	**0**	**38**	**19**	**0**	**155**	**515**
8:00 AM		0	10	0	10	0	0	0	0	0	0	39	6	0	30	13	0	108	506
8:15 AM		0	3	0	4	0	0	0	0	0	0	40	2	0	23	18	0	90	484
8:30 AM		0	16	1	11	0	0	0	0	0	0	42	5	0	30	19	0	124	477
8:45 AM		0	17	1	10	0	0	0	0	0	0	36	4	0	32	13	0	113	435
Count Total		0	99	3	82	0	0	0	0	0	0	331	47	0	260	128	0	950	0
Peak Hour	**All**	**0**	**53**	**1**	**47**	**0**	**0**	**0**	**0**	**0**	**0**	**174**	**30**	**0**	**145**	**65**	**0**	**515**	**0**
	HV	**0**	**2**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**6**	**0**	**0**	**19**	**0**
	HV%	**-**	**4%**	**100%**	**4%**	**-**	**-**	**-**	**-**	**-**	**-**	**5%**	**0%**	**-**	**4%**	**0%**	**-**	**4%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**2**	**0**	**2**	**4**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**3**	**0**	**4**	**1**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	1	0	0	2	*3*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	0	0	1	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	4	0	1	4	*9*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	5	0	3	2	*10*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	15	0	13	15	*43*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**5**	**0**	**8**	**6**	***19***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

#6 AM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	I-82 EB Off Ramp				I-82 EB On Ramp				Dallas Rd				Dallas Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**2**	0
7:15 AM	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**4**	**0**	**0**	**8**	0
7:30 AM	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**0**	**8**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**19**
8:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	3	20
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	14
8:30 AM	0	1	1	2	0	0	0	0	0	0	1	0	0	3	1	0	9	15
8:45 AM	0	3	0	2	0	0	0	0	0	0	3	0	0	2	0	0	10	24
Count Total	0	6	2	7	0	0	0	0	0	0	13	0	0	13	2	0	43	0
Peak Hour	**0**	**2**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**6**	**0**	**0**	**19**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	I-82 EB Off Ramp			I-82 EB On Ramp			Dallas Rd			Dallas Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

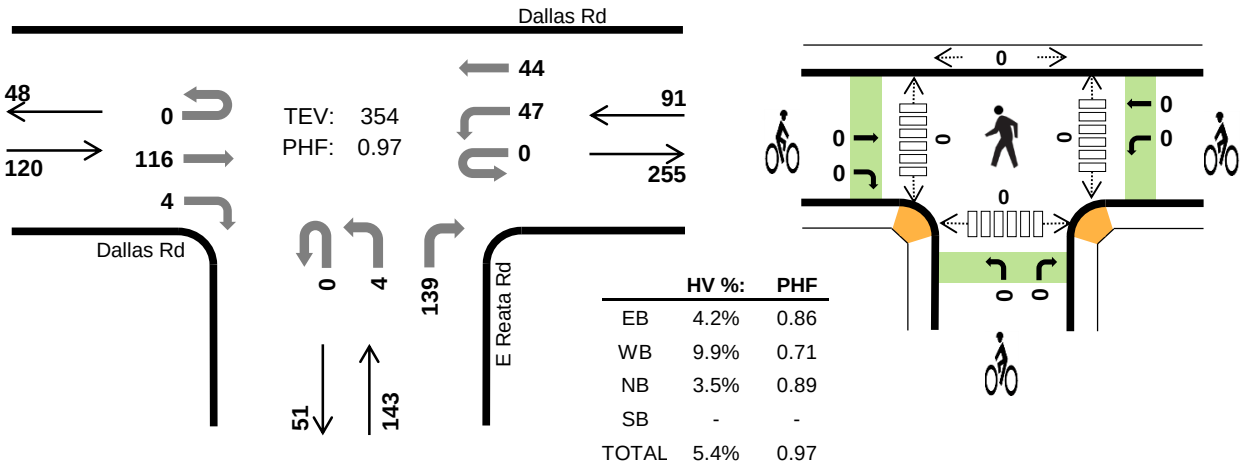
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

E Reata Rd
Dallas Rd

N

Peak Hour

Date: 01/25/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM



	HV %:	PHF
EB	4.2%	0.86
WB	9.9%	0.71
NB	3.5%	0.89
SB	-	-
TOTAL	5.4%	0.97

Two-Hour Count Summaries

Interval Start		Dallas Rd Eastbound				Dallas Rd Westbound				E Reata Rd Northbound				0 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	13	0	0	14	14	0	0	0	0	30	0	0	0	0	71	0
7:15 AM		**0**	**0**	**34**	**1**	**0**	**10**	**7**	**0**	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**	**91**	0
7:30 AM		**0**	**0**	**31**	**1**	**0**	**12**	**6**	**0**	**0**	**2**	**0**	**38**	**0**	**0**	**0**	**0**	**90**	0
7:45 AM		**0**	**0**	**25**	**1**	**0**	**10**	**14**	**0**	**0**	**1**	**0**	**33**	**0**	**0**	**0**	**0**	**84**	336
8:00 AM		**0**	**0**	**26**	**1**	**0**	**15**	**17**	**0**	**0**	**1**	**0**	**29**	**0**	**0**	**0**	**0**	**89**	**354**
8:15 AM		0	0	20	2	0	13	20	0	0	0	0	32	0	0	0	0	87	350
8:30 AM		0	0	18	0	0	10	8	0	0	0	0	22	0	0	0	0	58	318
8:45 AM		0	0	15	0	0	16	23	0	0	3	0	22	0	0	0	0	79	313
Count Total		0	0	182	6	0	100	109	0	0	7	0	245	0	0	0	0	649	0
Peak Hour	**All**	**0**	**0**	**116**	**4**	**0**	**47**	**44**	**0**	**0**	**4**	**0**	**139**	**0**	**0**	**0**	**0**	**354**	**0**
	HV	**0**	**0**	**5**	**0**	**0**	**4**	**5**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**19**	**0**
	HV%	**-**	**-**	**4%**	**0%**	**-**	**9%**	**11%**	**-**	**-**	**0%**	**-**	**4%**	**-**	**-**	**-**	**-**	**5%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	2	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**0**	**1**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**3**	**3**	**2**	**0**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**1**	**3**	**2**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:15 AM	1	5	1	0	*7*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	2	0	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	0	3	1	0	*4*	0	0	0	0	*0*	0	1	1	0	*2*
Count Total	8	19	7	0	*34*	0	0	0	0	*0*	0	1	1	0	*2*
Peak Hr	**5**	**9**	**5**	**0**	***19***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Dallas Rd Eastbound				Dallas Rd Westbound				E Reata Rd Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	0
7:30 AM	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	0
7:45 AM	**0**	**0**	**3**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**8**	15
8:00 AM	**0**	**0**	**1**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**6**	**19**
8:15 AM	0	0	1	0	0	1	4	0	0	0	0	1	0	0	0	0	7	24
8:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	23
8:45 AM	0	0	0	0	0	1	2	0	0	0	0	1	0	0	0	0	4	19
Count Total	0	0	8	0	0	8	11	0	0	0	0	7	0	0	0	0	34	0
Peak Hour	**0**	**0**	**5**	**0**	**0**	**4**	**5**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**19**	**0**

Two-Hour Count Summaries - Bikes

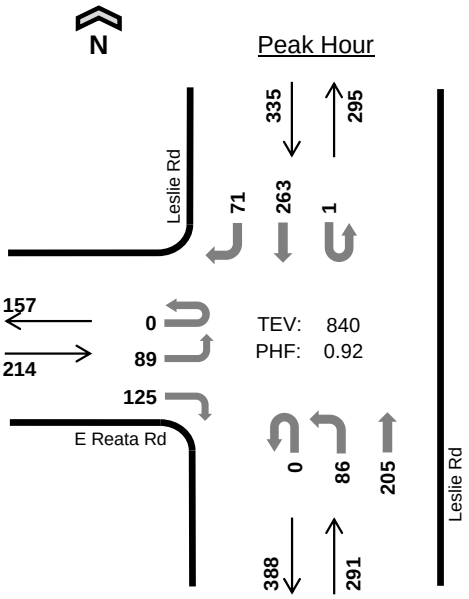
Interval Start	Dallas Rd Eastbound			Dallas Rd Westbound			E Reata Rd Northbound			0 Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

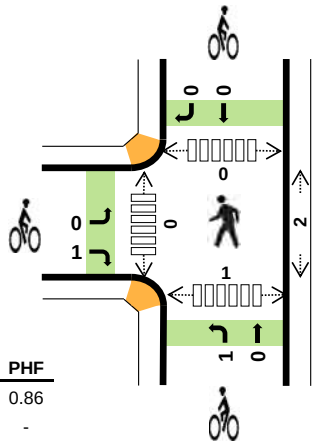
#10 AM

Leslie Rd
E Reata Rd

Peak Hour



Date: 11-04-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	2.3%	0.86
WB	-	-
NB	2.7%	0.96
SB	2.1%	0.89
TOTAL	2.4%	0.92

Two-Hour Count Summaries

Interval Start		E Reata Rd Eastbound				0 Westbound				Leslie Rd Northbound				Leslie Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	18	0	24	0	0	0	0	0	9	27	0	0	0	45	5	128	0
7:15 AM		0	11	0	19	0	0	0	0	0	8	38	0	0	0	47	9	132	0
7:30 AM		0	17	0	37	0	0	0	0	0	15	30	0	0	0	75	10	184	0
7:45 AM		**0**	**28**	**0**	**34**	**0**	**0**	**0**	**0**	**0**	**25**	**48**	**0**	**0**	**0**	**74**	**20**	**229**	673
8:00 AM		**0**	**22**	**0**	**29**	**0**	**0**	**0**	**0**	**0**	**17**	**52**	**0**	**1**	**0**	**70**	**13**	**204**	749
8:15 AM		**0**	**17**	**0**	**32**	**0**	**0**	**0**	**0**	**0**	**24**	**52**	**0**	**0**	**0**	**60**	**19**	**204**	821
8:30 AM		**0**	**22**	**0**	**30**	**0**	**0**	**0**	**0**	**0**	**20**	**53**	**0**	**0**	**0**	**59**	**19**	**203**	**840**
8:45 AM		0	17	0	39	0	0	0	0	0	21	51	0	0	0	42	12	182	793
Count Total		0	152	0	244	0	0	0	0	0	139	351	0	1	0	472	107	1,466	0
Peak Hour	**All**	**0**	**89**	**0**	**125**	**0**	**0**	**0**	**0**	**0**	**86**	**205**	**0**	**1**	**0**	**263**	**71**	**840**	**0**
	HV	**0**	**1**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**6**	**2**	**0**	**1**	**0**	**3**	**3**	**20**	**0**
	HV%	**-**	**1%**	**-**	**3%**	**-**	**-**	**-**	**-**	**-**	**7%**	**1%**	**-**	**100%**	**-**	**1%**	**4%**	**2%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	0	0	0	*2*	0	0	0	0	*0*	0	2	0	0	*2*
7:15 AM	1	0	1	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	0	0	2	1	*3*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	**1**	**0**	**3**	**0**	***4***	**0**	**0**	**1**	**0**	***1***	**2**	**0**	**0**	**1**	*3*
8:00 AM	**1**	**0**	**1**	**4**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**2**	**0**	**2**	**1**	***5***	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**1**	**0**	**2**	**2**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:45 AM	1	0	2	2	*5*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	9	0	13	10	*32*	1	0	1	0	*2*	2	2	0	1	*5*
Peak Hr	**5**	**0**	**8**	**7**	***20***	**1**	**0**	**1**	**0**	***2***	**2**	**0**	**0**	**1**	***3***

#10 AM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Reata Rd				0				Leslie Rd				Leslie Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:15 AM	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	2	0
7:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	3	0
7:45 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	11
8:00 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	**1**	**6**	15
8:15 AM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**5**	18
8:30 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**5**	**20**
8:45 AM	0	0	0	1	0	0	0	0	0	1	1	0	0	0	2	0	5	21
Count Total	0	2	0	7	0	0	0	0	0	9	4	0	1	0	6	3	32	0
Peak Hour	**0**	**1**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**6**	**2**	**0**	**1**	**0**	**3**	**3**	**20**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	E Reata Rd			0			Leslie Rd			Leslie Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	2
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	1	0	0	0	1	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**

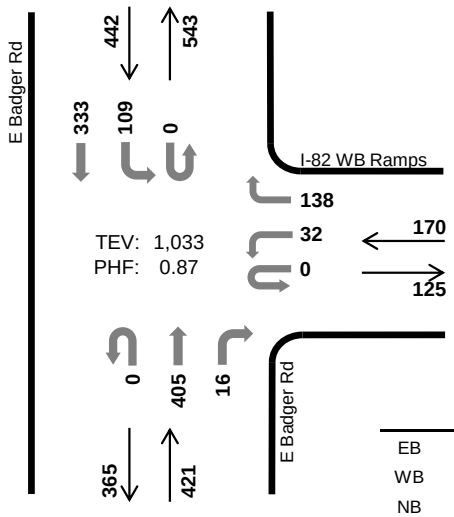
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

#11 AM

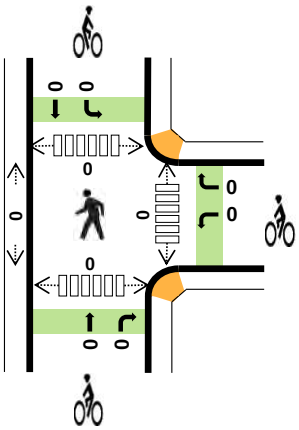
E Badger Rd
I-82 WB Ramps

N

Peak Hour



Date: 11-04-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	-	-
WB	2.9%	0.85
NB	2.9%	0.82
SB	5.2%	0.91
TOTAL	3.9%	0.87

Two-Hour Count Summaries

Interval Start		0 Eastbound				I-82 WB Ramps Westbound				E Badger Rd Northbound				E Badger Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	0	0	0	7	0	23	0	0	96	4	0	18	68	0	216	0
7:15 AM		0	0	0	0	0	7	0	41	0	0	76	1	0	29	63	0	217	0
7:30 AM		**0**	**0**	**0**	**0**	**0**	**4**	**0**	**24**	**0**	**0**	**95**	**7**	**0**	**31**	**83**	**0**	**244**	0
7:45 AM		**0**	**0**	**0**	**0**	**0**	**6**	**0**	**42**	**0**	**0**	**122**	**6**	**0**	**31**	**90**	**0**	**297**	974
8:00 AM		**0**	**0**	**0**	**0**	**0**	**11**	**0**	**39**	**0**	**0**	**98**	**2**	**0**	**20**	**81**	**0**	**251**	1,009
8:15 AM		**0**	**0**	**0**	**0**	**0**	**11**	**0**	**33**	**0**	**0**	**90**	**1**	**0**	**27**	**79**	**0**	**241**	**1,033**
8:30 AM		0	0	0	0	0	7	0	31	0	0	91	4	0	27	73	0	233	1,022
8:45 AM		0	0	0	0	0	7	0	51	0	0	92	1	0	17	62	0	230	955
Count Total		0	0	0	0	0	60	0	284	0	0	760	26	0	200	599	0	1,929	0
Peak Hour	**All**	**0**	**0**	**0**	**0**	**0**	**32**	**0**	**138**	**0**	**0**	**405**	**16**	**0**	**109**	**333**	**0**	**1,033**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**0**	**0**	**10**	**2**	**0**	**9**	**14**	**0**	**40**	**0**
	HV%	**-**	**-**	**-**	**-**	**-**	**3%**	**-**	**3%**	**-**	**-**	**2%**	**13%**	**-**	**8%**	**4%**	**-**	**4%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	5	3	*8*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	0	2	3	4	*9*	0	0	0	0	*0*	0	2	0	0	*2*
7:30 AM	**0**	**0**	**2**	**4**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**0**	**5**	**12**	***17***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**4**	**2**	**4**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**1**	**3**	**3**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:30 AM	0	0	6	5	*11*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	0	4	2	6	*12*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	11	28	41	*80*	0	0	0	0	*0*	0	2	0	0	*2*
Peak Hr	**0**	**5**	**12**	**23**	***40***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

#11 AM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	0				I-82 WB Ramps				E Badger Rd				E Badger Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	4	1	0	2	1	0	8	0
7:15 AM	0	0	0	0	0	1	0	1	0	0	3	0	0	3	1	0	9	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**6**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**7**	**5**	**0**	**17**	40
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**1**	**3**	**0**	**10**	42
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**1**	**2**	**0**	**7**	**40**
8:30 AM	0	0	0	0	0	0	0	0	0	0	5	1	0	3	2	0	11	45
8:45 AM	0	0	0	0	0	0	0	4	0	0	2	0	0	4	2	0	12	40
Count Total	0	0	0	0	0	2	0	9	0	0	24	4	0	21	20	0	80	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**0**	**0**	**10**	**2**	**0**	**9**	**14**	**0**	**40**	**0**

Two-Hour Count Summaries - Bikes

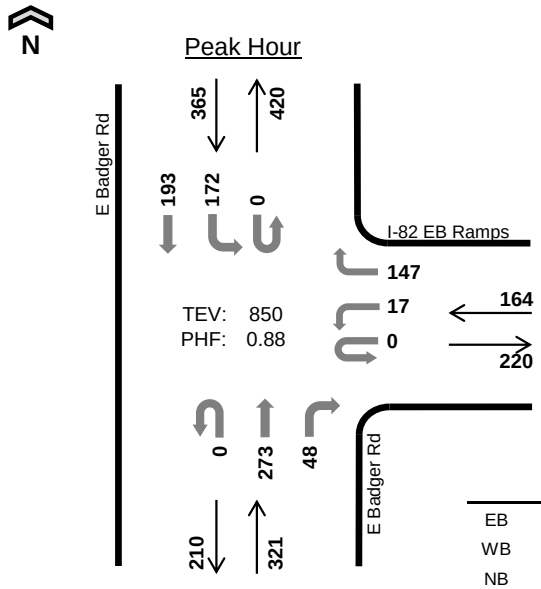
Interval Start	0			I-82 WB Ramps			E Badger Rd			E Badger Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

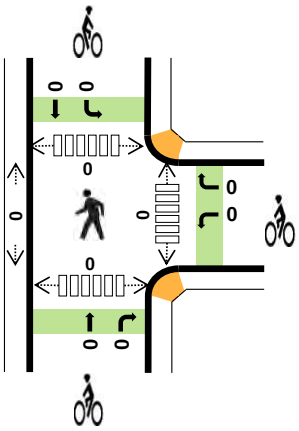
#12 AM

E Badger Rd
I-82 EB Ramps

Date: 11-04-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	-	-
WB	2.4%	0.89
NB	3.1%	0.80
SB	4.1%	0.96
TOTAL	3.4%	0.88



Two-Hour Count Summaries

Interval Start	0				I-82 EB Ramps				E Badger Rd				E Badger Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	5	0	17	0	0	82	10	0	41	34	0	189	0
7:15 AM	0	0	0	0	0	2	0	22	0	0	55	11	0	35	35	0	160	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**41**	**0**	**0**	**61**	**13**	**0**	**49**	**39**	**0**	**207**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**40**	**0**	**0**	**86**	**14**	**0**	**51**	**44**	**0**	**241**	797
8:00 AM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**39**	**0**	**0**	**62**	**13**	**0**	**35**	**57**	**0**	**210**	818
8:15 AM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**27**	**0**	**0**	**64**	**8**	**0**	**37**	**53**	**0**	**192**	**850**
8:30 AM	0	0	0	0	0	4	0	23	0	0	71	6	0	35	46	0	185	828
8:45 AM	0	0	0	0	0	2	0	28	0	0	64	10	0	23	45	0	172	759
Count Total	0	0	0	0	0	30	0	237	0	0	545	85	0	306	353	0	1,556	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**147**	**0**	**0**	**273**	**48**	**0**	**172**	**193**	**0**	**850**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**7**	**3**	**0**	**9**	**6**	**0**	**29**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**3%**	**-**	**-**	**3%**	**6%**	**-**	**5%**	**3%**	**-**	**3%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	1	4	1	*6*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	0	5	1	2	*8*	0	0	0	0	*0*	0	1	0	0	*1*
7:30 AM	**0**	**1**	**2**	**4**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**1**	**5**	**5**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**0**	**2**	**4**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**2**	**1**	**2**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:30 AM	0	4	3	2	*9*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	0	1	1	2	*4*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	15	19	22	*56*	0	0	0	0	*0*	0	1	0	0	*1*
Peak Hr	**0**	**4**	**10**	**15**	***29***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

#12 AM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	0				I-82 EB Ramps				E Badger Rd				E Badger Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	0	0	4	0	0	0	1	0	6	0
7:15 AM	0	0	0	0	0	2	0	3	0	0	1	0	0	1	1	0	8	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**3**	**1**	**0**	**7**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**1**	**0**	**4**	**1**	**0**	**11**	32
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**3**	**0**	**6**	32
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**5**	**29**
8:30 AM	0	0	0	0	0	1	0	3	0	0	3	0	0	2	0	0	9	31
8:45 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	4	24
Count Total	0	0	0	0	0	3	0	12	0	0	16	3	0	13	9	0	56	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**7**	**3**	**0**	**9**	**6**	**0**	**29**	**0**

Two-Hour Count Summaries - Bikes

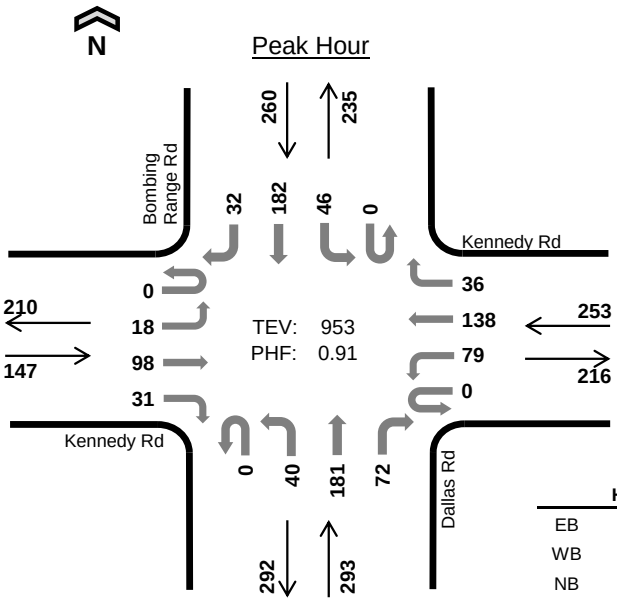
Interval Start	0			I-82 EB Ramps			E Badger Rd			E Badger Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

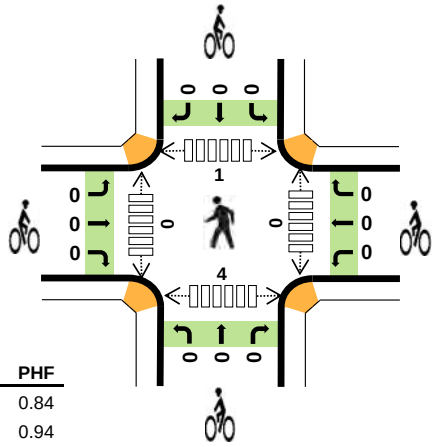
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

#1 PM

Dallas Rd
Kennedy Rd

Date: 11-04-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	0.0%	0.84
WB	0.4%	0.94
NB	0.7%	0.80
SB	0.8%	0.86
TOTAL	0.5%	0.91

Two-Hour Count Summaries

Interval Start	Kennedy Rd Eastbound				Kennedy Rd Westbound				Dallas Rd Northbound				Bombing Range Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	5	19	8	0	10	29	11	0	11	36	18	0	2	37	4	190	0
4:15 PM	0	7	32	3	0	13	30	5	0	11	47	21	0	6	32	7	214	0
4:30 PM	**0**	**5**	**31**	**8**	**0**	**21**	**36**	**8**	**0**	**7**	**36**	**18**	**0**	**8**	**40**	**12**	**230**	0
4:45 PM	**0**	**7**	**25**	**6**	**0**	**14**	**37**	**6**	**0**	**15**	**37**	**13**	**0**	**8**	**39**	**7**	**214**	848
5:00 PM	**0**	**1**	**22**	**9**	**0**	**21**	**32**	**11**	**0**	**6**	**48**	**21**	**0**	**18**	**51**	**7**	**247**	905
5:15 PM	**0**	**5**	**20**	**8**	**0**	**23**	**33**	**11**	**0**	**12**	**60**	**20**	**0**	**12**	**52**	**6**	**262**	**953**
5:30 PM	0	6	24	5	0	20	30	8	0	2	35	30	0	4	32	4	200	923
5:45 PM	0	6	23	2	0	19	36	5	0	4	32	21	0	3	27	5	183	892
Count Total	0	42	196	49	0	141	263	65	0	68	331	162	0	61	310	52	1,740	0
Peak Hour All	**0**	**18**	**98**	**31**	**0**	**79**	**138**	**36**	**0**	**40**	**181**	**72**	**0**	**46**	**182**	**32**	**953**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**1**	**5**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**1%**	**0%**	**-**	**0%**	**1%**	**1%**	**-**	**2%**	**0%**	**3%**	**1%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	2	2	2	*7*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	1	1	0	1	*3*	0	0	1	0	*1*	0	0	0	0	*0*
4:30 PM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
4:45 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**4**	*4*
5:00 PM	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	2	5	4	5	*16*	0	0	1	0	*1*	0	0	1	4	*5*
Peak Hour	**0**	**1**	**2**	**2**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**4**	***5***

#1 PM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Kennedy Rd Eastbound				Kennedy Rd Westbound				Dallas Rd Northbound				Bombing Range Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	1	0	0	0	2	0	0	0	2	0	0	1	1	0	7	0
4:15 PM	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	3	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	12
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**2**	7
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**5**
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	5
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Count Total	0	0	1	1	0	0	3	2	0	0	3	1	0	3	1	1	16	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**1**	**5**	**0**

Two-Hour Count Summaries - Bikes

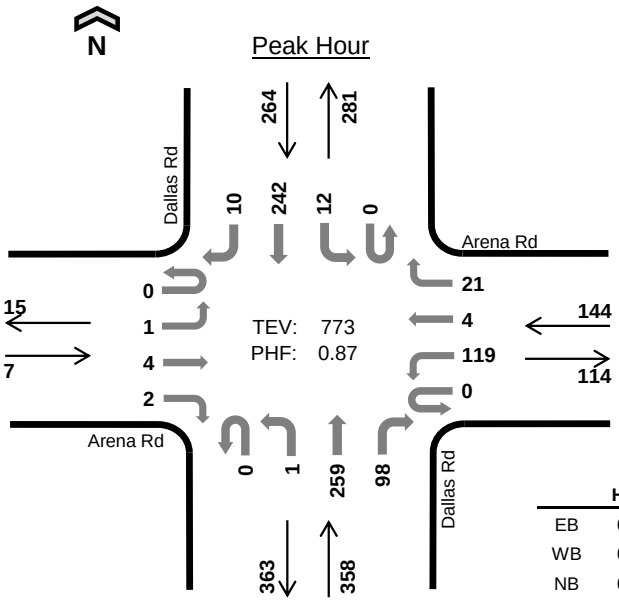
Interval Start	Kennedy Rd Eastbound			Kennedy Rd Westbound			Dallas Rd Northbound			Bombing Range Rd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

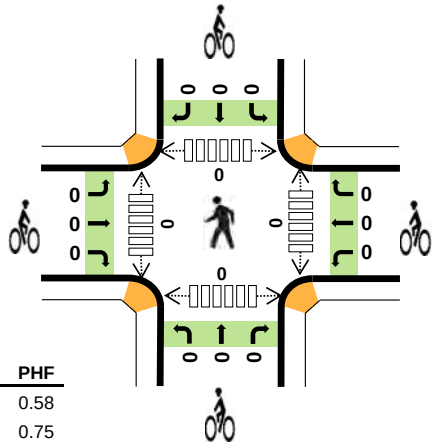
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

#2 PM

Dallas Rd
Arena Rd

Date: 11-04-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	0.0%	0.58
WB	0.0%	0.75
NB	0.6%	0.84
SB	0.8%	0.90
TOTAL	0.5%	0.87

Two-Hour Count Summaries

Interval Start	Arena Rd Eastbound				Arena Rd Westbound				Dallas Rd Northbound				Dallas Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	1	0	0	19	4	6	0	0	50	23	0	5	44	1	155	0
4:15 PM	0	1	0	1	0	21	1	6	0	0	64	21	0	5	43	2	165	0
4:30 PM	**0**	**1**	**1**	**0**	**0**	**26**	**0**	**5**	**0**	**1**	**51**	**23**	**0**	**3**	**58**	**5**	**174**	0
4:45 PM	**0**	**0**	**2**	**1**	**0**	**30**	**1**	**4**	**0**	**0**	**64**	**23**	**0**	**4**	**51**	**1**	**181**	675
5:00 PM	**0**	**0**	**1**	**1**	**0**	**24**	**1**	**5**	**0**	**0**	**64**	**26**	**0**	**1**	**69**	**3**	**195**	715
5:15 PM	**0**	**0**	**0**	**0**	**0**	**39**	**2**	**7**	**0**	**0**	**80**	**26**	**0**	**4**	**64**	**1**	**223**	**773**
5:30 PM	0	2	1	0	0	22	2	4	0	0	63	23	0	7	42	1	167	766
5:45 PM	0	1	2	0	0	17	3	5	0	1	50	26	0	3	40	3	151	736
Count Total	0	7	8	3	0	198	14	42	0	2	486	191	0	32	411	17	1,411	0
Peak Hour All	**0**	**1**	**4**	**2**	**0**	**119**	**4**	**21**	**0**	**1**	**259**	**98**	**0**	**12**	**242**	**10**	**773**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**4**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**1%**	**0%**	**-**	**0%**	**1%**	**0%**	**1%**	**0**

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

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

#2 PM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Arena Rd Eastbound				Arena Rd Westbound				Dallas Rd Northbound				Dallas Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	4	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	6
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	3
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**2**	**4**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4
Count Total	0	0	0	0	0	0	0	0	0	0	4	1	0	0	5	0	10	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**4**	**0**

Two-Hour Count Summaries - Bikes

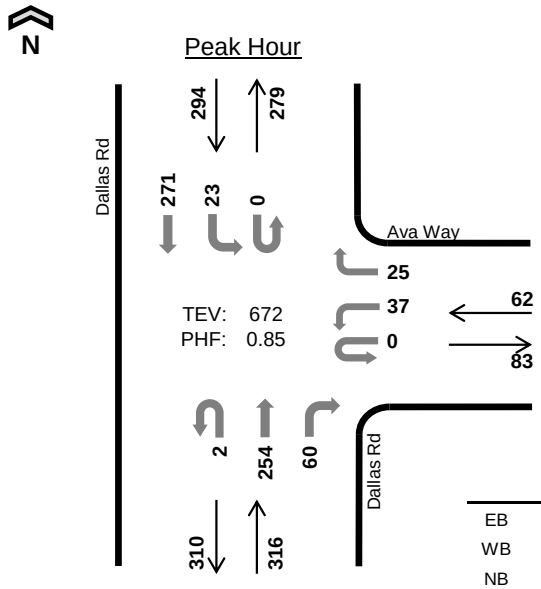
Interval Start	Arena Rd Eastbound			Arena Rd Westbound			Dallas Rd Northbound			Dallas Rd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

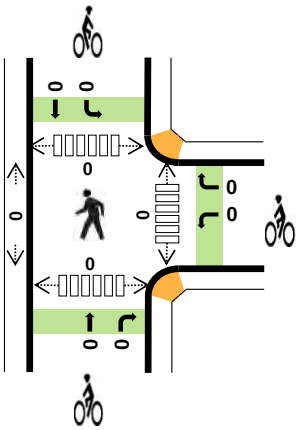
#3 PM

Dallas Rd
Ava Way

Date: 11-04-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	-	-
WB	0.0%	0.65
NB	0.6%	0.83
SB	1.0%	0.84
TOTAL	0.7%	0.85



Two-Hour Count Summaries

Interval Start	0				Ava Way				Dallas Rd				Dallas Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	17	0	3	0	0	58	13	0	9	48	0	148	0
4:15 PM	0	0	0	0	0	12	0	3	0	0	56	11	0	4	40	0	126	0
4:30 PM	0	0	0	0	0	8	0	4	0	0	48	12	0	6	48	0	126	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**7**	**0**	**0**	**60**	**17**	**0**	**2**	**56**	**0**	**147**	547
5:00 PM	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**8**	**1**	**0**	**69**	**17**	**0**	**10**	**77**	**0**	**198**	597
5:15 PM	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**6**	**1**	**0**	**79**	**15**	**0**	**9**	**74**	**0**	**196**	667
5:30 PM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**4**	**0**	**0**	**46**	**11**	**0**	**2**	**64**	**0**	**131**	**672**
5:45 PM	0	0	0	0	0	4	0	5	0	0	64	8	0	4	48	0	133	658
Count Total	0	0	0	0	0	78	0	40	2	0	480	104	0	46	455	0	1,205	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**37**	**0**	**25**	**2**	**0**	**254**	**60**	**0**	**23**	**271**	**0**	**672**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**5**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**0%**	**0%**	**-**	**1%**	**0%**	**-**	**0%**	**1%**	**-**	**1%**	**0**

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

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

#3 PM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	0				Ava Way				Dallas Rd				Dallas Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	2	0	5	0
4:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	3	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	10
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**4**	9
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	6
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	5
Count Total	0	0	0	0	0	2	0	0	0	0	4	2	0	0	7	0	15	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**5**	**0**

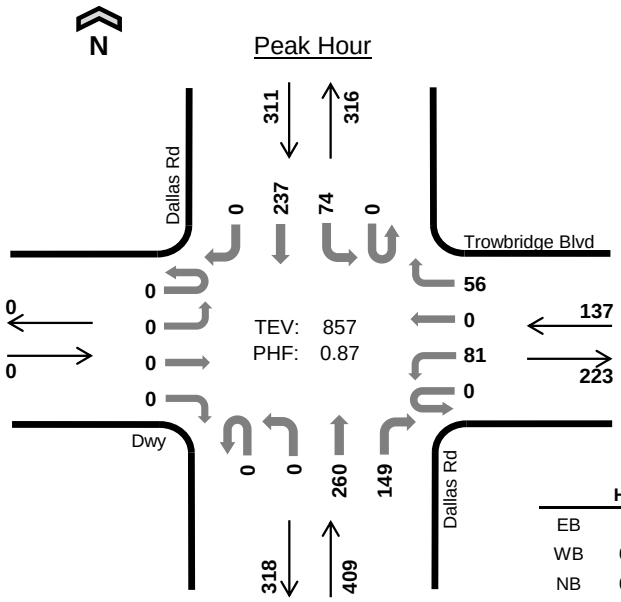
Two-Hour Count Summaries - Bikes

Interval Start	0			Ava Way			Dallas Rd			Dallas Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

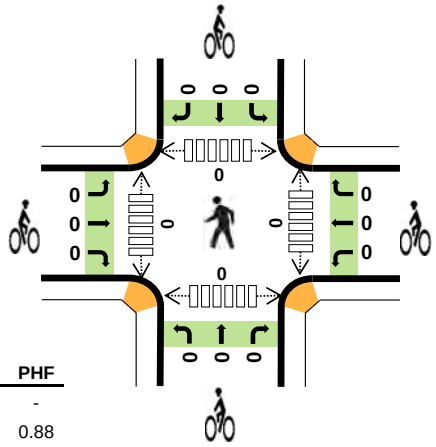
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

#4 PM

Dallas Rd
Trowbridge Blvd



Date: 11-04-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	-	-
WB	0.7%	0.88
NB	0.5%	0.80
SB	1.0%	0.85
TOTAL	0.7%	0.87

Two-Hour Count Summaries

Interval Start		Dwy Eastbound				Trowbridge Blvd Westbound				Dallas Rd Northbound				Dallas Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	0	0	0	25	0	11	0	0	59	26	0	11	50	0	182	0
4:15 PM		0	0	0	0	0	23	0	10	0	0	60	27	0	8	47	0	175	0
4:30 PM		0	0	0	0	0	27	0	9	0	0	51	30	0	8	46	0	171	0
4:45 PM		**0**	**0**	**0**	**0**	**0**	**11**	**0**	**17**	**0**	**0**	**58**	**29**	**0**	**15**	**49**	**0**	**179**	707
5:00 PM		**0**	**0**	**0**	**0**	**0**	**30**	**0**	**8**	**0**	**0**	**80**	**35**	**0**	**12**	**80**	**0**	**245**	770
5:15 PM		**0**	**0**	**0**	**0**	**0**	**18**	**0**	**14**	**0**	**0**	**80**	**48**	**0**	**25**	**62**	**0**	**247**	842
5:30 PM		**0**	**0**	**0**	**0**	**0**	**22**	**0**	**17**	**0**	**0**	**42**	**37**	**0**	**22**	**46**	**0**	**186**	**857**
5:45 PM		0	0	0	0	0	17	0	19	0	0	54	25	0	15	38	0	168	846
Count Total		0	0	0	0	0	173	0	105	0	0	484	257	0	116	418	0	1,553	0
Peak Hour	**All**	**0**	**0**	**0**	**0**	**0**	**81**	**0**	**56**	**0**	**0**	**260**	**149**	**0**	**74**	**237**	**0**	**857**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**6**	**0**
	HV%	**-**	**-**	**-**	**-**	**-**	**1%**	**-**	**0%**	**-**	**-**	**1%**	**0%**	**-**	**0%**	**1%**	**-**	**1%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	3	2	*5*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	0	0	2	*2*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	0	0	1	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**0**	**2**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:45 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	1	6	9	*16*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**0**	**1**	**2**	**3**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

#4 PM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Dwy Eastbound				Trowbridge Blvd Westbound				Dallas Rd Northbound				Dallas Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	5	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	10
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**4**	9
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	7
5:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**6**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	6
Count Total	0	0	0	0	0	1	0	0	0	0	6	0	0	1	8	0	16	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**6**	**0**

Two-Hour Count Summaries - Bikes

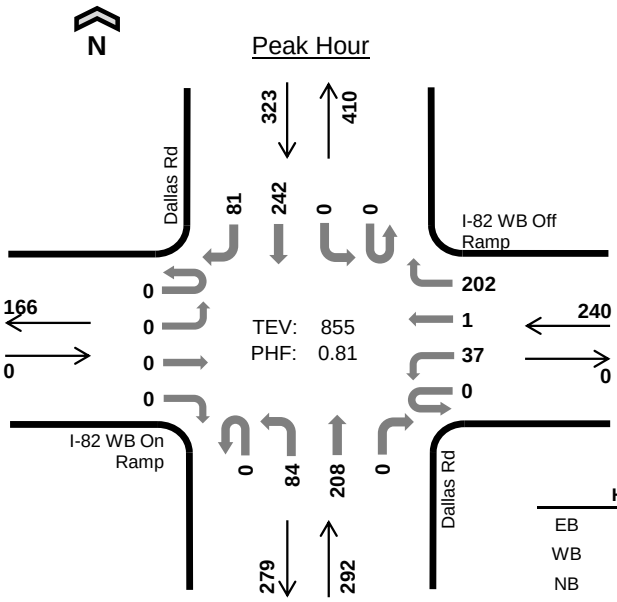
Interval Start	Dwy Eastbound			Trowbridge Blvd Westbound			Dallas Rd Northbound			Dallas Rd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

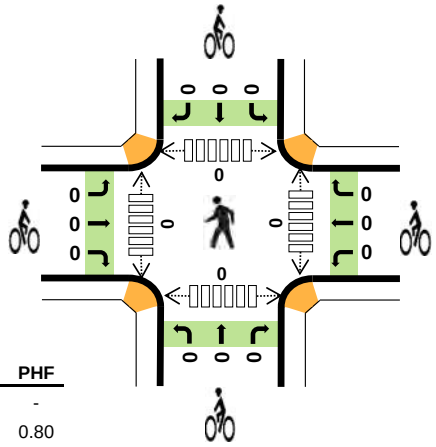
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

#5 PM

Dallas Rd
I-82 WB On Ramp

Date: 11-04-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	-	-
WB	0.0%	0.80
NB	2.1%	0.89
SB	1.2%	0.73
TOTAL	1.2%	0.81

Two-Hour Count Summaries

Interval Start	I-82 WB On Ramp Eastbound				I-82 WB Off Ramp Westbound				Dallas Rd Northbound				Dallas Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	5	0	42	0	42	46	0	0	0	52	22	209	0
4:15 PM	0	0	0	0	0	7	0	39	0	21	48	0	0	0	53	17	185	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**35**	**0**	**31**	**44**	**0**	**0**	**0**	**50**	**24**	**191**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**44**	**0**	**13**	**44**	**0**	**0**	**0**	**51**	**7**	**166**	751
5:00 PM	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**60**	**0**	**25**	**57**	**0**	**0**	**0**	**74**	**37**	**265**	807
5:15 PM	**0**	**0**	**0**	**0**	**0**	**11**	**1**	**63**	**0**	**15**	**63**	**0**	**0**	**0**	**67**	**13**	**233**	**855**
5:30 PM	0	0	0	0	0	3	0	39	0	9	42	0	0	0	57	10	160	824
5:45 PM	0	0	0	0	0	2	0	47	0	16	29	0	0	0	46	11	151	809
Count Total	0	0	0	0	0	54	1	369	0	172	373	0	0	0	450	141	1,560	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**37**	**1**	**202**	**0**	**84**	**208**	**0**	**0**	**0**	**242**	**81**	**855**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**0**	**1**	**3**	**10**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**0%**	**0%**	**0%**	**-**	**4%**	**1%**	**-**	**-**	**-**	**0%**	**4%**	**1%**	**0**

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

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	0	1	2	2	*5*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**0**	**0**	**2**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**0**	**2**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	0	1	*1*	0	0	0	0	*0*	1	0	0	0	*1*
Count Total	0	1	8	9	*18*	0	0	0	0	*0*	1	0	0	0	*1*
Peak Hour	**0**	**0**	**6**	**4**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

#5 PM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	I-82 WB On Ramp				I-82 WB Off Ramp				Dallas Rd				Dallas Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	1	0	0	2	0	0	0	2	0	5	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	11
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**1**	**4**	10
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**10**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	8
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	7
Count Total	0	0	0	0	0	0	0	1	0	3	5	0	0	0	5	4	18	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**0**	**1**	**3**	**10**	**0**

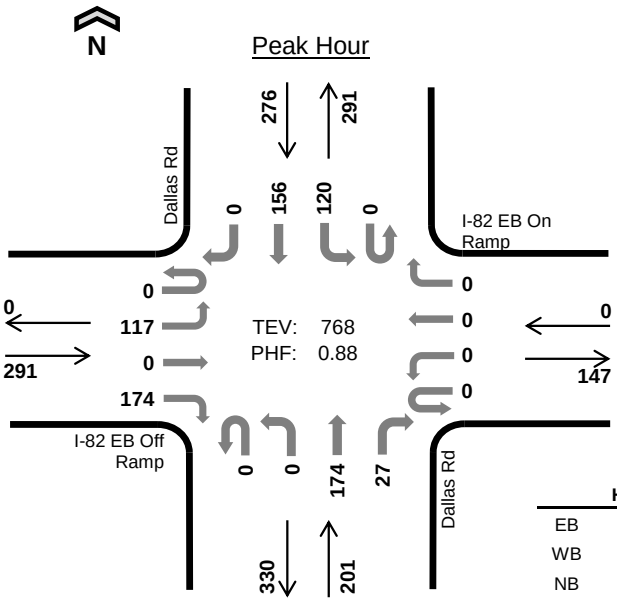
Two-Hour Count Summaries - Bikes

Interval Start	I-82 WB On Ramp			I-82 WB Off Ramp			Dallas Rd			Dallas Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

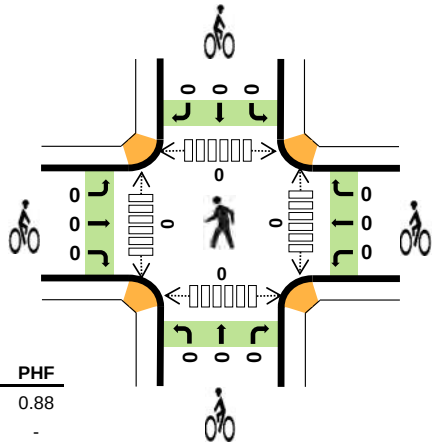
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

#6 PM

Dallas Rd
I-82 EB Off Ramp



Date: 11-04-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	0.7%	0.88
WB	-	-
NB	2.0%	0.79
SB	0.4%	0.79
TOTAL	0.9%	0.88

Two-Hour Count Summaries

Interval Start	I-82 EB Off Ramp				I-82 EB On Ramp				Dallas Rd				Dallas Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	21	0	27	0	0	0	0	0	0	68	10	0	32	26	0	184	0
4:15 PM	0	28	0	24	0	0	0	0	0	0	42	9	0	31	28	0	162	0
4:30 PM	**0**	**22**	**0**	**40**	**0**	**0**	**0**	**0**	**0**	**0**	**52**	**12**	**0**	**27**	**31**	**0**	**184**	0
4:45 PM	**0**	**24**	**0**	**48**	**0**	**0**	**0**	**0**	**0**	**0**	**35**	**5**	**0**	**19**	**37**	**0**	**168**	698
5:00 PM	**0**	**28**	**0**	**46**	**0**	**0**	**0**	**0**	**0**	**0**	**53**	**5**	**0**	**43**	**44**	**0**	**219**	733
5:15 PM	**0**	**43**	**0**	**40**	**0**	**0**	**0**	**0**	**0**	**0**	**34**	**5**	**0**	**31**	**44**	**0**	**197**	**768**
5:30 PM	0	21	0	35	0	0	0	0	0	0	29	6	0	32	30	0	153	737
5:45 PM	0	21	0	28	0	0	0	0	0	0	24	3	0	26	23	0	125	694
Count Total	0	208	0	288	0	0	0	0	0	0	337	55	0	241	263	0	1,392	0
Peak Hour All	**0**	**117**	**0**	**174**	**0**	**0**	**0**	**0**	**0**	**0**	**174**	**27**	**0**	**120**	**156**	**0**	**768**	**0**
Peak Hour HV	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**0**	**7**	**0**
Peak Hour HV%	**-**	**1%**	**-**	**1%**	**-**	**-**	**-**	**-**	**-**	**-**	**2%**	**0%**	**-**	**1%**	**0%**	**-**	**1%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	0	0	2	*5*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	1	0	1	1	*3*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**1**	**0**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**1**	**0**	**1**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	2	0	0	1	*3*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	8	0	5	5	*18*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**2**	**0**	**4**	**1**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

#6 PM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	I-82 EB Off Ramp				I-82 EB On Ramp				Dallas Rd				Dallas Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	0	1	0	0	0	0	0	0	0	0	0	2	0	0	5	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	3	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	11
5:00 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**3**	9
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**7**
5:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	3	9
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Count Total	0	4	0	4	0	0	0	0	0	0	4	1	0	5	0	0	18	0
Peak Hour	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**0**	**7**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	I-82 EB Off Ramp			I-82 EB On Ramp			Dallas Rd			Dallas Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

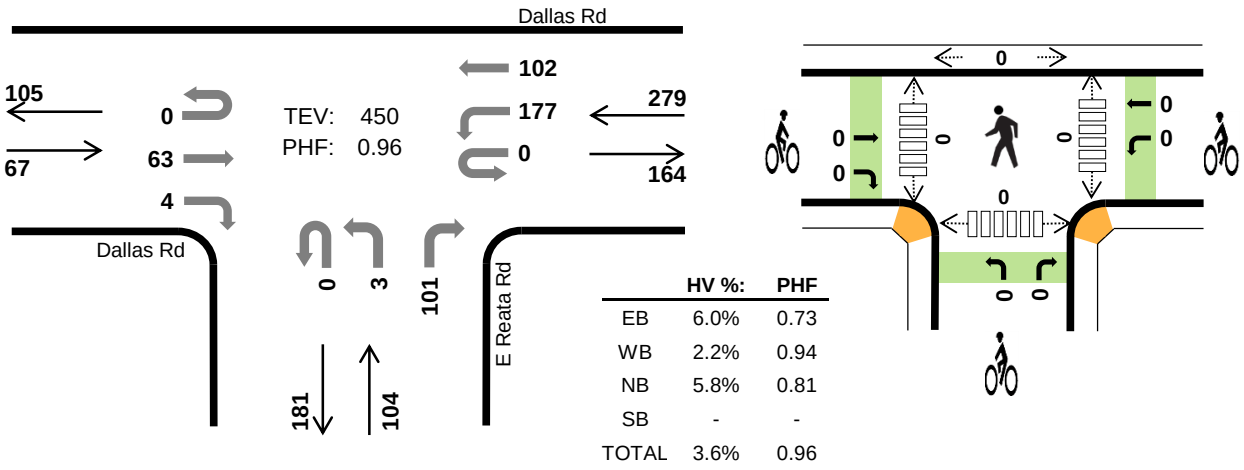
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

E Reata Rd
Dallas Rd

N

Peak Hour

Date: 01/25/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	6.0%	0.73
WB	2.2%	0.94
NB	5.8%	0.81
SB	-	-
TOTAL	3.6%	0.96

Two-Hour Count Summaries

Interval Start	Dallas Rd Eastbound				Dallas Rd Westbound				E Reata Rd Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	19	1	0	25	32	0	0	2	0	20	0	0	0	0	99	0
4:15 PM	0	0	30	0	0	30	27	0	0	2	0	12	0	0	0	0	101	0
4:30 PM	**0**	**0**	**18**	**3**	**0**	**43**	**23**	**0**	**0**	**1**	**0**	**22**	**0**	**0**	**0**	**0**	**110**	0
4:45 PM	**0**	**0**	**13**	**0**	**0**	**45**	**24**	**0**	**0**	**1**	**0**	**31**	**0**	**0**	**0**	**0**	**114**	424
5:00 PM	**0**	**0**	**22**	**1**	**0**	**46**	**24**	**0**	**0**	**1**	**0**	**23**	**0**	**0**	**0**	**0**	**117**	442
5:15 PM	**0**	**0**	**10**	**0**	**0**	**43**	**31**	**0**	**0**	**0**	**0**	**25**	**0**	**0**	**0**	**0**	**109**	**450**
5:30 PM	0	0	15	0	0	36	22	0	0	0	0	16	0	0	0	0	89	429
5:45 PM	0	0	14	1	0	34	10	0	0	0	0	22	0	0	0	0	81	396
Count Total	0	0	141	6	0	302	193	0	0	7	0	171	0	0	0	0	820	0
Peak Hour All	**0**	**0**	**63**	**4**	**0**	**177**	**102**	**0**	**0**	**3**	**0**	**101**	**0**	**0**	**0**	**0**	**450**	**0**
Peak Hour HV	**0**	**0**	**3**	**1**	**0**	**3**	**3**	**0**	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**16**	**0**
Peak Hour HV%	**-**	**-**	**5%**	**25%**	**-**	**2%**	**3%**	**-**	**-**	**33%**	**-**	**5%**	**-**	**-**	**-**	**-**	**4%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	1	1	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	3	2	2	0	*7*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**1**	**2**	**3**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**3**	**2**	**1**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**1**	**2**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	1	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	8	9	10	0	*27*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**4**	**6**	**6**	**0**	***16***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Dallas Rd Eastbound				Dallas Rd Westbound				E Reata Rd Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	3	0
4:15 PM	0	0	3	0	0	2	0	0	0	0	0	2	0	0	0	0	7	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**6**	17
5:00 PM	**0**	**0**	**2**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**6**	20
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**3**	**16**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	10
Count Total	0	0	7	1	0	5	4	0	0	1	0	9	0	0	0	0	27	0
Peak Hour	**0**	**0**	**3**	**1**	**0**	**3**	**3**	**0**	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**16**	**0**

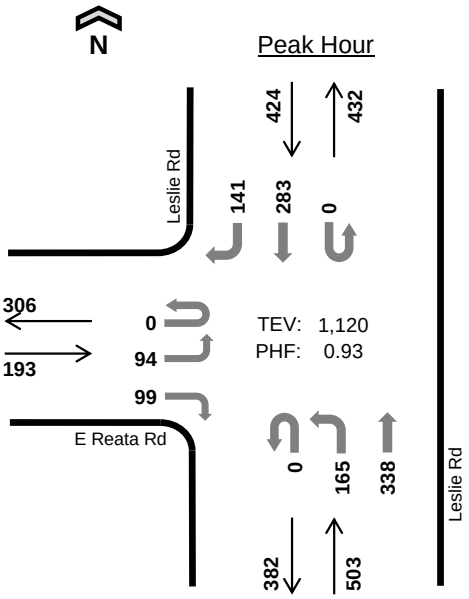
Two-Hour Count Summaries - Bikes

Interval Start	Dallas Rd Eastbound			Dallas Rd Westbound			E Reata Rd Northbound			0 Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

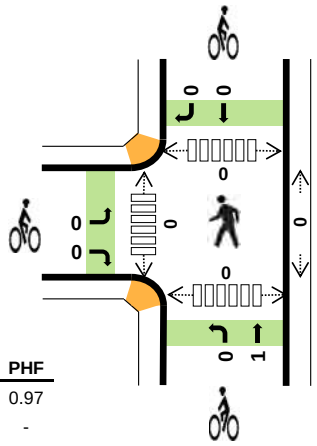
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

#10 PM

Leslie Rd
E Reata Rd



Date: 11-04-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	0.5%	0.97
WB	-	-
NB	0.6%	0.85
SB	1.2%	0.95
TOTAL	0.8%	0.93

Two-Hour Count Summaries

Interval Start		E Reata Rd Eastbound				0 Westbound				Leslie Rd Northbound				Leslie Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	18	0	23	0	0	0	0	0	44	84	0	0	0	53	40	262	0
4:15 PM		0	22	0	24	0	0	0	0	0	49	65	0	0	0	68	38	266	0
4:30 PM		**0**	**23**	**0**	**23**	**0**	**0**	**0**	**0**	**0**	**41**	**72**	**0**	**0**	**0**	**74**	**30**	**263**	0
4:45 PM		**0**	**27**	**0**	**23**	**0**	**0**	**0**	**0**	**0**	**34**	**90**	**0**	**0**	**0**	**77**	**34**	**285**	1,076
5:00 PM		**0**	**23**	**0**	**26**	**0**	**0**	**0**	**0**	**0**	**53**	**95**	**0**	**0**	**0**	**67**	**38**	**302**	1,116
5:15 PM		**0**	**21**	**0**	**27**	**0**	**0**	**0**	**0**	**0**	**37**	**81**	**0**	**0**	**0**	**65**	**39**	**270**	**1,120**
5:30 PM		0	18	0	27	0	0	0	0	0	33	73	0	0	0	71	29	251	1,108
5:45 PM		0	16	0	18	0	0	0	0	0	39	79	0	0	0	60	29	241	1,064
Count Total		0	168	0	191	0	0	0	0	0	330	639	0	0	0	535	277	2,140	0
Peak Hour	**All**	**0**	**94**	**0**	**99**	**0**	**0**	**0**	**0**	**0**	**165**	**338**	**0**	**0**	**0**	**283**	**141**	**1,120**	**0**
	HV	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**5**	**0**	**9**	**0**
	HV%	**-**	**0%**	**-**	**1%**	**-**	**-**	**-**	**-**	**-**	**2%**	**0%**	**-**	**-**	**-**	**2%**	**0%**	**1%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	0	4	1	*7*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	1	0	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**0**	**0**	**2**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**1**	**0**	**0**	**2**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***
5:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	4	0	7	7	*18*	0	0	1	0	*1*	0	0	0	0	*0*
Peak Hr	**1**	**0**	**3**	**5**	***9***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***

#10 PM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Reata Rd				0				Leslie Rd				Leslie Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	2	0	0	0	0	0	4	0	0	0	0	1	0	7	0
4:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
4:45 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	13
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	8
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**9**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5
Count Total	0	0	0	4	0	0	0	0	0	7	0	0	0	0	6	1	18	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**5**	**0**	**9**	**0**

Two-Hour Count Summaries - Bikes

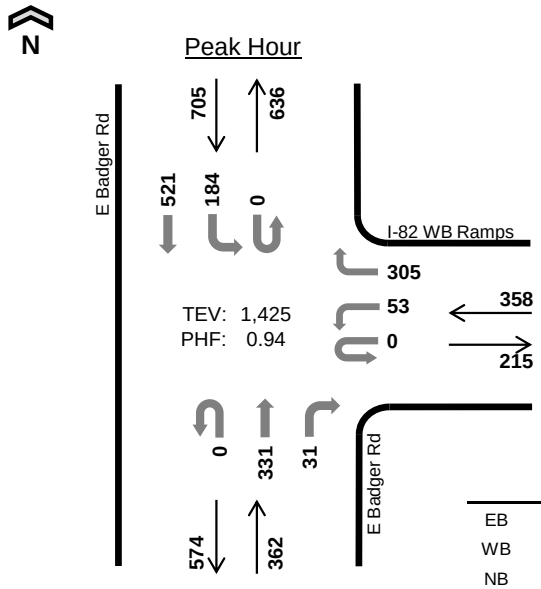
Interval Start	E Reata Rd			0			Leslie Rd			Leslie Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**

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

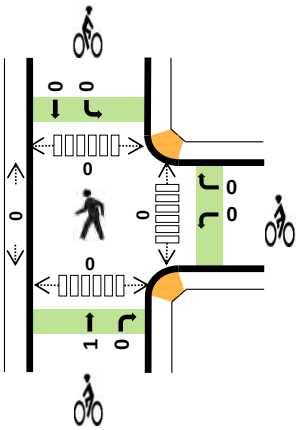
#11 PM

E Badger Rd
I-82 WB Ramps

Date: 11-04-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	-	-
WB	0.8%	0.84
NB	0.8%	0.91
SB	0.3%	0.96
TOTAL	0.6%	0.94



Two-Hour Count Summaries

Interval Start	0 Eastbound				I-82 WB Ramps Westbound				E Badger Rd Northbound				E Badger Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	12	0	61	0	0	102	5	0	39	116	0	335	0
4:15 PM	0	0	0	0	0	13	0	57	0	0	107	4	0	37	118	0	336	0
4:30 PM	0	0	0	0	0	15	0	71	0	0	90	5	0	27	115	0	323	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**77**	**0**	**0**	**78**	**8**	**0**	**46**	**129**	**0**	**353**	1,347
5:00 PM	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**100**	**0**	**0**	**84**	**10**	**0**	**47**	**133**	**0**	**381**	1,393
5:15 PM	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**61**	**0**	**0**	**93**	**6**	**0**	**46**	**138**	**0**	**362**	1,419
5:30 PM	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**67**	**0**	**0**	**76**	**7**	**0**	**45**	**121**	**0**	**329**	**1,425**
5:45 PM	0	0	0	0	0	6	0	50	0	0	93	1	0	36	103	0	289	1,361
Count Total	0	0	0	0	0	99	0	544	0	0	723	46	0	323	973	0	2,708	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**53**	**0**	**305**	**0**	**0**	**331**	**31**	**0**	**184**	**521**	**0**	**1,425**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**8**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**2%**	**-**	**1%**	**-**	**-**	**1%**	**0%**	**-**	**0%**	**0%**	**-**	**1%**	**0**

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

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

#11 PM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	0				I-82 WB Ramps				E Badger Rd				E Badger Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	2	0	0	4	0	0	0	2	0	8	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0
4:30 PM	0	0	0	0	0	1	0	1	0	0	1	0	0	2	1	0	6	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	17
5:00 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	11
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	10
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**8**
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	8
Count Total	0	0	0	0	0	2	0	5	0	0	10	0	0	2	6	0	25	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**8**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	0			I-82 WB Ramps			E Badger Rd			E Badger Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	1
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**

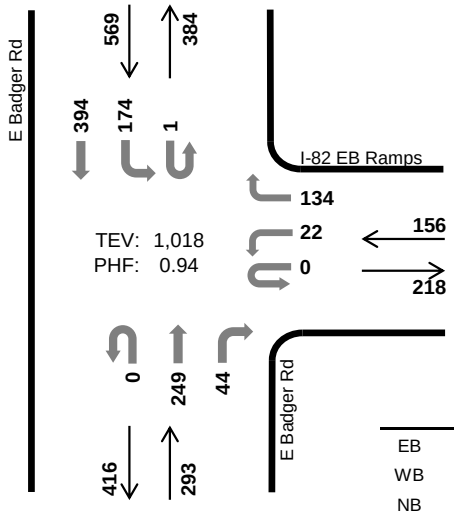
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

#12 PM

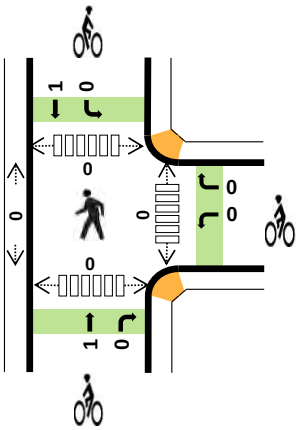
E Badger Rd
I-82 EB Ramps

N

Peak Hour



Date: 11-04-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	-	-
WB	1.9%	0.85
NB	0.0%	0.93
SB	0.9%	0.91
TOTAL	0.8%	0.94

Two-Hour Count Summaries

Interval Start		0 Eastbound				I-82 EB Ramps Westbound				E Badger Rd Northbound				E Badger Rd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	0	0	0	3	0	34	0	0	75	6	1	46	82	0	247	0
4:15 PM		0	0	0	0	0	1	0	47	0	0	60	3	1	50	79	0	241	0
4:30 PM		**0**	**0**	**0**	**0**	**0**	**5**	**0**	**36**	**0**	**0**	**62**	**10**	**0**	**35**	**94**	**0**	**242**	0
4:45 PM		**0**	**0**	**0**	**0**	**0**	**6**	**0**	**23**	**0**	**0**	**67**	**12**	**0**	**43**	**101**	**0**	**252**	982
5:00 PM		**0**	**0**	**0**	**0**	**0**	**8**	**0**	**32**	**0**	**0**	**65**	**8**	**0**	**50**	**90**	**0**	**253**	988
5:15 PM		**0**	**0**	**0**	**0**	**0**	**3**	**0**	**43**	**0**	**0**	**55**	**14**	**1**	**46**	**109**	**0**	**271**	**1,018**
5:30 PM		0	0	0	0	0	8	0	36	0	0	47	9	0	42	88	0	230	1,006
5:45 PM		0	0	0	0	0	5	0	47	0	0	50	8	0	37	75	0	222	976
Count Total		0	0	0	0	0	39	0	298	0	0	481	70	3	349	718	0	1,958	0
Peak Hour	**All**	**0**	**0**	**0**	**0**	**0**	**22**	**0**	**134**	**0**	**0**	**249**	**44**	**1**	**174**	**394**	**0**	**1,018**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**8**	**0**
	HV%	**-**	**-**	**-**	**-**	**-**	**5%**	**-**	**1%**	**-**	**-**	**0%**	**0%**	**0%**	**1%**	**1%**	**-**	**1%**	**0**

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	4	2	*6*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	1	0	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**0**	**1**	**0**	**2**	***3***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**2**	**0**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***
5:30 PM	0	3	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	8	4	8	*20*	0	0	1	1	*2*	0	0	0	0	*0*
Peak Hr	**0**	**3**	**0**	**5**	***8***	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	***0***

#12 PM

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	0				I-82 EB Ramps				E Badger Rd				E Badger Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	1	1	0	6	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**3**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	12
5:00 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	9
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**8**
5:30 PM	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	8
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	8
Count Total	0	0	0	0	0	2	0	6	0	0	4	0	0	3	5	0	20	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**8**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	0			I-82 EB Ramps			E Badger Rd			E Badger Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**2**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	1	0	0	1	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	**0**

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

Appendix B

Average Annual Background Growth Calculations based on ADT Volumes

ADT Comparison
Based on counts provided by City of Richland

Location			2016 Total	2018 Total	2016-2018 Annual Growth	
Dallas Rd	north of	Ava Way	4,166	4,329	1.9%	
Bombing Range Rd	north of	Kennedy Rd	4,129	4,217	1.1%	
Bombing Range Rd	south of	Kennedy Rd	5,127	3,804	-13.9%	*excluded from average*
Kennedy Rd	east of	Bombing Range Rd	4,221	4,514	3.4%	
Kennedy Rd	east of	Arena Rd	6,313	7,005	5.3%	
Keene Rd	east of	Bombing Range Rd	17,078	17,448	1.1%	
Reata Rd	west of	Leslie Rd	5,530	5,792	2.3%	
Clearwater Ave	south of	Leslie Rd	14,959	10,636	-15.7%	*excluded from average*
				Average	**2.5%**	

Appendix C

Level of Service (LOS) Calculations

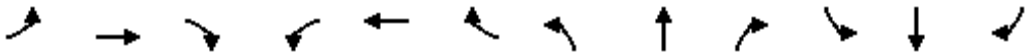
2022 Existing AM Peak Hour

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	102	20	33	60	23	21	127	76	27	135	23
Future Vol, veh/h	17	102	20	33	60	23	21	127	76	27	135	23
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	8	1	7	4	4	6	6	4	5	5	1	0
Mvmt Flow	18	105	21	34	62	24	22	131	78	28	139	24
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	9.8	9.4	10.2	9.8
HCM LOS	A	A	B	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	63%	0%	84%	0%	72%	0%	85%
Vol Right, %	0%	37%	0%	16%	0%	28%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	203	17	122	33	83	27	158
LT Vol	21	0	17	0	33	0	27	0
Through Vol	0	127	0	102	0	60	0	135
RT Vol	0	76	0	20	0	23	0	23
Lane Flow Rate	22	209	18	126	34	86	28	163
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.036	0.304	0.031	0.197	0.06	0.134	0.047	0.244
Departure Headway (Hd)	6.037	5.235	6.367	5.627	6.33	5.629	6.058	5.383
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	589	680	557	631	561	630	586	661
Service Time	3.82	3.017	4.162	3.421	4.128	3.427	3.844	3.168
HCM Lane V/C Ratio	0.037	0.307	0.032	0.2	0.061	0.137	0.048	0.247
HCM Control Delay	9	10.3	9.4	9.8	9.5	9.3	9.1	9.9
HCM Lane LOS	A	B	A	A	A	A	A	A
HCM 95th-tile Q	0.1	1.3	0.1	0.7	0.2	0.5	0.1	1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	13	0	70	1	8	1	210	99	9	183	3
Future Volume (vph)	5	13	0	70	1	8	1	210	99	9	183	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			4%			-5%			4%	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		259			729			11331			569	
Travel Time (s)		7.1			19.9			220.7			11.1	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	10%	0%	6%	0%	0%	0%	4%	1%	0%	5%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	13	0	70	1	8	1	210	99	9	183	3
Future Vol, veh/h	5	13	0	70	1	8	1	210	99	9	183	3
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	-	-	4	-	-	-5	-	-	4	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	10	0	6	0	0	0	4	1	0	5	0
Mvmt Flow	6	15	0	80	1	9	1	239	113	10	208	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	533	584	210	535	529	296	211	0	0	352	0	0
Stage 1	230	230	-	298	298	-	-	-	-	-	-	-
Stage 2	303	354	-	237	231	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.6	6.2	7.96	7.3	6.6	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.6	-	6.96	6.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.6	-	6.96	6.3	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.09	3.3	3.554	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	461	413	835	399	407	724	1372	-	-	1218	-	-
Stage 1	777	699	-	657	628	-	-	-	-	-	-	-
Stage 2	711	616	-	718	681	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	451	409	835	385	403	724	1372	-	-	1218	-	-
Mov Cap-2 Maneuver	451	409	-	385	403	-	-	-	-	-	-	-
Stage 1	776	693	-	656	627	-	-	-	-	-	-	-
Stage 2	700	615	-	696	675	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14	16.4	0	0.4
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1372	-	-	420	404	1218	-	-
HCM Lane V/C Ratio	0.001	-	-	0.049	0.222	0.008	-	-
HCM Control Delay (s)	7.6	0	-	14	16.4	8	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.8	0	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	26	224	29	6	200
Future Volume (vph)	45	26	224	29	6	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		50			50
Link Distance (ft)	380		1687			11331
Travel Time (s)	10.4		23.0			154.5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	6%	5%	5%	4%	20%	5%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	26	224	29	6	200
Future Vol, veh/h	45	26	224	29	6	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	6	5	5	4	20	5
Mvmt Flow	48	28	241	31	6	215

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	484	257	0	0	272	0
Stage 1	257	-	-	-	-	-
Stage 2	227	-	-	-	-	-
Critical Hdwy	6.46	6.25	-	-	4.3	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.345	-	-	2.38	-
Pot Cap-1 Maneuver	535	774	-	-	1194	-
Stage 1	777	-	-	-	-	-
Stage 2	801	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	532	774	-	-	1194	-
Mov Cap-2 Maneuver	532	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	796	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	601	1194	-
HCM Lane V/C Ratio	-	-	0.127	0.005	-
HCM Control Delay (s)	-	-	11.9	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	61	190	93	26	219
Future Volume (vph)	110	61	190	93	26	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		330	180	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		50			50
Link Distance (ft)	317		1150			1687
Travel Time (s)	8.6		15.7			23.0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	1%	4%	5%	7%	10%	4%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

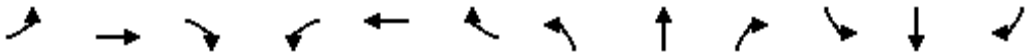
Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	110	61	190	93	26	219
Future Vol, veh/h	110	61	190	93	26	219
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	330	180	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	4	5	7	10	4
Mvmt Flow	129	72	224	109	31	258

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	544	224	0	0	333	0
Stage 1	224	-	-	-	-	-
Stage 2	320	-	-	-	-	-
Critical Hdwy	6.41	6.24	-	-	4.2	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.336	-	-	2.29	-
Pot Cap-1 Maneuver	502	810	-	-	1183	-
Stage 1	816	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	489	810	-	-	1183	-
Mov Cap-2 Maneuver	489	-	-	-	-	-
Stage 1	816	-	-	-	-	-
Stage 2	719	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	570	1183	-
HCM Lane V/C Ratio	-	-	0.353	0.026	-
HCM Control Delay (s)	-	-	14.7	8.1	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	1.6	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	16	1	118	162	133	0	0	264	102
Future Volume (vph)	0	0	0	16	1	118	162	133	0	0	264	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			-5%			0%			0%	
Link Speed (mph)		30			30			50			50	
Link Distance (ft)		264			613			706			1150	
Travel Time (s)		6.0			13.9			9.6			15.7	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	0%	0%	0%	9%	3%	6%	0%	0%	4%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

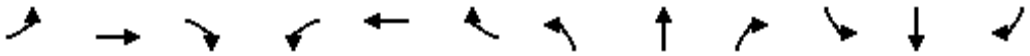
Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	16	1	118	162	133	0	0	264	102
Future Vol, veh/h	0	0	0	16	1	118	162	133	0	0	264	102
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, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	-5	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	9	3	6	0	0	4	0
Mvmt Flow	0	0	0	20	1	144	198	162	0	0	322	124

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	942	1004	162	446	0	-	-	-	0
Stage 1	558	558	-	-	-	-	-	-	-
Stage 2	384	446	-	-	-	-	-	-	-
Critical Hdwy	5.4	5.5	5.79	4.13	-	-	-	-	-
Critical Hdwy Stg 1	4.4	4.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	4.4	4.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.381	2.227	-	-	-	-	-
Pot Cap-1 Maneuver	382	322	885	1109	-	0	0	-	-
Stage 1	674	601	-	-	-	0	0	-	-
Stage 2	771	654	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	307	0	885	1109	-	-	-	-	-
Mov Cap-2 Maneuver	307	0	-	-	-	-	-	-	-
Stage 1	542	0	-	-	-	-	-	-	-
Stage 2	771	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	4.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1109	-	723	-	-
HCM Lane V/C Ratio	0.178	-	0.228	-	-
HCM Control Delay (s)	8.9	0	11.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.6	-	0.9	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1	62	0	0	0	0	231	40	192	86	0
Future Volume (vph)	70	1	62	0	0	0	0	231	40	192	86	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-3%			5%			-11%	
Link Speed (mph)		30			30			50			50	
Link Distance (ft)		301			285			444			706	
Travel Time (s)		6.8			6.5			6.1			9.6	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	4%	100%	4%	0%	0%	0%	0%	5%	0%	4%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Free			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	1	62	0	0	0	0	231	40	192	86	0
Future Vol, veh/h	70	1	62	0	0	0	0	231	40	192	86	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	3	-	-	-3	-	-	5	-	-	-11	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	4	100	4	0	0	0	0	5	0	4	0	0
Mvmt Flow	84	1	75	0	0	0	0	278	48	231	104	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	868	892	104	-	0	0	326	0	0
Stage 1	566	566	-	-	-	-	-	-	-
Stage 2	302	326	-	-	-	-	-	-	-
Critical Hdwy	7.04	8.1	6.54	-	-	-	4.14	-	-
Critical Hdwy Stg 1	6.04	7.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	7.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.9	3.336	-	-	-	2.236	-	-
Pot Cap-1 Maneuver	277	171	937	0	-	-	1222	-	0
Stage 1	513	345	-	0	-	-	-	-	0
Stage 2	709	478	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	221	0	937	-	-	-	1222	-	-
Mov Cap-2 Maneuver	221	0	-	-	-	-	-	-	-
Stage 1	513	0	-	-	-	-	-	-	-
Stage 2	566	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.2	0	6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	345	1222	-
HCM Lane V/C Ratio	-	-	0.464	0.189	-
HCM Control Delay (s)	-	-	24.2	8.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.4	0.7	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	160	133	5	54	51
Future Volume (vph)	5	160	133	5	54	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		7%			-7%
Link Speed (mph)	35		50			50
Link Distance (ft)	355		241			444
Travel Time (s)	6.9		3.3			6.1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	4%	0%	9%	11%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

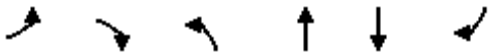
Intersection	
Int Delay, s/veh	5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	160	133	5	54	51
Future Vol, veh/h	5	160	133	5	54	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	7	-	-	-7
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	4	4	0	9	11
Mvmt Flow	5	165	137	5	56	53

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	305	140	0	0	142	0
Stage 1	140	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	7	6.54	-	-	4.19	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.5	3.336	-	-	2.281	-
Pot Cap-1 Maneuver	657	892	-	-	1399	-
Stage 1	871	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	630	892	-	-	1399	-
Mov Cap-2 Maneuver	630	-	-	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	811	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	3.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	881	1399	-
HCM Lane V/C Ratio	-	-	0.193	0.04	-
HCM Control Delay (s)	-	-	10.1	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	118	166	114	272	350	94
Future Volume (vph)	118	166	114	272	350	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50	0	0			285
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Link Speed (mph)	40			40	40	
Link Distance (ft)	5360			1600	4327	
Travel Time (s)	91.4			27.3	73.8	
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	3%	7%	1%	2%	4%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	118	166	114	272	350	94
Future Vol, veh/h	118	166	114	272	350	94
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	0	-	-	285
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	3	7	1	2	4
Mvmt Flow	128	180	124	296	380	102

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	924	381	482	0	-	0
Stage 1	380	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Critical Hdwy	6.41	6.23	4.17	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.327	2.263	-	-	-
Pot Cap-1 Maneuver	300	664	1055	-	-	-
Stage 1	694	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	265	663	1055	-	-	-
Mov Cap-2 Maneuver	394	-	-	-	-	-
Stage 1	612	-	-	-	-	-
Stage 2	584	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.9	2.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1055	-	394	663	-	-
HCM Lane V/C Ratio	0.117	-	0.326	0.272	-	-
HCM Control Delay (s)	8.9	-	18.5	12.4	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.4	-	1.4	1.1	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	42	183	537	21	145	442
Future Volume (vph)	42	183	537	21	145	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		-3%			3%
Storage Length (ft)	0	0		0	95	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	30		50			50
Link Distance (ft)	405		758			508
Travel Time (s)	9.2		10.3			6.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	3%	3%	3%	13%	8%	4%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	6.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	42	183	537	21	145	442
Future Vol, veh/h	42	183	537	21	145	442
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	95	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-3	-	-3	-	-	3
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	13	8	4
Mvmt Flow	48	210	617	24	167	508

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1217	629	0	0	641	0
Stage 1	629	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Critical Hdwy	6.045	5.945	-	-	4.22	-
Critical Hdwy Stg 1	4.845	-	-	-	-	-
Critical Hdwy Stg 2	5.245	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	-	-	2.276	-
Pot Cap-1 Maneuver	226	505	-	-	907	-
Stage 1	586	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	184	505	-	-	907	-
Mov Cap-2 Maneuver	184	-	-	-	-	-
Stage 1	586	-	-	-	-	-
Stage 2	465	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.2	0	2.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	381	907	-
HCM Lane V/C Ratio	-	-	0.679	0.184	-
HCM Control Delay (s)	-	-	32.2	9.9	-
HCM Lane LOS	-	-	D	A	-
HCM 95th %tile Q(veh)	-	-	4.8	0.7	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	195	362	64	228	256
Future Volume (vph)	23	195	362	64	228	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-5%		3%			-3%
Storage Length (ft)	0	0		0	250	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	30		50			50
Link Distance (ft)	410		360			758
Travel Time (s)	9.3		4.9			10.3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	3%	3%	6%	5%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	195	362	64	228	256
Future Vol, veh/h	23	195	362	64	228	256
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-5	-	3	-	-	-3
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	3	3	6	5	3
Mvmt Flow	26	222	411	73	259	291

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1257	448	0	0	484	0
Stage 1	448	-	-	-	-	-
Stage 2	809	-	-	-	-	-
Critical Hdwy	5.4	5.73	-	-	4.15	-
Critical Hdwy Stg 1	4.4	-	-	-	-	-
Critical Hdwy Stg 2	4.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.327	-	-	2.245	-
Pot Cap-1 Maneuver	270	648	-	-	1063	-
Stage 1	734	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	204	648	-	-	1063	-
Mov Cap-2 Maneuver	204	-	-	-	-	-
Stage 1	734	-	-	-	-	-
Stage 2	418	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.7	0	4.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	527	1063	-
HCM Lane V/C Ratio	-	-	0.47	0.244	-
HCM Control Delay (s)	-	-	17.7	9.5	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	2.5	1	-

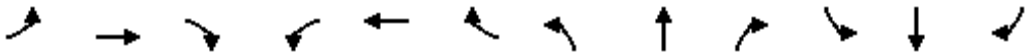
2022 Existing PM Peak Hour

Intersection	
Intersection Delay, s/veh	17.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	120	38	96	168	44	49	221	88	56	222	39
Future Vol, veh/h	22	120	38	96	168	44	49	221	88	56	222	39
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	1	0	0	1	1	2	0	3
Mvmt Flow	24	132	42	105	185	48	54	243	97	62	244	43
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	14.2	15.3	20.4	17.5
HCM LOS	B	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	72%	0%	76%	0%	79%	0%	85%
Vol Right, %	0%	28%	0%	24%	0%	21%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	49	309	22	158	96	212	56	261
LT Vol	49	0	22	0	96	0	56	0
Through Vol	0	221	0	120	0	168	0	222
RT Vol	0	88	0	38	0	44	0	39
Lane Flow Rate	54	340	24	174	105	233	62	287
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.114	0.652	0.055	0.364	0.232	0.47	0.132	0.564
Departure Headway (Hd)	7.613	6.915	8.227	7.538	7.902	7.258	7.734	7.08
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	470	523	434	476	454	496	463	508
Service Time	5.372	4.673	5.994	5.305	5.663	5.018	5.496	4.841
HCM Lane V/C Ratio	0.115	0.65	0.055	0.366	0.231	0.47	0.134	0.565
HCM Control Delay	11.4	21.8	11.5	14.6	13.1	16.3	11.7	18.7
HCM Lane LOS	B	C	B	B	B	C	B	C
HCM 95th-tile Q	0.4	4.7	0.2	1.6	0.9	2.5	0.5	3.4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	5	2	145	5	26	1	316	120	15	295	12
Future Volume (vph)	1	5	2	145	5	26	1	316	120	15	295	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			4%			-5%			4%	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		259			729			11331			569	
Travel Time (s)		7.1			19.9			220.7			11.1	
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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	10.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	5	2	145	5	26	1	316	120	15	295	12
Future Vol, veh/h	1	5	2	145	5	26	1	316	120	15	295	12
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	-	-	4	-	-	-5	-	-	4	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	1	6	2	167	6	30	1	363	138	17	339	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	832	883	346	818	821	432	353	0	0	501	0	0
Stage 1	380	380	-	434	434	-	-	-	-	-	-	-
Stage 2	452	503	-	384	387	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.9	7.3	6.6	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.9	6.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.9	6.3	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	291	287	702	248	260	598	1217	-	-	1074	-	-
Stage 1	646	617	-	549	531	-	-	-	-	-	-	-
Stage 2	591	545	-	590	563	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	267	281	702	240	255	598	1217	-	-	1074	-	-
Mov Cap-2 Maneuver	267	281	-	240	255	-	-	-	-	-	-	-
Stage 1	645	605	-	548	530	-	-	-	-	-	-	-
Stage 2	555	544	-	571	552	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.3	52.5	0	0.4
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1217	-	-	328	264	1074	-	-
HCM Lane V/C Ratio	0.001	-	-	0.028	0.766	0.016	-	-
HCM Control Delay (s)	8	0	-	16.3	52.5	8.4	0	-
HCM Lane LOS	A	A	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	5.7	0	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	29	310	69	26	331
Future Volume (vph)	43	29	310	69	26	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		50			50
Link Distance (ft)	380		1687			11331
Travel Time (s)	10.4		23.0			154.5
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	29	310	69	26	331
Future Vol, veh/h	43	29	310	69	26	331
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	51	34	365	81	31	389

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	857	406	0	0	446	0
Stage 1	406	-	-	-	-	-
Stage 2	451	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	330	649	-	-	1125	-
Stage 1	677	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	318	649	-	-	1125	-
Mov Cap-2 Maneuver	318	-	-	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	623	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.4	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	400	1125	-
HCM Lane V/C Ratio	-	-	0.212	0.027	-
HCM Control Delay (s)	-	-	16.4	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	93	64	317	171	85	289
Future Volume (vph)	93	64	317	171	85	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		330	180	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		50			50
Link Distance (ft)	317		1150			1687
Travel Time (s)	8.6		15.7			23.0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	0%	1%	0%	0%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

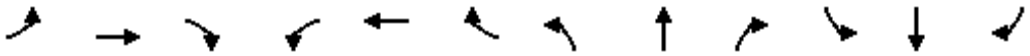
Intersection	
Int Delay, s/veh	4.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	93	64	317	171	85	289
Future Vol, veh/h	93	64	317	171	85	289
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	330	180	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	0	1	0	0	1
Mvmt Flow	107	74	364	197	98	332

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	892	364	0	0	561	0
Stage 1	364	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Critical Hdwy	6.41	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	314	685	-	-	1020	-
Stage 1	705	-	-	-	-	-
Stage 2	594	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	284	685	-	-	1020	-
Mov Cap-2 Maneuver	284	-	-	-	-	-
Stage 1	705	-	-	-	-	-
Stage 2	537	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.4	0	2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	373	1020	-
HCM Lane V/C Ratio	-	-	0.484	0.096	-
HCM Control Delay (s)	-	-	23.4	8.9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	2.5	0.3	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	45	1	246	102	254	0	0	295	99
Future Volume (vph)	0	0	0	45	1	246	102	254	0	0	295	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			-5%			0%			0%	
Link Speed (mph)		30			30			50			50	
Link Distance (ft)		264			613			706			1150	
Travel Time (s)		6.0			13.9			9.6			15.7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	1%	0%	0%	0%	4%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

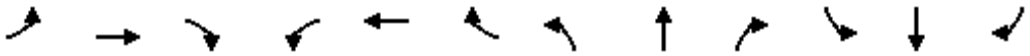
Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	45	1	246	102	254	0	0	295	99
Future Vol, veh/h	0	0	0	45	1	246	102	254	0	0	295	99
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, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	-5	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	4	1	0	0	0	4
Mvmt Flow	0	0	0	56	1	304	126	314	0	0	364	122

Major/Minor	Minor1			Major1			Major2			
Conflicting Flow All	991	1052	314	486	0	-	-	-	0
Stage 1	566	566	-	-	-	-	-	-	-
Stage 2	425	486	-	-	-	-	-	-	-
Critical Hdwy	5.4	5.5	5.7	4.14	-	-	-	-	-
Critical Hdwy Stg 1	4.4	4.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	4.4	4.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.236	-	-	-	-	-
Pot Cap-1 Maneuver	362	306	764	1067	-	0	0	-	-
Stage 1	670	598	-	-	-	0	0	-	-
Stage 2	747	634	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	310	0	764	1067	-	-	-	-	-
Mov Cap-2 Maneuver	310	0	-	-	-	-	-	-	-
Stage 1	574	0	-	-	-	-	-	-	-
Stage 2	747	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.4	2.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1067	-	623	-	-
HCM Lane V/C Ratio	0.118	-	0.579	-	-
HCM Control Delay (s)	8.8	0	18.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.4	-	3.7	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	0	212	0	0	0	0	212	33	146	190	0
Future Volume (vph)	143	0	212	0	0	0	0	212	33	146	190	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-3%			5%			-11%	
Link Speed (mph)		30			30			50			50	
Link Distance (ft)		301			285			444			706	
Travel Time (s)		6.8			6.5			6.1			9.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	2%	0%	1%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Free			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	22.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	143	0	212	0	0	0	0	212	33	146	190	0
Future Vol, veh/h	143	0	212	0	0	0	0	212	33	146	190	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	3	-	-	-3	-	-	5	-	-	-11	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	1	0	1	0	0	0	0	2	0	1	0	0
Mvmt Flow	163	0	241	0	0	0	0	241	38	166	216	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	808	827	216	-	0	0	279	0	0
Stage 1	548	548	-	-	-	-	-	-	-
Stage 2	260	279	-	-	-	-	-	-	-
Critical Hdwy	7.01	7.1	6.51	-	-	-	4.11	-	-
Critical Hdwy Stg 1	6.01	6.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.01	6.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4	3.309	-	-	-	2.209	-	-
Pot Cap-1 Maneuver	307	269	812	0	-	-	1289	-	0
Stage 1	530	475	-	0	-	-	-	-	0
Stage 2	752	652	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	262	0	812	-	-	-	1289	-	-
Mov Cap-2 Maneuver	262	0	-	-	-	-	-	-	-
Stage 1	530	0	-	-	-	-	-	-	-
Stage 2	642	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	55.5	0	3.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	440	1289	-
HCM Lane V/C Ratio	-	-	0.917	0.129	-
HCM Control Delay (s)	-	-	55.5	8.2	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	10.2	0.4	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	106	66	4	186	107
Future Volume (vph)	3	106	66	4	186	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		7%			-7%
Link Speed (mph)	35		50			50
Link Distance (ft)	355		241			444
Travel Time (s)	6.9		3.3			6.1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	33%	5%	5%	25%	2%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

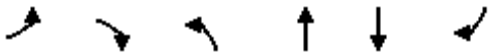
Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	106	66	4	186	107
Future Vol, veh/h	3	106	66	4	186	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	7	-	-	-7
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	33	5	5	25	2	3
Mvmt Flow	3	110	69	4	194	111

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	570	71	0	0	73	0
Stage 1	71	-	-	-	-	-
Stage 2	499	-	-	-	-	-
Critical Hdwy	7.33	6.55	-	-	4.12	-
Critical Hdwy Stg 1	6.33	-	-	-	-	-
Critical Hdwy Stg 2	6.33	-	-	-	-	-
Follow-up Hdwy	3.797	3.345	-	-	2.218	-
Pot Cap-1 Maneuver	395	977	-	-	1527	-
Stage 1	869	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	342	977	-	-	1527	-
Mov Cap-2 Maneuver	342	-	-	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	439	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	4.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	930	1527	-
HCM Lane V/C Ratio	-	-	0.122	0.127	-
HCM Control Delay (s)	-	-	9.4	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.4	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	115	121	201	412	345	172
Future Volume (vph)	115	121	201	412	345	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50	0	0			285
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Link Speed (mph)	40			40	40	
Link Distance (ft)	5360			1600	4327	
Travel Time (s)	91.4			27.3	73.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	2%	0%	2%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	115	121	201	412	345	172
Future Vol, veh/h	115	121	201	412	345	172
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	0	-	-	285
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	1	2	0	2	0
Mvmt Flow	124	130	216	443	371	185

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1246	371	556	0	-	0
Stage 1	371	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.218	-	-	-
Pot Cap-1 Maneuver	194	677	1015	-	-	-
Stage 1	702	-	-	-	-	-
Stage 2	411	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	153	677	1015	-	-	-
Mov Cap-2 Maneuver	283	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	411	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.2	3.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1015	-	283	677	-	-
HCM Lane V/C Ratio	0.213	-	0.437	0.192	-	-
HCM Control Delay (s)	9.5	-	27.2	11.6	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.8	-	2.1	0.7	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	65	372	404	38	224	636
Future Volume (vph)	65	372	404	38	224	636
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		-3%			3%
Storage Length (ft)	0	0		0	95	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	30		50			50
Link Distance (ft)	405		758			508
Travel Time (s)	9.2		10.3			6.9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	21.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	372	404	38	224	636
Future Vol, veh/h	65	372	404	38	224	636
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	95	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-3	-	-3	-	-	3
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	1	1	0	0	0
Mvmt Flow	69	396	430	40	238	677

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1265	450	0	0	470	0
Stage 1	450	-	-	-	-	-
Stage 2	815	-	-	-	-	-
Critical Hdwy	6.03	5.915	-	-	4.1	-
Critical Hdwy Stg 1	4.83	-	-	-	-	-
Critical Hdwy Stg 2	5.23	-	-	-	-	-
Follow-up Hdwy	3.519	3.3095	-	-	2.2	-
Pot Cap-1 Maneuver	214	634	-	-	1102	-
Stage 1	691	-	-	-	-	-
Stage 2	454	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	168	634	-	-	1102	-
Mov Cap-2 Maneuver	168	-	-	-	-	-
Stage 1	691	-	-	-	-	-
Stage 2	356	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	82.6	0	2.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	449	1102	-
HCM Lane V/C Ratio	-	-	1.035	0.216	-
HCM Control Delay (s)	-	-	82.6	9.2	-
HCM Lane LOS	-	-	F	A	-
HCM 95th %tile Q(veh)	-	-	14.2	0.8	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	27	163	304	54	213	481
Future Volume (vph)	27	163	304	54	213	481
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-5%		3%			-3%
Storage Length (ft)	0	0		0	250	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	30		50			50
Link Distance (ft)	410		360			758
Travel Time (s)	9.3		4.9			10.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	2%	0%	0%	2%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	163	304	54	213	481
Future Vol, veh/h	27	163	304	54	213	481
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-5	-	3	-	-	-3
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	5	2	0	0	2	1
Mvmt Flow	29	173	323	57	227	512

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1318	352	0	0	380	0
Stage 1	352	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Critical Hdwy	5.45	5.72	-	-	4.12	-
Critical Hdwy Stg 1	4.45	-	-	-	-	-
Critical Hdwy Stg 2	4.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	247	726	-	-	1178	-
Stage 1	778	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	199	726	-	-	1178	-
Mov Cap-2 Maneuver	199	-	-	-	-	-
Stage 1	778	-	-	-	-	-
Stage 2	385	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16	0	2.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	527	1178	-
HCM Lane V/C Ratio	-	-	0.384	0.192	-
HCM Control Delay (s)	-	-	16	8.8	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.8	0.7	-

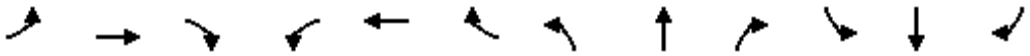
2025 No Action AM Peak Hour

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	111	22	28	66	25	23	141	71	30	139	25
Future Vol, veh/h	19	111	22	28	66	25	23	141	71	30	139	25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	8	1	7	4	4	6	6	4	5	5	1	0
Mvmt Flow	20	114	23	29	68	26	24	145	73	31	143	26
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	10.1	9.6	10.6	10.1
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	67%	0%	83%	0%	73%	0%	85%
Vol Right, %	0%	33%	0%	17%	0%	27%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	212	19	133	28	91	30	164
LT Vol	23	0	19	0	28	0	30	0
Through Vol	0	141	0	111	0	66	0	139
RT Vol	0	71	0	22	0	25	0	25
Lane Flow Rate	24	219	20	137	29	94	31	169
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.041	0.33	0.036	0.221	0.052	0.152	0.054	0.261
Departure Headway (Hd)	6.212	5.437	6.54	5.797	6.525	5.825	6.242	5.561
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	580	664	548	620	550	616	576	649
Service Time	3.917	3.142	4.269	3.526	4.256	3.555	3.949	3.268
HCM Lane V/C Ratio	0.041	0.33	0.036	0.221	0.053	0.153	0.054	0.26
HCM Control Delay	9.2	10.8	9.5	10.2	9.6	9.6	9.3	10.2
HCM Lane LOS	A	B	A	B	A	A	A	B
HCM 95th-tile Q	0.1	1.4	0.1	0.8	0.2	0.5	0.2	1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	14	0	126	1	9	1	218	193	10	183	3
Future Volume (vph)	5	14	0	126	1	9	1	218	193	10	183	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			4%			-5%			4%	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		259			729			11331			569	
Travel Time (s)		7.1			19.9			220.7			11.1	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	10%	0%	6%	0%	0%	0%	4%	1%	0%	5%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	14	0	126	1	9	1	218	193	10	183	3
Future Vol, veh/h	5	14	0	126	1	9	1	218	193	10	183	3
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	-	-	4	-	-	-5	-	-	4	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	10	0	6	0	0	0	4	1	0	5	0
Mvmt Flow	6	16	0	143	1	10	1	248	219	11	208	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	597	701	210	600	593	358	211	0	0	467	0	0
Stage 1	232	232	-	360	360	-	-	-	-	-	-	-
Stage 2	365	469	-	240	233	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.6	6.2	7.96	7.3	6.6	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.6	-	6.96	6.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.6	-	6.96	6.3	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.09	3.3	3.554	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	418	353	835	356	369	664	1372	-	-	1105	-	-
Stage 1	775	698	-	600	582	-	-	-	-	-	-	-
Stage 2	658	547	-	715	679	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	407	349	835	340	365	664	1372	-	-	1105	-	-
Mov Cap-2 Maneuver	407	349	-	340	365	-	-	-	-	-	-	-
Stage 1	774	690	-	599	581	-	-	-	-	-	-	-
Stage 2	646	546	-	691	672	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.5	23	0	0.4
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1372	-	-	363	352	1105	-	-
HCM Lane V/C Ratio	0.001	-	-	0.059	0.439	0.01	-	-
HCM Control Delay (s)	7.6	0	-	15.5	23	8.3	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	2.2	0	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	62	56	287	87	43	238
Future Volume (vph)	62	56	287	87	43	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		50			50
Link Distance (ft)	380		1687			11331
Travel Time (s)	10.4		23.0			154.5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	6%	5%	5%	4%	20%	5%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	56	287	87	43	238
Future Vol, veh/h	62	56	287	87	43	238
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	6	5	5	4	20	5
Mvmt Flow	67	60	309	94	46	256

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	704	356	0	0	403	0
Stage 1	356	-	-	-	-	-
Stage 2	348	-	-	-	-	-
Critical Hdwy	6.46	6.25	-	-	4.3	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.345	-	-	2.38	-
Pot Cap-1 Maneuver	397	681	-	-	1065	-
Stage 1	700	-	-	-	-	-
Stage 2	706	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	377	681	-	-	1065	-
Mov Cap-2 Maneuver	377	-	-	-	-	-
Stage 1	700	-	-	-	-	-
Stage 2	671	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	1.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	478	1065	-
HCM Lane V/C Ratio	-	-	0.265	0.043	-
HCM Control Delay (s)	-	-	15.2	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0.1	-

LANE SUMMARY

Site: 4 [2025 Baseline - AM Peak Hour (Site Folder: Dallas Rd / Trowbridge Blvd - AM Peak Hour)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Dallas Rd													
Lane 1[d]	293	3.0	1291	0.227	100	4.7	LOS A	1.1	27.1	Full	1600	0.0	0.0
Lane 2	268	3.0	1626	0.165	73[5]	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	562	3.0		0.227		2.5	LOS A	1.1	27.1				
East: Trowbridge Blvd													
Lane 1	395	3.0	1041	0.379	100	7.4	LOS A	1.9	48.4	Full	1600	0.0	0.0
Lane 2[d]	395	3.0	1041	0.379	100	7.4	LOS A	1.9	48.4	Full	1600	0.0	0.0
Approach	789	3.0		0.379		7.4	LOS A	1.9	48.4				
North: Dallas Rd													
Lane 1	164	3.0	732	0.224	100	7.5	LOS A	0.9	22.4	Full	1600	0.0	0.0
Lane 2[d]	164	3.0	732	0.224	100	7.5	LOS A	0.9	22.4	Full	1600	0.0	0.0
Approach	328	3.0		0.224		7.5	LOS A	0.9	22.4				
West: Trowbridge Blvd													
Lane 1[d]	9	3.0	474	0.018	100	7.8	LOS A	0.1	1.6	Full	1600	0.0	0.0
Approach	9	3.0		0.018		7.8	LOS A	0.1	1.6				
Intersection	1688	3.0		0.379		5.8	LOS A	1.9	48.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Dallas Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	284	-	293	3.0	1291	0.227	100	NA	NA
Lane 2	-	-	268	268	3.0	1626	0.165	73[5]	NA	NA
Approach	10	284	268	562	3.0		0.227			
East: Trowbridge Blvd										

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	395	-	-	395	3.0	1041	0.379	100	NA	NA
Lane 2	268	1	125	395	3.0	1041	0.379	100	NA	NA
Approach	663	1	125	789	3.0		0.379			
North: Dallas Rd										
Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	62	102	-	164	3.0	732	0.224	100	NA	NA
Lane 2	-	162	2	164	3.0	732	0.224	100	NA	NA
Approach	62	264	2	328	3.0		0.224			
West: Trowbridge Blvd										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	1	7	9	3.0	474	0.018	100	NA	NA
Approach	1	1	7	9	3.0		0.018			

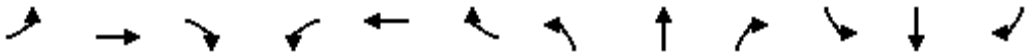
	Total	%HV	Deg.Satn (v/c)
Intersection	1688	3.0	0.379

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

5 Lane under-utilisation found by the program

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Dallas Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Trowbridge Blvd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
North Exit: Dallas Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Trowbridge Blvd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	32	1	162	267	341	0	0	593	302
Future Volume (vph)	0	0	0	32	1	162	267	341	0	0	593	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			-5%			0%			0%	
Link Speed (mph)		30			30			50			50	
Link Distance (ft)		264			613			706			1150	
Travel Time (s)		6.0			13.9			9.6			15.7	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	0%	0%	0%	9%	3%	6%	0%	0%	4%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

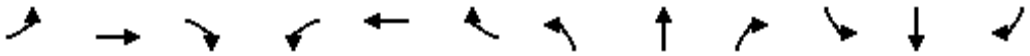
Intersection	
Int Delay, s/veh	27

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	32	1	162	267	341	0	0	593	302
Future Vol, veh/h	0	0	0	32	1	162	267	341	0	0	593	302
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	-
Grade, %	-	-3	-	-	-5	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	9	3	6	0	0	4	0
Mvmt Flow	0	0	0	39	1	198	326	416	0	0	723	368

Major/Minor	Minor1			Major1			Major2			
Conflicting Flow All	1975	2159	416	1091	0	-	-	-	0
Stage 1	1068	1068	-	-	-	-	-	-	-
Stage 2	907	1091	-	-	-	-	-	-	-
Critical Hdwy	5.4	5.5	5.79	4.13	-	-	-	-	-
Critical Hdwy Stg 1	4.4	4.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	4.4	4.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.381	2.227	-	-	-	-	-
Pot Cap-1 Maneuver	120	88	659	636	-	0	0	-	-
Stage 1	448	405	-	-	-	0	0	-	-
Stage 2	511	397	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	40	0	659	636	-	-	-	-	-
Mov Cap-2 Maneuver	40	0	-	-	-	-	-	-	-
Stage 1	149	0	-	-	-	-	-	-	-
Stage 2	511	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	212.7	7.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	636	-	185	-	-
HCM Lane V/C Ratio	0.512	-	1.285	-	-
HCM Control Delay (s)	16.4	0	212.7	-	-
HCM Lane LOS	C	A	F	-	-
HCM 95th %tile Q(veh)	2.9	-	13.3	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	1	96	0	0	0	0	466	91	300	324	0
Future Volume (vph)	147	1	96	0	0	0	0	466	91	300	324	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-3%			5%			-11%	
Link Speed (mph)		30			30			50			50	
Link Distance (ft)		301			285			444			706	
Travel Time (s)		6.8			6.5			6.1			9.6	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	4%	100%	4%	0%	0%	0%	0%	5%	0%	4%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Free			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	354.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	147	1	96	0	0	0	0	466	91	300	324	0
Future Vol, veh/h	147	1	96	0	0	0	0	466	91	300	324	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	3	-	-	-3	-	-	5	-	-	-11	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	4	100	4	0	0	0	0	5	0	4	0	0
Mvmt Flow	177	1	116	0	0	0	0	561	110	361	390	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1728	1783	390	-	0	0	671	0	0
Stage 1	1112	1112	-	-	-	-	-	-	-
Stage 2	616	671	-	-	-	-	-	-	-
Critical Hdwy	7.04	8.1	6.54	-	-	-	4.14	-	-
Critical Hdwy Stg 1	6.04	7.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	7.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.9	3.336	-	-	-	2.236	-	-
Pot Cap-1 Maneuver	~ 72	35	633	0	-	-	910	-	0
Stage 1	259	159	-	0	-	-	-	-	0
Stage 2	483	298	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	~ 35	0	633	-	-	-	910	-	-
Mov Cap-2 Maneuver	~ 35	0	-	-	-	-	-	-	-
Stage 1	259	0	-	-	-	-	-	-	-
Stage 2	238	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 2058	0	5.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	56	910	-
HCM Lane V/C Ratio	-	-	5.25	0.397	-
HCM Control Delay (s)	-	-	$ 2058	11.5	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	33.1	1.9	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	437	145	5	317	56
Future Volume (vph)	5	437	145	5	317	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		7%			-7%
Link Speed (mph)	35		50			50
Link Distance (ft)	355		241			444
Travel Time (s)	6.9		3.3			6.1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	4%	0%	9%	11%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

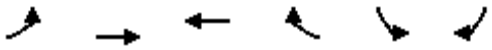
Intersection	
Int Delay, s/veh	9.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	437	145	5	317	56
Future Vol, veh/h	5	437	145	5	317	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	7	-	-	-7
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	4	4	0	9	11
Mvmt Flow	5	451	149	5	327	58

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	864	152	0	0	154	0
Stage 1	152	-	-	-	-	-
Stage 2	712	-	-	-	-	-
Critical Hdwy	7	6.54	-	-	4.19	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.5	3.336	-	-	2.281	-
Pot Cap-1 Maneuver	283	878	-	-	1385	-
Stage 1	859	-	-	-	-	-
Stage 2	435	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	214	878	-	-	1385	-
Mov Cap-2 Maneuver	214	-	-	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	329	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	7.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	848	1385	-
HCM Lane V/C Ratio	-	-	0.537	0.236	-
HCM Control Delay (s)	-	-	14.1	8.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	3.3	0.9	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	16	242	213	4	14	49
Future Volume (vph)	16	242	213	4	14	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		40	40		25	
Link Distance (ft)		249	1090		276	
Travel Time (s)		4.2	18.6		7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

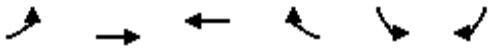
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	242	213	4	14	49
Future Vol, veh/h	16	242	213	4	14	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	17	263	232	4	15	53

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	236	0	-	0	531	234
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	297	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1325	-	-	-	507	803
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	752	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1325	-	-	-	499	803
Mov Cap-2 Maneuver	-	-	-	-	499	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	752	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1325	-	-	-	707
HCM Lane V/C Ratio	0.013	-	-	-	0.097
HCM Control Delay (s)	7.8	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	30	225	130	4	17	87
Future Volume (vph)	30	225	130	4	17	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		40	40		25	
Link Distance (ft)		1090	2400		311	
Travel Time (s)		18.6	40.9		8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

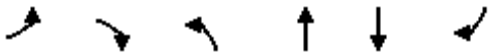
Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	225	130	4	17	87
Future Vol, veh/h	30	225	130	4	17	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	245	141	4	18	95

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	145	0	-	0	454	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	311	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1431	-	-	-	562	902
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1431	-	-	-	547	902
Mov Cap-2 Maneuver	-	-	-	-	547	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	741	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1431	-	-	-	815
HCM Lane V/C Ratio	0.023	-	-	-	0.139
HCM Control Delay (s)	7.6	0	-	-	10.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	228	330	199	297	382	125
Future Volume (vph)	228	330	199	297	382	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50	0	0			285
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Link Speed (mph)	40			40	40	
Link Distance (ft)	5360			1600	4327	
Travel Time (s)	91.4			27.3	73.8	
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	3%	7%	1%	2%	4%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	13

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	228	330	199	297	382	125
Future Vol, veh/h	228	330	199	297	382	125
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	0	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	3	7	1	2	4
Mvmt Flow	248	359	216	323	415	136

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1170	416	551	0	-	0
Stage 1	415	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Critical Hdwy	6.41	6.23	4.17	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.327	2.263	-	-	-
Pot Cap-1 Maneuver	~ 214	634	994	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 168	633	994	-	-	-
Mov Cap-2 Maneuver	301	-	-	-	-	-
Stage 1	524	-	-	-	-	-
Stage 2	466	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.9	3.9	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	994	-	301	633	-	-
HCM Lane V/C Ratio	0.218	-	0.823	0.567	-	-
HCM Control Delay (s)	9.6	-	54.7	17.9	-	-
HCM Lane LOS	A	-	F	C	-	-
HCM 95th %tile Q(veh)	0.8	-	6.9	3.6	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	213	671	23	197	523
Future Volume (vph)	46	213	671	23	197	523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		-3%			3%
Storage Length (ft)	0	0		0	95	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	30		50			50
Link Distance (ft)	405		758			508
Travel Time (s)	9.2		10.3			6.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	3%	3%	3%	13%	8%	4%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	19.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	213	671	23	197	523
Future Vol, veh/h	46	213	671	23	197	523
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	95	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-3	-	-3	-	-	3
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	13	8	4
Mvmt Flow	53	245	771	26	226	601

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1537	784	0	0	797	0
Stage 1	784	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Critical Hdwy	6.045	5.945	-	-	4.22	-
Critical Hdwy Stg 1	4.845	-	-	-	-	-
Critical Hdwy Stg 2	5.245	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	-	-	2.276	-
Pot Cap-1 Maneuver	150	417	-	-	791	-
Stage 1	509	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	107	417	-	-	791	-
Mov Cap-2 Maneuver	107	-	-	-	-	-
Stage 1	509	-	-	-	-	-
Stage 2	344	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	118.7	0	3.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	275	791	-
HCM Lane V/C Ratio	-	-	1.083	0.286	-
HCM Control Delay (s)	-	-	118.7	11.4	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	12.1	1.2	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	293	400	70	279	290
Future Volume (vph)	25	293	400	70	279	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-5%		3%			-3%
Storage Length (ft)	0	0		0	250	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	30		50			50
Link Distance (ft)	410		360			758
Travel Time (s)	9.3		4.9			10.3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	3%	3%	6%	5%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	9.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	293	400	70	279	290
Future Vol, veh/h	25	293	400	70	279	290
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-5	-	3	-	-	-3
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	3	3	6	5	3
Mvmt Flow	28	333	455	80	317	330

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1459	495	0	0	535	0
Stage 1	495	-	-	-	-	-
Stage 2	964	-	-	-	-	-
Critical Hdwy	5.4	5.73	-	-	4.15	-
Critical Hdwy Stg 1	4.4	-	-	-	-	-
Critical Hdwy Stg 2	4.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.327	-	-	2.245	-
Pot Cap-1 Maneuver	216	613	-	-	1018	-
Stage 1	708	-	-	-	-	-
Stage 2	488	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	149	613	-	-	1018	-
Mov Cap-2 Maneuver	149	-	-	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	336	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30	0	5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	492	1018	-
HCM Lane V/C Ratio	-	-	0.734	0.311	-
HCM Control Delay (s)	-	-	30	10.1	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	6.1	1.3	-

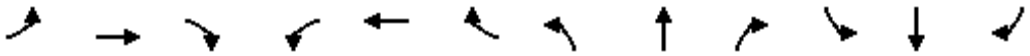
2025 No Action PM Peak Hour

Intersection	
Intersection Delay, s/veh	19.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	131	42	88	184	48	54	234	85	61	230	43
Future Vol, veh/h	24	131	42	88	184	48	54	234	85	61	230	43
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	1	0	0	1	1	2	0	3
Mvmt Flow	26	144	46	97	202	53	59	257	93	67	253	47
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	15.4	17	23.1	19.4
HCM LOS	C	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	73%	0%	76%	0%	79%	0%	84%
Vol Right, %	0%	27%	0%	24%	0%	21%	0%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	54	319	24	173	88	232	61	273
LT Vol	54	0	24	0	88	0	61	0
Through Vol	0	234	0	131	0	184	0	230
RT Vol	0	85	0	42	0	48	0	43
Lane Flow Rate	59	351	26	190	97	255	67	300
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.13	0.698	0.062	0.411	0.219	0.531	0.149	0.61
Departure Headway (Hd)	7.858	7.171	8.468	7.776	8.146	7.5	7.983	7.321
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	455	501	421	460	439	479	448	492
Service Time	5.63	4.943	6.252	5.559	5.922	5.275	5.759	5.096
HCM Lane V/C Ratio	0.13	0.701	0.062	0.413	0.221	0.532	0.15	0.61
HCM Control Delay	11.8	25	11.8	15.9	13.2	18.5	12.2	21
HCM Lane LOS	B	C	B	C	B	C	B	C
HCM 95th-tile Q	0.4	5.4	0.2	2	0.8	3.1	0.5	4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	5	2	287	5	28	1	327	191	16	292	13
Future Volume (vph)	1	5	2	287	5	28	1	327	191	16	292	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			4%			-5%			4%	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		259			729			11331			569	
Travel Time (s)		7.1			19.9			220.7			11.1	
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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	91.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	5	2	287	5	28	1	327	191	16	292	13
Future Vol, veh/h	1	5	2	287	5	28	1	327	191	16	292	13
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	-	-	4	-	-	-5	-	-	4	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	1	6	2	330	6	32	1	376	220	18	336	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	887	978	344	872	875	486	351	0	0	596	0	0
Stage 1	380	380	-	488	488	-	-	-	-	-	-	-
Stage 2	507	598	-	384	387	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.9	7.3	6.6	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.9	6.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.9	6.3	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	267	252	703	~ 225	239	555	1219	-	-	990	-	-
Stage 1	646	617	-	507	496	-	-	-	-	-	-	-
Stage 2	552	494	-	590	563	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	242	246	703	~ 216	233	555	1219	-	-	990	-	-
Mov Cap-2 Maneuver	242	246	-	~ 216	233	-	-	-	-	-	-	-
Stage 1	645	603	-	506	496	-	-	-	-	-	-	-
Stage 2	513	494	-	569	550	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.7	$ 333.4	0	0.4
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1219	-	-	293	228	990	-	-
HCM Lane V/C Ratio	0.001	-	-	0.031	1.613	0.019	-	-
HCM Control Delay (s)	8	0	-	17.7	$ 333.4	8.7	0	-
HCM Lane LOS	A	A	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	23.4	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	153	65	335	90	90	412
Future Volume (vph)	153	65	335	90	90	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		50			50
Link Distance (ft)	380		1687			11331
Travel Time (s)	10.4		23.0			154.5
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	23

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	153	65	335	90	90	412
Future Vol, veh/h	153	65	335	90	90	412
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	180	76	394	106	106	485

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1144	447	0	0	500	0
Stage 1	447	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	223	616	-	-	1075	-
Stage 1	649	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	193	616	-	-	1075	-
Mov Cap-2 Maneuver	193	-	-	-	-	-
Stage 1	649	-	-	-	-	-
Stage 2	431	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	117.1	0	1.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	243	1075	-
HCM Lane V/C Ratio	-	-	1.055	0.098	-
HCM Control Delay (s)	-	-	117.1	8.7	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	10.7	0.3	-

LANE SUMMARY

Site: 4 [2025 Baseline - PM Peak Hour (Site Folder: Dallas Rd / Trowbridge Blvd - PM Peak Hour)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Dallas Rd													
Lane 1[d]	463	3.0	1185	0.391	100	6.9	LOS A	2.1	54.3	Full	1600	0.0	0.0
Lane 2	635	3.0	1626	0.391	100	0.1	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1098	3.0		0.391		3.0	LOS A	2.1	54.3				
East: Trowbridge Blvd													
Lane 1	282	3.0	966	0.292	100	6.7	LOS A	1.3	33.3	Full	1600	0.0	0.0
Lane 2[d]	282	3.0	966	0.292	100	6.7	LOS A	1.3	33.3	Full	1600	0.0	0.0
Approach	564	3.0		0.292		6.7	LOS A	1.3	33.3				
North: Dallas Rd													
Lane 1	308	3.0	889	0.347	100	7.9	LOS A	1.6	40.0	Full	1600	0.0	0.0
Lane 2[d]	308	3.0	889	0.347	100	7.9	LOS A	1.6	40.0	Full	1600	0.0	0.0
Approach	616	3.0		0.347		7.9	LOS A	1.6	40.0				
West: Trowbridge Blvd													
Lane 1[d]	18	3.0	438	0.042	100	8.8	LOS A	0.1	3.8	Full	1600	0.0	0.0
Approach	18	3.0		0.042		8.8	LOS A	0.1	3.8				
Intersection	2297	3.0		0.391		5.2	LOS A	2.1	54.3				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Dallas Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	12	360	91	463	3.0	1185	0.391	100	NA	NA
Lane 2	-	-	635	635	3.0	1626	0.391	100	NA	NA
Approach	12	360	726	1098	3.0		0.391			

East: Trowbridge Blvd

Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.

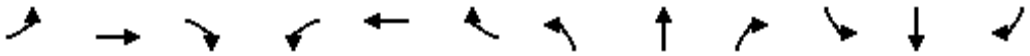
From E To Exit:	S	W	N			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	282	-	-	282	3.0	966	0.292	100	NA	NA
Lane 2	169	1	112	282	3.0	966	0.292	100	NA	NA
Approach	451	1	112	564	3.0		0.292			
North: Dallas Rd										
Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	151	157	-	308	3.0	889	0.347	100	NA	NA
Lane 2	-	305	3	308	3.0	889	0.347	100	NA	NA
Approach	151	462	3	616	3.0		0.347			
West: Trowbridge Blvd										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	3	1	14	18	3.0	438	0.042	100	NA	NA
Approach	3	1	14	18	3.0		0.042			

	Total	%HV	Deg.Satn (v/c)
Intersection	2297	3.0	0.391

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Dallas Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Trowbridge Blvd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
North Exit: Dallas Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Trowbridge Blvd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	98	1	354	164	682	0	0	603	250
Future Volume (vph)	0	0	0	98	1	354	164	682	0	0	603	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			-5%			0%			0%	
Link Speed (mph)		30			30			50			50	
Link Distance (ft)		264			613			706			1150	
Travel Time (s)		6.0			13.9			9.6			15.7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	1%	0%	0%	0%	4%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	301

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	98	1	354	164	682	0	0	603	250
Future Vol, veh/h	0	0	0	98	1	354	164	682	0	0	603	250
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, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	-5	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	4	1	0	0	0	4
Mvmt Flow	0	0	0	121	1	437	202	842	0	0	744	309

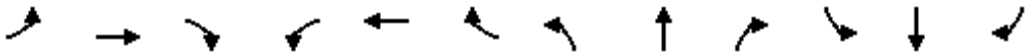
Major/Minor	Minor1			Major1			Major2			
Conflicting Flow All	2145	2299	842	1053	0	-	-	-	0
Stage 1	1246	1246	-	-	-	-	-	-	-
Stage 2	899	1053	-	-	-	-	-	-	-
Critical Hdwy	5.4	5.5	5.7	4.14	-	-	-	-	-
Critical Hdwy Stg 1	4.4	4.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	4.4	4.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.236	-	-	-	-	-
Pot Cap-1 Maneuver	~ 98	74	~ 413	653	-	0	0	-	-
Stage 1	387	350	-	-	-	0	0	-	-
Stage 2	514	409	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	~ 41	0	~ 413	653	-	-	-	-	-
Mov Cap-2 Maneuver	~ 41	0	-	-	-	-	-	-	-
Stage 1	162	0	-	-	-	-	-	-	-
Stage 2	514	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1425.1	2.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	653	-	139	-	-
HCM Lane V/C Ratio	0.31	-	4.023	-	-
HCM Control Delay (s)	13	0	$ 1425.1	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	1.3	-	56.3	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	334	0	322	0	0	0	0	511	64	226	472	0
Future Volume (vph)	334	0	322	0	0	0	0	511	64	226	472	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-3%			5%			-11%	
Link Speed (mph)		30			30			50			50	
Link Distance (ft)		301			285			444			706	
Travel Time (s)		6.8			6.5			6.1			9.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	2%	0%	1%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Free			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1175.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	334	0	322	0	0	0	0	511	64	226	472	0
Future Vol, veh/h	334	0	322	0	0	0	0	511	64	226	472	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	3	-	-	-3	-	-	5	-	-	-11	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	1	0	1	0	0	0	0	2	0	1	0	0
Mvmt Flow	380	0	366	0	0	0	0	581	73	257	536	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1668	1704	536	-	0	0	654	0	0
Stage 1	1050	1050	-	-	-	-	-	-	-
Stage 2	618	654	-	-	-	-	-	-	-
Critical Hdwy	7.01	7.1	6.51	-	-	-	4.11	-	-
Critical Hdwy Stg 1	6.01	6.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.01	6.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4	3.309	-	-	-	2.209	-	-
Pot Cap-1 Maneuver	~ 81	70	523	0	-	-	938	-	0
Stage 1	~ 284	257	-	0	-	-	-	-	0
Stage 2	487	418	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	~ 49	0	523	-	-	-	938	-	-
Mov Cap-2 Maneuver	~ 49	0	-	-	-	-	-	-	-
Stage 1	~ 284	0	-	-	-	-	-	-	-
Stage 2	~ 297	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 3453.7	0	3.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	88	938	-
HCM Lane V/C Ratio	-	-	8.471	0.274	-
HCM Control Delay (s)	-	-	$ 3453.7	10.3	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	85.5	1.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	423	72	4	557	117
Future Volume (vph)	3	423	72	4	557	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		7%			-7%
Link Speed (mph)	35		50			50
Link Distance (ft)	355		241			444
Travel Time (s)	6.9		3.3			6.1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	33%	5%	5%	25%	2%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

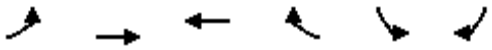
Intersection	
Int Delay, s/veh	8.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	423	72	4	557	117
Future Vol, veh/h	3	423	72	4	557	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	7	-	-	-7
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	33	5	5	25	2	3
Mvmt Flow	3	441	75	4	580	122

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1359	77	0	0	79	0
Stage 1	77	-	-	-	-	-
Stage 2	1282	-	-	-	-	-
Critical Hdwy	7.33	6.55	-	-	4.12	-
Critical Hdwy Stg 1	6.33	-	-	-	-	-
Critical Hdwy Stg 2	6.33	-	-	-	-	-
Follow-up Hdwy	3.797	3.345	-	-	2.218	-
Pot Cap-1 Maneuver	112	969	-	-	1519	-
Stage 1	862	-	-	-	-	-
Stage 2	182	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	66	969	-	-	1519	-
Mov Cap-2 Maneuver	66	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	107	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	7.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	884	1519	-
HCM Lane V/C Ratio	-	-	0.502	0.382	-
HCM Control Delay (s)	-	-	13.1	8.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	2.9	1.8	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	55	299	271	12	8	36
Future Volume (vph)	55	299	271	12	8	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		40	40		25	
Link Distance (ft)		249	1090		276	
Travel Time (s)		4.2	18.6		7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

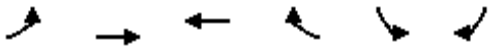
Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	55	299	271	12	8	36
Future Vol, veh/h	55	299	271	12	8	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	60	325	295	13	9	39

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	308	0	-	0	747	302
Stage 1	-	-	-	-	302	-
Stage 2	-	-	-	-	445	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1247	-	-	-	379	735
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	644	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1247	-	-	-	357	735
Mov Cap-2 Maneuver	-	-	-	-	357	-
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	644	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1247	-	-	-	616
HCM Lane V/C Ratio	0.048	-	-	-	0.078
HCM Control Delay (s)	8	0	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	95	212	231	15	10	52
Future Volume (vph)	95	212	231	15	10	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		40	40		25	
Link Distance (ft)		1090	2400		311	
Travel Time (s)		18.6	40.9		8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

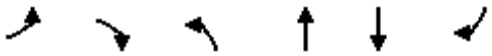
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	212	231	15	10	52
Future Vol, veh/h	95	212	231	15	10	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	103	230	251	16	11	57

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	267	0	-	0	695	259
Stage 1	-	-	-	-	259	-
Stage 2	-	-	-	-	436	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1291	-	-	-	407	777
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	650	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1291	-	-	-	370	777
Mov Cap-2 Maneuver	-	-	-	-	370	-
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	650	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1291	-	-	-	660
HCM Lane V/C Ratio	0.08	-	-	-	0.102
HCM Control Delay (s)	8	0	-	-	11.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.3



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	201	244	405	450	377	242
Future Volume (vph)	201	244	405	450	377	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50	0	0			285
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Link Speed (mph)	40			40	40	
Link Distance (ft)	5360			1600	4327	
Travel Time (s)	91.4			27.3	73.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	2%	0%	2%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	32.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	201	244	405	450	377	242
Future Vol, veh/h	201	244	405	450	377	242
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	0	-	-	285
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	1	2	0	2	0
Mvmt Flow	216	262	435	484	405	260

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1759	405	665	0	-	0
Stage 1	405	-	-	-	-	-
Stage 2	1354	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.218	-	-	-
Pot Cap-1 Maneuver	~ 94	648	924	-	-	-
Stage 1	678	-	-	-	-	-
Stage 2	243	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 50	648	924	-	-	-
Mov Cap-2 Maneuver	~ 154	-	-	-	-	-
Stage 1	359	-	-	-	-	-
Stage 2	243	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	130.2	5.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	924	-	154	648	-	-
HCM Lane V/C Ratio	0.471	-	1.403	0.405	-	-
HCM Control Delay (s)	12.3	-	270.8	14.3	-	-
HCM Lane LOS	B	-	F	B	-	-
HCM 95th %tile Q(veh)	2.6	-	13.7	2	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	439	512	42	343	725
Future Volume (vph)	71	439	512	42	343	725
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		-3%			3%
Storage Length (ft)	0	0		0	95	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	30		50			50
Link Distance (ft)	405		758			508
Travel Time (s)	9.2		10.3			6.9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	100.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	71	439	512	42	343	725
Future Vol, veh/h	71	439	512	42	343	725
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	95	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-3	-	-3	-	-	3
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	1	1	0	0	0
Mvmt Flow	76	467	545	45	365	771

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1684	568	0	0	590	0
Stage 1	568	-	-	-	-	-
Stage 2	1116	-	-	-	-	-
Critical Hdwy	6.03	5.915	-	-	4.1	-
Critical Hdwy Stg 1	4.83	-	-	-	-	-
Critical Hdwy Stg 2	5.23	-	-	-	-	-
Follow-up Hdwy	3.519	3.3095	-	-	2.2	-
Pot Cap-1 Maneuver	124	549	-	-	995	-
Stage 1	622	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	78	549	-	-	995	-
Mov Cap-2 Maneuver	78	-	-	-	-	-
Stage 1	622	-	-	-	-	-
Stage 2	210	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 411.5	0	3.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	298	995	-
HCM Lane V/C Ratio	-	-	1.821	0.367	-
HCM Control Delay (s)	-	-	$ 411.5	10.7	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	36.2	1.7	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	238	343	59	255	533
Future Volume (vph)	30	238	343	59	255	533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-5%		3%			-3%
Storage Length (ft)	0	0		0	250	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	30		50			50
Link Distance (ft)	410		360			758
Travel Time (s)	9.3		4.9			10.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	2%	0%	0%	2%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	238	343	59	255	533
Future Vol, veh/h	30	238	343	59	255	533
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-5	-	3	-	-	-3
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	5	2	0	0	2	1
Mvmt Flow	32	253	365	63	271	567

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1506	397	0	0	428	0
Stage 1	397	-	-	-	-	-
Stage 2	1109	-	-	-	-	-
Critical Hdwy	5.45	5.72	-	-	4.12	-
Critical Hdwy Stg 1	4.45	-	-	-	-	-
Critical Hdwy Stg 2	4.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	199	689	-	-	1131	-
Stage 1	751	-	-	-	-	-
Stage 2	424	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	151	689	-	-	1131	-
Mov Cap-2 Maneuver	151	-	-	-	-	-
Stage 1	751	-	-	-	-	-
Stage 2	322	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.8	0	3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	493	1131	-
HCM Lane V/C Ratio	-	-	0.578	0.24	-
HCM Control Delay (s)	-	-	21.8	9.2	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	3.6	0.9	-

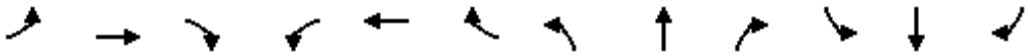
2025 With Project AM Peak Hour

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	111	22	28	66	25	23	145	71	30	140	25
Future Vol, veh/h	19	111	22	28	66	25	23	145	71	30	140	25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	8	1	7	4	4	6	6	4	5	5	1	0
Mvmt Flow	20	114	23	29	68	26	24	149	73	31	144	26
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	10.1	9.6	10.7	10.1
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	67%	0%	83%	0%	73%	0%	85%
Vol Right, %	0%	33%	0%	17%	0%	27%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	216	19	133	28	91	30	165
LT Vol	23	0	19	0	28	0	30	0
Through Vol	0	145	0	111	0	66	0	140
RT Vol	0	71	0	22	0	25	0	25
Lane Flow Rate	24	223	20	137	29	94	31	170
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.041	0.337	0.036	0.221	0.052	0.152	0.054	0.263
Departure Headway (Hd)	6.214	5.443	6.558	5.815	6.542	5.841	6.232	5.567
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	579	664	547	618	548	614	576	648
Service Time	3.919	3.148	4.285	3.542	4.272	3.572	3.955	3.274
HCM Lane V/C Ratio	0.041	0.336	0.037	0.222	0.053	0.153	0.054	0.262
HCM Control Delay	9.2	10.9	9.5	10.2	9.6	9.6	9.3	10.3
HCM Lane LOS	A	B	A	B	A	A	A	B
HCM 95th-tile Q	0.1	1.5	0.1	0.8	0.2	0.5	0.2	1.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	14	0	130	1	9	1	222	201	10	184	3
Future Volume (vph)	5	14	0	130	1	9	1	222	201	10	184	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			4%			-5%			4%	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		259			729			11331			569	
Travel Time (s)		7.1			19.9			220.7			11.1	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	10%	0%	6%	0%	0%	0%	4%	1%	0%	5%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	14	0	130	1	9	1	222	201	10	184	3
Future Vol, veh/h	5	14	0	130	1	9	1	222	201	10	184	3
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	-	-	4	-	-	-5	-	-	4	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	10	0	6	0	0	0	4	1	0	5	0
Mvmt Flow	6	16	0	148	1	10	1	252	228	11	209	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	607	715	211	609	602	366	212	0	0	480	0	0
Stage 1	233	233	-	368	368	-	-	-	-	-	-	-
Stage 2	374	482	-	241	234	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.6	6.2	7.96	7.3	6.6	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.6	-	6.96	6.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.6	-	6.96	6.3	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.09	3.3	3.554	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	411	347	834	351	364	656	1370	-	-	1093	-	-
Stage 1	775	697	-	593	576	-	-	-	-	-	-	-
Stage 2	651	540	-	714	679	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	400	343	834	336	360	656	1370	-	-	1093	-	-
Mov Cap-2 Maneuver	400	343	-	336	360	-	-	-	-	-	-	-
Stage 1	774	689	-	592	575	-	-	-	-	-	-	-
Stage 2	639	539	-	690	672	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.8	23.9	0	0.4
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1370	-	-	356	347	1093	-	-
HCM Lane V/C Ratio	0.001	-	-	0.061	0.458	0.01	-	-
HCM Control Delay (s)	7.6	0	-	15.8	23.9	8.3	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	2.3	0	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	62	59	296	87	44	242
Future Volume (vph)	62	59	296	87	44	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		50			50
Link Distance (ft)	380		1687			11331
Travel Time (s)	10.4		23.0			154.5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	6%	5%	5%	4%	20%	5%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	59	296	87	44	242
Future Vol, veh/h	62	59	296	87	44	242
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	6	5	5	4	20	5
Mvmt Flow	67	63	318	94	47	260

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	719	365	0	0	412	0
Stage 1	365	-	-	-	-	-
Stage 2	354	-	-	-	-	-
Critical Hdwy	6.46	6.25	-	-	4.3	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.345	-	-	2.38	-
Pot Cap-1 Maneuver	389	673	-	-	1056	-
Stage 1	694	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	369	673	-	-	1056	-
Mov Cap-2 Maneuver	369	-	-	-	-	-
Stage 1	694	-	-	-	-	-
Stage 2	665	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.5	0	1.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	473	1056	-
HCM Lane V/C Ratio	-	-	0.275	0.045	-
HCM Control Delay (s)	-	-	15.5	8.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0.1	-

LANE SUMMARY

Site: 4 [2025 With Project - AM Peak Hour (Site Folder: Dallas Rd / Trowbridge Blvd - AM Peak Hour)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Dallas Rd													
Lane 1[d]	293	3.0	1285	0.228	100	4.8	LOS A	1.1	27.2	Full	1600	0.0	0.0
Lane 2	282	3.0	1626	0.173	76[5]	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	575	3.0		0.228		2.5	LOS A	1.1	27.2				
East: Trowbridge Blvd													
Lane 1	417	3.0	1041	0.401	100	7.8	LOS A	2.0	52.4	Full	1600	0.0	0.0
Lane 2[d]	417	3.0	1041	0.401	100	7.8	LOS A	2.0	52.4	Full	1600	0.0	0.0
Approach	835	3.0		0.401		7.8	LOS A	2.0	52.4				
North: Dallas Rd													
Lane 1	166	3.0	708	0.235	100	7.8	LOS A	0.9	23.4	Full	1600	0.0	0.0
Lane 2[d]	166	3.0	708	0.235	100	7.8	LOS A	0.9	23.4	Full	1600	0.0	0.0
Approach	333	3.0		0.235		7.8	LOS A	0.9	23.4				
West: Trowbridge Blvd													
Lane 1[d]	9	3.0	454	0.019	100	8.2	LOS A	0.1	1.7	Full	1600	0.0	0.0
Approach	9	3.0		0.019		8.2	LOS A	0.1	1.7				
Intersection	1751	3.0		0.401		6.0	LOS A	2.0	52.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Dallas Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	284	-	293	3.0	1285	0.228	100	NA	NA
Lane 2	-	-	282	282	3.0	1626	0.173	76[5]	NA	NA
Approach	10	284	282	575	3.0		0.228			
East: Trowbridge Blvd										

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	417	-	-	417	3.0	1041	0.401	100	NA	NA
Lane 2	282	1	135	417	3.0	1041	0.401	100	NA	NA
Approach	699	1	135	835	3.0		0.401			
North: Dallas Rd										
Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	66	100	-	166	3.0	708	0.235	100	NA	NA
Lane 2	-	164	2	166	3.0	708	0.235	100	NA	NA
Approach	66	264	2	333	3.0		0.235			
West: Trowbridge Blvd										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	1	7	9	3.0	454	0.019	100	NA	NA
Approach	1	1	7	9	3.0		0.019			

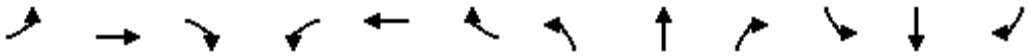
	Total	%HV	Deg.Satn (v/c)
Intersection	1751	3.0	0.401

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

5 Lane under-utilisation found by the program

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Dallas Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Trowbridge Blvd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
North Exit: Dallas Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Trowbridge Blvd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	34	1	166	274	349	0	0	604	324
Future Volume (vph)	0	0	0	34	1	166	274	349	0	0	604	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			-5%			0%			0%	
Link Speed (mph)		30			30			50			50	
Link Distance (ft)		264			613			706			1150	
Travel Time (s)		6.0			13.9			9.6			15.7	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	0%	0%	0%	9%	3%	6%	0%	0%	4%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	43.7

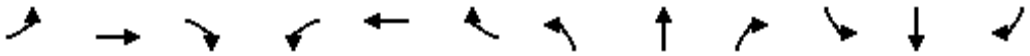
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	34	1	166	274	349	0	0	604	324
Future Vol, veh/h	0	0	0	34	1	166	274	349	0	0	604	324
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	-5	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	9	3	6	0	0	4	0
Mvmt Flow	0	0	0	41	1	202	334	426	0	0	737	395

Major/Minor	Minor1			Major1			Major2			
Conflicting Flow All	2029	2226	426	1132	0	-	-	-	0
Stage 1	1094	1094	-	-	-	-	-	-	-
Stage 2	935	1132	-	-	-	-	-	-	-
Critical Hdwy	5.4	5.5	5.79	4.13	-	-	-	-	-
Critical Hdwy Stg 1	4.4	4.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	4.4	4.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.381	2.227	-	-	-	-	-
Pot Cap-1 Maneuver	112	81	651	613	-	0	0	-	-
Stage 1	439	396	-	-	-	0	0	-	-
Stage 2	499	384	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	~ 32	0	651	613	-	-	-	-	-
Mov Cap-2 Maneuver	~ 32	0	-	-	-	-	-	-	-
Stage 1	126	0	-	-	-	-	-	-	-
Stage 2	499	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 356.8	7.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	613	-	152	-	-
HCM Lane V/C Ratio	0.545	-	1.613	-	-
HCM Control Delay (s)	17.7	0	$ 356.8	-	-
HCM Lane LOS	C	A	F	-	-
HCM 95th %tile Q(veh)	3.3	-	17	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	1	98	0	0	0	0	473	95	311	326	0
Future Volume (vph)	155	1	98	0	0	0	0	473	95	311	326	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-3%			5%			-11%	
Link Speed (mph)		30			30			50			50	
Link Distance (ft)		301			285			444			706	
Travel Time (s)		6.8			6.5			6.1			9.6	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	4%	100%	4%	0%	0%	0%	0%	5%	0%	4%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Free			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	441.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	155	1	98	0	0	0	0	473	95	311	326	0
Future Vol, veh/h	155	1	98	0	0	0	0	473	95	311	326	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	3	-	-	-3	-	-	5	-	-	-11	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	4	100	4	0	0	0	0	5	0	4	0	0
Mvmt Flow	187	1	118	0	0	0	0	570	114	375	393	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1770	1827	393	-	0	0	684	0	0
Stage 1	1143	1143	-	-	-	-	-	-	-
Stage 2	627	684	-	-	-	-	-	-	-
Critical Hdwy	7.04	8.1	6.54	-	-	-	4.14	-	-
Critical Hdwy Stg 1	6.04	7.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	7.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.9	3.336	-	-	-	2.236	-	-
Pot Cap-1 Maneuver	~ 67	33	631	0	-	-	900	-	0
Stage 1	249	152	-	0	-	-	-	-	0
Stage 2	476	293	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	~ 31	0	631	-	-	-	900	-	-
Mov Cap-2 Maneuver	~ 31	0	-	-	-	-	-	-	-
Stage 1	249	0	-	-	-	-	-	-	-
Stage 2	222	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 2523.3	0	5.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	49	900	-
HCM Lane V/C Ratio	-	-	6.245	0.416	-
HCM Control Delay (s)	-	-	$ 2523.3	11.8	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	35.4	2.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	448	145	5	321	56
Future Volume (vph)	5	448	145	5	321	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		7%			-7%
Link Speed (mph)	35		50			50
Link Distance (ft)	355		241			444
Travel Time (s)	6.9		3.3			6.1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	4%	0%	9%	11%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

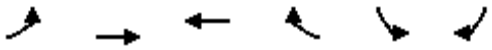
Intersection	
Int Delay, s/veh	9.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	448	145	5	321	56
Future Vol, veh/h	5	448	145	5	321	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	7	-	-	-7
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	4	4	0	9	11
Mvmt Flow	5	462	149	5	331	58

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	872	152	0	0	154	0
Stage 1	152	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Critical Hdwy	7	6.54	-	-	4.19	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.5	3.336	-	-	2.281	-
Pot Cap-1 Maneuver	280	878	-	-	1385	-
Stage 1	859	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	211	878	-	-	1385	-
Mov Cap-2 Maneuver	211	-	-	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	325	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	7.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	848	1385	-
HCM Lane V/C Ratio	-	-	0.551	0.239	-
HCM Control Delay (s)	-	-	14.3	8.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	3.4	0.9	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	242	213	10	34	60
Future Volume (vph)	20	242	213	10	34	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		40	40		25	
Link Distance (ft)		249	1090		276	
Travel Time (s)		4.2	18.6		7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

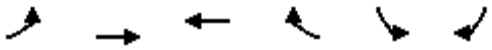
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	242	213	10	34	60
Future Vol, veh/h	20	242	213	10	34	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	22	263	232	11	37	65

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	243	0	-	0	545	238
Stage 1	-	-	-	-	238	-
Stage 2	-	-	-	-	307	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1317	-	-	-	498	798
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	744	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1317	-	-	-	488	798
Mov Cap-2 Maneuver	-	-	-	-	488	-
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	744	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1317	-	-	-	649
HCM Lane V/C Ratio	0.017	-	-	-	0.157
HCM Control Delay (s)	7.8	0	-	-	11.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	30	245	136	4	17	87
Future Volume (vph)	30	245	136	4	17	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		40	40		25	
Link Distance (ft)		1090	2400		311	
Travel Time (s)		18.6	40.9		8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

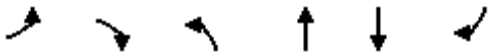
Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	245	136	4	17	87
Future Vol, veh/h	30	245	136	4	17	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	266	148	4	18	95

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	152	0	-	0	482	150
Stage 1	-	-	-	-	150	-
Stage 2	-	-	-	-	332	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1423	-	-	-	541	894
Stage 1	-	-	-	-	875	-
Stage 2	-	-	-	-	725	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1423	-	-	-	526	894
Mov Cap-2 Maneuver	-	-	-	-	526	-
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	725	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1423	-	-	-	802
HCM Lane V/C Ratio	0.023	-	-	-	0.141
HCM Control Delay (s)	7.6	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	236	341	204	297	382	126
Future Volume (vph)	236	341	204	297	382	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50	0	0			285
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Link Speed (mph)	40			40	40	
Link Distance (ft)	5360			1600	4327	
Travel Time (s)	91.4			27.3	73.8	
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	3%	7%	1%	2%	4%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	14.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	236	341	204	297	382	126
Future Vol, veh/h	236	341	204	297	382	126
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	0	-	-	285
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	3	7	1	2	4
Mvmt Flow	257	371	222	323	415	137

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1182	416	552	0	-	0
Stage 1	415	-	-	-	-	-
Stage 2	767	-	-	-	-	-
Critical Hdwy	6.41	6.23	4.17	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.327	2.263	-	-	-
Pot Cap-1 Maneuver	~ 211	634	993	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 164	633	993	-	-	-
Mov Cap-2 Maneuver	297	-	-	-	-	-
Stage 1	519	-	-	-	-	-
Stage 2	460	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	36.1	3.9	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	993	-	297	633	-	-
HCM Lane V/C Ratio	0.223	-	0.864	0.586	-	-
HCM Control Delay (s)	9.7	-	61.6	18.4	-	-
HCM Lane LOS	A	-	F	C	-	-
HCM 95th %tile Q(veh)	0.9	-	7.6	3.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	46	214	678	23	199	526
Future Volume (vph)	46	214	678	23	199	526
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		-3%			3%
Storage Length (ft)	0	0		0	95	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	30		50			50
Link Distance (ft)	405		758			508
Travel Time (s)	9.2		10.3			6.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	3%	3%	3%	13%	8%	4%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	21

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	214	678	23	199	526
Future Vol, veh/h	46	214	678	23	199	526
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	95	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-3	-	-3	-	-	3
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	13	8	4
Mvmt Flow	53	246	779	26	229	605

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1553	792	0	0	805	0
Stage 1	792	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Critical Hdwy	6.045	5.945	-	-	4.22	-
Critical Hdwy Stg 1	4.845	-	-	-	-	-
Critical Hdwy Stg 2	5.245	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	-	-	2.276	-
Pot Cap-1 Maneuver	146	412	-	-	786	-
Stage 1	505	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	104	412	-	-	786	-
Mov Cap-2 Maneuver	104	-	-	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	339	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	127.3	0	3.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	270	786	-
HCM Lane V/C Ratio	-	-	1.107	0.291	-
HCM Control Delay (s)	-	-	127.3	11.4	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	12.5	1.2	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	299	401	70	281	291
Future Volume (vph)	25	299	401	70	281	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-5%		3%			-3%
Storage Length (ft)	0	0		0	250	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	30		50			50
Link Distance (ft)	410		360			758
Travel Time (s)	9.3		4.9			10.3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	3%	3%	6%	5%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	9.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	299	401	70	281	291
Future Vol, veh/h	25	299	401	70	281	291
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-5	-	3	-	-	-3
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	3	3	6	5	3
Mvmt Flow	28	340	456	80	319	331

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1465	496	0	0	536	0
Stage 1	496	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Critical Hdwy	5.4	5.73	-	-	4.15	-
Critical Hdwy Stg 1	4.4	-	-	-	-	-
Critical Hdwy Stg 2	4.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.327	-	-	2.245	-
Pot Cap-1 Maneuver	214	613	-	-	1017	-
Stage 1	707	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	147	613	-	-	1017	-
Mov Cap-2 Maneuver	147	-	-	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	333	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.8	0	5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	493	1017	-
HCM Lane V/C Ratio	-	-	0.747	0.314	-
HCM Control Delay (s)	-	-	30.8	10.2	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	6.3	1.4	-

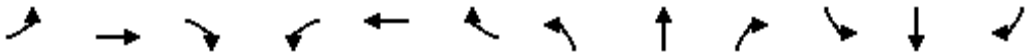
2025 With Project PM Peak Hour

Intersection	
Intersection Delay, s/veh	19.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	131	42	88	184	48	54	237	85	61	234	43
Future Vol, veh/h	24	131	42	88	184	48	54	237	85	61	234	43
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	1	0	0	1	1	2	0	3
Mvmt Flow	26	144	46	97	202	53	59	260	93	67	257	47
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	15.5	17.2	23.6	19.8
HCM LOS	C	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	74%	0%	76%	0%	79%	0%	84%
Vol Right, %	0%	26%	0%	24%	0%	21%	0%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	54	322	24	173	88	232	61	277
LT Vol	54	0	24	0	88	0	61	0
Through Vol	0	237	0	131	0	184	0	234
RT Vol	0	85	0	42	0	48	0	43
Lane Flow Rate	59	354	26	190	97	255	67	304
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.13	0.707	0.062	0.412	0.22	0.533	0.149	0.621
Departure Headway (Hd)	7.878	7.193	8.503	7.811	8.178	7.532	8.002	7.341
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	454	502	420	458	437	477	446	490
Service Time	5.65	4.964	6.29	5.597	5.956	5.309	5.777	5.116
HCM Lane V/C Ratio	0.13	0.705	0.062	0.415	0.222	0.535	0.15	0.62
HCM Control Delay	11.8	25.6	11.9	16	13.3	18.7	12.2	21.5
HCM Lane LOS	B	D	B	C	B	C	B	C
HCM 95th-tile Q	0.4	5.5	0.2	2	0.8	3.1	0.5	4.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	5	2	300	5	28	1	330	197	16	296	13
Future Volume (vph)	1	5	2	300	5	28	1	330	197	16	296	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			4%			-5%			4%	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		259			729			11331			569	
Travel Time (s)		7.1			19.9			220.7			11.1	
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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	104.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	5	2	300	5	28	1	330	197	16	296	13
Future Vol, veh/h	1	5	2	300	5	28	1	330	197	16	296	13
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	-	-	4	-	-	-5	-	-	4	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	1	6	2	345	6	32	1	379	226	18	340	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	897	991	348	882	885	492	355	0	0	605	0	0
Stage 1	384	384	-	494	494	-	-	-	-	-	-	-
Stage 2	513	607	-	388	391	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.9	7.3	6.6	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.9	6.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.9	6.3	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	263	248	700	~ 221	235	550	1215	-	-	983	-	-
Stage 1	643	615	-	503	493	-	-	-	-	-	-	-
Stage 2	548	489	-	587	560	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	239	242	700	~ 212	229	550	1215	-	-	983	-	-
Mov Cap-2 Maneuver	239	242	-	~ 212	229	-	-	-	-	-	-	-
Stage 1	642	601	-	502	493	-	-	-	-	-	-	-
Stage 2	509	489	-	566	547	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.9	$ 374.9	0	0.4
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1215	-	-	289	224	983	-	-
HCM Lane V/C Ratio	0.001	-	-	0.032	1.709	0.019	-	-
HCM Control Delay (s)	8	0	-	17.9	$ 374.9	8.7	0	-
HCM Lane LOS	A	A	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	25.5	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	153	67	341	90	94	425
Future Volume (vph)	153	67	341	90	94	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		50			50
Link Distance (ft)	380		1687			11331
Travel Time (s)	10.4		23.0			154.5
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	27.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	153	67	341	90	94	425
Future Vol, veh/h	153	67	341	90	94	425
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	180	79	401	106	111	500

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1176	454	0	0	507	0
Stage 1	454	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	213	610	-	-	1068	-
Stage 1	644	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	182	610	-	-	1068	-
Mov Cap-2 Maneuver	182	-	-	-	-	-
Stage 1	644	-	-	-	-	-
Stage 2	415	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	140.4	0	1.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	231	1068	-
HCM Lane V/C Ratio	-	-	1.12	0.104	-
HCM Control Delay (s)	-	-	140.4	8.8	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	11.7	0.3	-

LANE SUMMARY

Site: 4 [2025 With Project - PM Peak Hour (Site Folder: Dallas Rd / Trowbridge Blvd - PM Peak Hour)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Dallas Rd													
Lane 1[d]	477	3.0	1170	0.407	100	7.2	LOS A	2.2	57.4	Full	1600	0.0	0.0
Lane 2	662	3.0	1626	0.407	100	0.2	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1139	3.0		0.407		3.1	LOS A	2.2	57.4				
East: Trowbridge Blvd													
Lane 1	298	3.0	966	0.308	100	6.9	LOS A	1.4	35.6	Full	1600	0.0	0.0
Lane 2[d]	298	3.0	966	0.308	100	6.9	LOS A	1.4	35.6	Full	1600	0.0	0.0
Approach	596	3.0		0.308		6.9	LOS A	1.4	35.6				
North: Dallas Rd													
Lane 1	315	3.0	869	0.363	100	8.3	LOS A	1.6	42.0	Full	1600	0.0	0.0
Lane 2[d]	315	3.0	869	0.363	100	8.3	LOS A	1.6	42.0	Full	1600	0.0	0.0
Approach	630	3.0		0.363		8.3	LOS A	1.6	42.0				
West: Trowbridge Blvd													
Lane 1[d]	18	3.0	420	0.044	100	9.2	LOS A	0.2	3.9	Full	1600	0.0	0.0
Approach	18	3.0		0.044		9.2	LOS A	0.2	3.9				
Intersection	2384	3.0		0.407		5.4	LOS A	2.2	57.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Dallas Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	12	360	105	477	3.0	1170	0.407	100	NA	NA
Lane 2	-	-	662	662	3.0	1626	0.407	100	NA	NA
Approach	12	360	767	1139	3.0		0.407			

East: Trowbridge Blvd

Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.

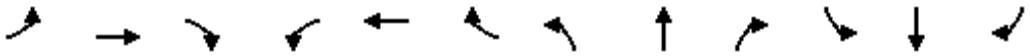
From E To Exit:	S	W	N			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	298	-	-	298	3.0	966	0.308	100	NA	NA
Lane 2	178	1	118	298	3.0	966	0.308	100	NA	NA
Approach	476	1	118	596	3.0		0.308			
North: Dallas Rd										
Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	165	150	-	315	3.0	869	0.363	100	NA	NA
Lane 2	-	312	3	315	3.0	869	0.363	100	NA	NA
Approach	165	462	3	630	3.0		0.363			
West: Trowbridge Blvd										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	3	1	14	18	3.0	420	0.044	100	NA	NA
Approach	3	1	14	18	3.0		0.044			

	Total	%HV	Deg.Satn (v/c)
Intersection	2384	3.0	0.407

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Dallas Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Trowbridge Blvd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
North Exit: Dallas Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Trowbridge Blvd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	103	1	367	169	707	0	0	611	265
Future Volume (vph)	0	0	0	103	1	367	169	707	0	0	611	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			-5%			0%			0%	
Link Speed (mph)		30			30			50			50	
Link Distance (ft)		264			613			706			1150	
Travel Time (s)		6.0			13.9			9.6			15.7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	1%	0%	0%	0%	4%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	399.3

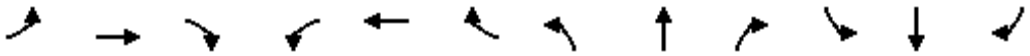
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	103	1	367	169	707	0	0	611	265
Future Vol, veh/h	0	0	0	103	1	367	169	707	0	0	611	265
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	-5	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	4	1	0	0	0	4
Mvmt Flow	0	0	0	127	1	453	209	873	0	0	754	327

Major/Minor	Minor1			Major1			Major2			
Conflicting Flow All	2209	2372	873	1081	0	-	-	-	0
Stage 1	1291	1291	-	-	-	-	-	-	-
Stage 2	918	1081	-	-	-	-	-	-	-
Critical Hdwy	5.4	5.5	5.7	4.14	-	-	-	-	-
Critical Hdwy Stg 1	4.4	4.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	4.4	4.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.236	-	-	-	-	-
Pot Cap-1 Maneuver	~ 91	68	~ 398	638	-	0	0	-	-
Stage 1	373	337	-	-	-	0	0	-	-
Stage 2	506	400	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	~ 33	0	~ 398	638	-	-	-	-	-
Mov Cap-2 Maneuver	~ 33	0	-	-	-	-	-	-	-
Stage 1	136	0	-	-	-	-	-	-	-
Stage 2	506	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1879.8	2.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	638	-	116	-	-
HCM Lane V/C Ratio	0.327	-	5.013	-	-
HCM Control Delay (s)	13.4	0	$ 1879.8	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	1.4	-	61.7	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	359	0	330	0	0	0	0	516	66	234	477	0
Future Volume (vph)	359	0	330	0	0	0	0	516	66	234	477	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-3%			5%			-11%	
Link Speed (mph)		30			30			50			50	
Link Distance (ft)		301			285			444			706	
Travel Time (s)		6.8			6.5			6.1			9.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	2%	0%	1%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Free			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1372.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	359	0	330	0	0	0	0	516	66	234	477	0
Future Vol, veh/h	359	0	330	0	0	0	0	516	66	234	477	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	3	-	-	-3	-	-	5	-	-	-11	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	1	0	1	0	0	0	0	2	0	1	0	0
Mvmt Flow	408	0	375	0	0	0	0	586	75	266	542	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1698	1735	542	-	0	0	661	0	0
Stage 1	1074	1074	-	-	-	-	-	-	-
Stage 2	624	661	-	-	-	-	-	-	-
Critical Hdwy	7.01	7.1	6.51	-	-	-	4.11	-	-
Critical Hdwy Stg 1	6.01	6.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.01	6.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4	3.309	-	-	-	2.209	-	-
Pot Cap-1 Maneuver	~ 77	66	518	0	-	-	932	-	0
Stage 1	~ 275	250	-	0	-	-	-	-	0
Stage 2	483	415	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	~ 46	0	518	-	-	-	932	-	-
Mov Cap-2 Maneuver	~ 46	0	-	-	-	-	-	-	-
Stage 1	~ 275	0	-	-	-	-	-	-	-
Stage 2	~ 286	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 3944	0	3.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	82	932	-
HCM Lane V/C Ratio	-	-	9.548	0.285	-
HCM Control Delay (s)	-	-	$ 3944	10.4	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	90.9	1.2	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	430	72	4	570	117
Future Volume (vph)	3	430	72	4	570	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		7%			-7%
Link Speed (mph)	35		50			50
Link Distance (ft)	355		241			444
Travel Time (s)	6.9		3.3			6.1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	33%	5%	5%	25%	2%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

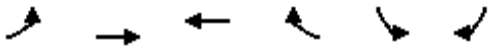
Intersection	
Int Delay, s/veh	9.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	430	72	4	570	117
Future Vol, veh/h	3	430	72	4	570	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	3	-	7	-	-	-7
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	33	5	5	25	2	3
Mvmt Flow	3	448	75	4	594	122

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1387	77	0	0	79	0
Stage 1	77	-	-	-	-	-
Stage 2	1310	-	-	-	-	-
Critical Hdwy	7.33	6.55	-	-	4.12	-
Critical Hdwy Stg 1	6.33	-	-	-	-	-
Critical Hdwy Stg 2	6.33	-	-	-	-	-
Follow-up Hdwy	3.797	3.345	-	-	2.218	-
Pot Cap-1 Maneuver	107	969	-	-	1519	-
Stage 1	862	-	-	-	-	-
Stage 2	175	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	62	969	-	-	1519	-
Mov Cap-2 Maneuver	62	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	102	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	7.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	880	1519	-
HCM Lane V/C Ratio	-	-	0.513	0.391	-
HCM Control Delay (s)	-	-	13.3	8.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	3	1.9	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	68	299	271	32	21	43
Future Volume (vph)	68	299	271	32	21	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		40	40		25	
Link Distance (ft)		249	1090		276	
Travel Time (s)		4.2	18.6		7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

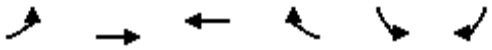
Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	68	299	271	32	21	43
Future Vol, veh/h	68	299	271	32	21	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	74	325	295	35	23	47

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	330	0	-	0	786	313
Stage 1	-	-	-	-	313	-
Stage 2	-	-	-	-	473	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1224	-	-	-	360	725
Stage 1	-	-	-	-	739	-
Stage 2	-	-	-	-	625	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1224	-	-	-	333	725
Mov Cap-2 Maneuver	-	-	-	-	333	-
Stage 1	-	-	-	-	684	-
Stage 2	-	-	-	-	625	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1224	-	-	-	523
HCM Lane V/C Ratio	0.06	-	-	-	0.133
HCM Control Delay (s)	8.1	0	-	-	12.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	95	225	251	15	10	52
Future Volume (vph)	95	225	251	15	10	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)		40	40		25	
Link Distance (ft)		1090	2400		311	
Travel Time (s)		18.6	40.9		8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

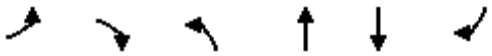
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	225	251	15	10	52
Future Vol, veh/h	95	225	251	15	10	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	103	245	273	16	11	57

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	289	0	-	0	732	281
Stage 1	-	-	-	-	281	-
Stage 2	-	-	-	-	451	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1267	-	-	-	387	755
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	640	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1267	-	-	-	351	755
Mov Cap-2 Maneuver	-	-	-	-	351	-
Stage 1	-	-	-	-	692	-
Stage 2	-	-	-	-	640	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1267	-	-	-	637
HCM Lane V/C Ratio	0.082	-	-	-	0.106
HCM Control Delay (s)	8.1	0	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.4



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	206	252	420	450	377	246
Future Volume (vph)	206	252	420	450	377	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50	0	0			285
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Link Speed (mph)	40			40	40	
Link Distance (ft)	5360			1600	4327	
Travel Time (s)	91.4			27.3	73.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	2%	0%	2%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	37.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	206	252	420	450	377	246
Future Vol, veh/h	206	252	420	450	377	246
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	0	-	-	285
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	1	2	0	2	0
Mvmt Flow	222	271	452	484	405	265

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1793	405	670	0	-	0
Stage 1	405	-	-	-	-	-
Stage 2	1388	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.218	-	-	-
Pot Cap-1 Maneuver	~ 90	648	920	-	-	-
Stage 1	678	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 46	648	920	-	-	-
Mov Cap-2 Maneuver	~ 147	-	-	-	-	-
Stage 1	345	-	-	-	-	-
Stage 2	234	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	149.9	6.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	920	-	147	648	-	-
HCM Lane V/C Ratio	0.491	-	1.507	0.418	-	-
HCM Control Delay (s)	12.6	-	$ 315.6	14.5	-	-
HCM Lane LOS	B	-	F	B	-	-
HCM 95th %tile Q(veh)	2.8	-	14.9	2.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	442	517	42	351	727
Future Volume (vph)	71	442	517	42	351	727
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		-3%			3%
Storage Length (ft)	0	0		0	95	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	30		50			50
Link Distance (ft)	405		758			508
Travel Time (s)	9.2		10.3			6.9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	103.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	71	442	517	42	351	727
Future Vol, veh/h	71	442	517	42	351	727
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	95	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-3	-	-3	-	-	3
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	1	1	0	0	0
Mvmt Flow	76	470	550	45	373	773

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1706	573	0	0	595	0
Stage 1	573	-	-	-	-	-
Stage 2	1133	-	-	-	-	-
Critical Hdwy	6.03	5.915	-	-	4.1	-
Critical Hdwy Stg 1	4.83	-	-	-	-	-
Critical Hdwy Stg 2	5.23	-	-	-	-	-
Follow-up Hdwy	3.519	3.3095	-	-	2.2	-
Pot Cap-1 Maneuver	121	546	-	-	991	-
Stage 1	619	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	76	546	-	-	991	-
Mov Cap-2 Maneuver	76	-	-	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	203	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 427.5	0	3.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	294	991	-
HCM Lane V/C Ratio	-	-	1.856	0.377	-
HCM Control Delay (s)	-	-	$ 427.5	10.8	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	37	1.8	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	242	344	59	257	533
Future Volume (vph)	30	242	344	59	257	533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-5%		3%			-3%
Storage Length (ft)	0	0		0	250	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	30		50			50
Link Distance (ft)	410		360			758
Travel Time (s)	9.3		4.9			10.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	2%	0%	0%	2%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	242	344	59	257	533
Future Vol, veh/h	30	242	344	59	257	533
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-5	-	3	-	-	-3
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	5	2	0	0	2	1
Mvmt Flow	32	257	366	63	273	567

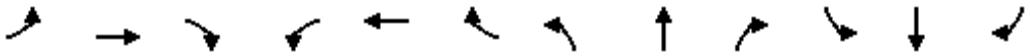
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1511	398	0	0	429	0
Stage 1	398	-	-	-	-	-
Stage 2	1113	-	-	-	-	-
Critical Hdwy	5.45	5.72	-	-	4.12	-
Critical Hdwy Stg 1	4.45	-	-	-	-	-
Critical Hdwy Stg 2	4.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	198	689	-	-	1130	-
Stage 1	751	-	-	-	-	-
Stage 2	422	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	150	689	-	-	1130	-
Mov Cap-2 Maneuver	150	-	-	-	-	-
Stage 1	751	-	-	-	-	-
Stage 2	320	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.2	0	3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	493	1130	-
HCM Lane V/C Ratio	-	-	0.587	0.242	-
HCM Control Delay (s)	-	-	22.2	9.2	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	3.7	0.9	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBR	SWL	SWR
Lane Configurations											
Traffic Volume (vph)	224	185	218	163	176	64	8	291	129	0	0
Future Volume (vph)	224	185	218	163	176	64	8	291	129	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-5%			-3%		0%	
Link Speed (mph)		40			40			50		45	
Link Distance (ft)		1600			338			508		3014	
Travel Time (s)		27.3			5.8			6.9		45.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)			10%								
Sign Control		Yield			Yield			Yield		Yield	

Intersection Summary	
Area Type:	Other
Control Type: Roundabout	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	299	10	52	396	54	5	7	44	30	4	12
Future Volume (vph)	19	299	10	52	396	54	5	7	44	30	4	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		2231			5360			569			542	
Travel Time (s)		38.0			91.4			11.1			10.6	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

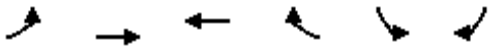
Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	19	299	10	52	396	54	5	7	44	30	4	12
Future Vol, veh/h	19	299	10	52	396	54	5	7	44	30	4	12
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	3	0	0	0
Mvmt Flow	22	352	12	61	466	64	6	8	52	35	5	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	530	0	0	364	0	0	1032	1054	358	1052	1028	498
Stage 1	-	-	-	-	-	-	402	402	-	620	620	-
Stage 2	-	-	-	-	-	-	630	652	-	432	408	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.23	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.327	3.5	4	3.3
Pot Cap-1 Maneuver	1048	-	-	1206	-	-	213	228	684	206	236	576
Stage 1	-	-	-	-	-	-	629	604	-	479	483	-
Stage 2	-	-	-	-	-	-	473	467	-	606	600	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1048	-	-	1206	-	-	189	206	684	171	213	576
Mov Cap-2 Maneuver	-	-	-	-	-	-	189	206	-	171	213	-
Stage 1	-	-	-	-	-	-	613	588	-	467	448	-
Stage 2	-	-	-	-	-	-	424	433	-	538	584	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.8	14.4	27.4
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	449	1048	-	-	1206	-	-	214
HCM Lane V/C Ratio	0.147	0.021	-	-	0.051	-	-	0.253
HCM Control Delay (s)	14.4	8.5	0	-	8.1	0	-	27.4
HCM Lane LOS	B	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.2	-	-	1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	61	270	349	48	29	36
Future Volume (vph)	61	270	349	48	29	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	150	0
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Link Speed (mph)		40	40		25	
Link Distance (ft)		2400	2231		481	
Travel Time (s)		40.9	38.0		13.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	61	270	349	48	29	36
Future Vol, veh/h	61	270	349	48	29	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	0	0	0	0
Mvmt Flow	68	300	388	53	32	40

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	441	0	-	0	851	415
Stage 1	-	-	-	-	415	-
Stage 2	-	-	-	-	436	-
Critical Hdwy	4.12	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.218	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1119	-	-	-	333	642
Stage 1	-	-	-	-	671	-
Stage 2	-	-	-	-	656	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1119	-	-	-	309	642
Mov Cap-2 Maneuver	-	-	-	-	309	-
Stage 1	-	-	-	-	622	-
Stage 2	-	-	-	-	656	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1119	-	-	-	309	642
HCM Lane V/C Ratio	0.061	-	-	-	0.104	0.062
HCM Control Delay (s)	8.4	0	-	-	18	11
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3	0.2

Appendix D

Trip Generation Calculations

Harvest Ridge Residential (143 Homes)
Trip Generation Summary

Time Period	Units	ITE LUC [1]	Trip Rate or Equation [1]	Directional Distribution [1] In	Directional Distribution [1] Out	Vehicular Trip Generation In	Vehicular Trip Generation Out	Vehicular Trip Generation Total
Daily								
Single-Family Detached Housing	143	210	Ln(T) = 0.92 Ln(X) + 2.68	50%	50%	701	701	1,402
AM Peak Hour								
Single-Family Detached Housing	143	210	Ln(T) = 0.91 Ln(X) + 0.12	26%	74%	27	76	103
PM Peak Hour								
Single-Family Detached Housing	143	210	Ln(T) = 0.94 Ln(X) + 0.27	63%	37%	88	51	139

Notes:
1. ITE *Trip Generation* , 11th Edition, 2021.

Appendix E

Badger Mountain South Year 2025 Land Use, Trip Generation, and Trip Assignment

Badger Mountain South - 2025 Land Use Assumptions

	2025 TOTAL	
Land Use	**Size**	**units**
Single Family	1,247	DU
Multifamily (Low-Rise)	525	DU
Multifamily (Mid-Rise)	283	DU
Senior Housing Detached	120	DU
Senior Housing Attached	30	DU
Residential SUBTOTAL	***2,205***	***DU***
Grocery Store	18,030	SF
Fast Food w/ Drive Thru	700	SF
Gas Station w/ Convenience Mkt	3,200	SF
Medical Office	40,000	SF
Church	20,000	SF
Mini Warehouse (Storage)	175,000	SF

Badger Mountain South
Development by 2025
Weekday AM Peak Hour Trip Generation Summary

Land Use	Units[1]	ITE LUC[2]	Directional Distribution[2] In	Directional Distribution[2] Out	Trip Rate or Equation[2]	Trips Generated In	Trips Generated Out	Trips Generated Total
WEEKDAY AM PEAK HOUR								
Proposed Use:								
Single-Family Detached Housing	1,247 DU	210	25%	75%	T = 0.71(X) + 4.80	222	668	890
Internal Trips [3]						*-5*	*-11*	*-16*
					Subtotal (less internal) =	217	657	874
Multifamily Housing (Mid-Rise)	283 DU	221	26%	74%	Ln(T) = 0.98 Ln(X) - 0.98	25	70	95
Internal Trips [3]						*-1*	*-1*	*-2*
					Subtotal (less internal) =	24	69	93
Multifamily Housing (Low-Rise)	525 DU	220	23%	77%	Ln(T) = 0.95Ln(X)-0.51	53	177	230
Internal Trips [3]						*-1*	*-3*	*-4*
					Subtotal (less internal) =	52	174	226
Senior Adult Housing - Detached	120 DU	251	33%	67%	Ln(T) = 0.76 Ln(X) + 0.21	16	31	47
Internal Trips [3]						*0*	*0*	*0*
					Subtotal (less internal) =	16	31	47
Senior Adult Housing - Attached	30 DU	252	35%	65%	0.20	2	4	6
Internal Trips [3]						*0*	*0*	*0*
					Subtotal (less internal) =	2	4	6
Medical-Dental Office	40,000 SF	720	78%	22%	Ln(T) = 0.89 Ln(X) + 1.31	77	22	99
Internal Trips [3]						*-9*	*-9*	*-18*
					Subtotal (less internal) =	68	13	81
Mini Warehouse	175,000 SF	151	60%	40%	0.10	11	7	18
Internal Trips [3]						*0*	*0*	*0*
					Subtotal (less internal) =	11	7	18
Church	20,000 SF	560	60%	40%	T = 0.36(X) - 0.74	4	2	6
Internal Trips [3]						*0*	*0*	*0*
					Subtotal (less internal) =	4	2	6
Grocery Store	18,030 SF	850	60%	40%	3.82	41	28	69
Internal Trips[3]						*-6*	*-4*	*-10*
Passby Trips [4]	*36%*					*-13*	*-8*	*-21*
					Subtotal (less internal and passby) =	22	16	38
Super Convenience Market/Gas Station	3,200 SF	960	50%	50%	T = 137.38(X) - 264.53	88	87	175
Internal Trips[3]						*-12*	*-12*	*-24*
Pass-By Trips[4]	76%					*-57*	*-58*	*-115*
					Subtotal (less internal and passby) =	19	17	36
Fast-Food Restaurant w/ Drive-Thru	700 SF	934	51%	49%	40.19	14	14	28
Internal Trips[3]						*-13*	*-7*	*-20*
Pass-By Trips[4]	49%					*-1*	*-3*	*-4*
					Subtotal (less internal and passby) =	0	4	4
					Gross Proposed AM Peak Hour Trips =	553	1,110	1,663
					Less Total Internal Trips =	*-47*	*-47*	*-94*
					Less Total Pass-By Trips =	*-71*	*-69*	*-140*
					Net New AM Peak Hour Trips =	435	994	1,429

Notes:

[1] DU = Dwelling Units, SF = Square Feet.

[2] Institute of Transportation Engineers, Trip Generation Manual, 10th Edition.

[3] Internal trip reductions based on methodology documented in the ITE Trip Generation Handbook, 3rd Edition, 2017.

[4] Passby percent based on studies documented in the ITE Trip Generation Handbook, 3rd Edition, 2017.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Badger Mountain South	**Organization:**	
Project Location:		**Performed By:**	TENW
Scenario Description:		**Date:**	1/4/2021
Analysis Year:	2025	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office		40,000	SF	99	77	22
Retail			SF	244	129	115
Restaurant		700	SF	28	14	14
Cinema/Entertainment				0		
Residential		2,205	DUs	1268	318	950
Hotel				0		
All Other Land Uses[2]				24	15	9
Total				1663	553	1110

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	3	0	0	0
Retail	3		7	0	6	0
Restaurant	4	2		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	10	3	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,663	553	1,110
Internal Capture Percentage	6%	8%	4%
External Vehicle-Trips[3]	1,569	506	1,063
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	12%	41%
Retail	14%	14%
Restaurant	93%	50%
Cinema/Entertainment	N/A	N/A
Residential	2%	2%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Badger Mountain South
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	77	77	1.00	22	22
Retail	1.00	129	129	1.00	115	115
Restaurant	1.00	14	14	1.00	14	14
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	318	318	1.00	950	950
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	14	0	0	0
Retail	33		15	0	16	0
Restaurant	4	2		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	19	10	190	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		41	3	0	0	0
Retail	3		7	0	6	0
Restaurant	11	10		0	16	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	22	3	0		0
Hotel	2	5	1	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	9	68	77	68	0	0
Retail	18	111	129	111	0	0
Restaurant	13	1	14	1	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	7	311	318	311	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	15	15	15	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	9	13	22	13	0	0
Retail	16	99	115	99	0	0
Restaurant	7	7	14	7	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	15	935	950	935	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	9	9	9	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Badger Mountain South
Development by 2025
Weekday PM Peak Hour Trip Generation Summary

Land Use	Units[1]	ITE LUC[2]	Directional Distribution[2] In	Directional Distribution[2] Out	Trip Rate or Equation[2]	Trips Generated In	Trips Generated Out	Trips Generated Total
WEEKDAY PM PEAK HOUR								
Proposed Use:								
Single-Family Detached Housing	1,247 DU	210	63%	37%	Ln(T) = 0.96Ln(X)+0.20	721	424	1,145
Internal Trips[3]						*-23*	*-25*	*-48*
					Subtotal (less internal) =	698	399	1,097
Multifamily Housing (Mid-Rise)	283 DU	221	61%	39%	Ln(T) = 0.96 Ln(X) - 0.63	73	47	120
Internal Trips[3]						*-2*	*-3*	*-5*
					Subtotal (less internal) =	71	44	115
Multifamily Housing (Low-Rise)	525 DU	220	63%	37%	Ln(T) = 0.89Ln(X)-0.02	163	95	258
Internal Trips[3]						*-5*	*-6*	*-11*
					Subtotal (less internal) =	158	89	247
Senior Adult Housing - Detached	120 DU	251	61%	39%	Ln(T) = 0.78 Ln(X) + 0.28	34	21	55
Internal Trips[3]						*-1*	*-1*	*-2*
					Subtotal (less internal) =	33	20	53
Senior Adult Housing - Attached	30 DU	252	55%	45%	0.26	4	4	8
Internal Trips[3]						*-1*	*0*	*-1*
					Subtotal (less internal) =	3	4	7
Medical-Dental Office	40,000 SF	720	28%	72%	T = 3.39(X)+2.02	39	99	138
Internal Trips[3]						*-24*	*-11*	*-35*
					Subtotal (less internal) =	15	88	103
Mini Warehouse	175,000 SF	151	47%	53%	0.17	14	16	30
Internal Trips[3]						*0*	*0*	*0*
					Subtotal (less internal) =	14	16	30
Church	20,000 SF	560	45%	55%	0.49	4	6	10
Internal Trips[3]						*0*	*0*	*0*
					Subtotal (less internal) =	4	6	10
Grocery Store	18,030 SF	850	51%	49%	Ln(T) = 0.75 Ln(X) + 3.21	111	106	217
Internal Trips[3]						*-13*	*-16*	*-29*
Passby Trips[4]	*36%*					*-35*	*-33*	*-68*
					Subtotal (less internal and passby) =	63	57	120
Super Convenience Market/Gas Station	3,200 SF	960	50%	50%	69.28	111	111	222
Internal Trips[3]						*-12*	*-17*	*-29*
Pass-By Trips[4]	76%					*-73*	*-74*	*-147*
					Subtotal (less internal and passby) =	26	20	46
Fast-Food Restaurant w/ Drive-Thru	700 SF	934	52%	48%	32.67	12	11	23
Internal Trips[3]						*-5*	*-7*	*-12*
Pass-By Trips[4]	50%					*-4*	*-2*	*-6*
					Subtotal (less internal and passby) =	3	2	5
					Gross Proposed PM Peak Hour Trips =	1,286	940	2,226
					Less Total Internal Trips =	*-86*	*-86*	*-172*
					Less Total Pass-By Trips =	*-112*	*-109*	*-221*
					Net New PM Peak Hour Trips =	1,088	745	1,833

Notes:

[1] DU = Dwelling Units, SF = Square Feet.

[2] Institute of Transportation Engineers, Trip Generation Manual, 10th Edition.

[3] Internal trip reductions based on methodology documented in the ITE Trip Generation Handbook, 3rd Edition, 2017.

[4] Passby percent based on studies documented in the ITE Trip Generation Handbook, 3rd Edition, 2017.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Badger Mountain South	**Organization:**	
Project Location:		**Performed By:**	TENW
Scenario Description:		**Date:**	1/4/2021
Analysis Year:	2025	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office		40,000	SF	138	39	99
Retail		#REF!	SF	217	111	106
Restaurant		700	SF	23	12	11
Cinema/Entertainment				0		
Residential		2,205	DUs	1586	995	591
Hotel				0		
All Other Land Uses[2]				40	18	22
Total				2004	1175	829

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		9	0	0	2	0
Retail	2		3	0	28	0
Restaurant	0	5		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	22	11	2	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	2,004	1,175	829
Internal Capture Percentage	9%	7%	10%
External Vehicle-Trips[3]	1,832	1,089	743
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	62%	11%
Retail	23%	31%
Restaurant	42%	64%
Cinema/Entertainment	N/A	N/A
Residential	3%	6%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Badger Mountain South
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	39	39	1.00	99	99
Retail	1.00	111	111	1.00	106	106
Restaurant	1.00	12	12	1.00	11	11
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	995	995	1.00	591	591
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		20	4	0	2	0
Retail	2		31	4	28	5
Restaurant	0	5		1	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	24	248	124	0		18
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		9	0	0	40	0
Retail	12		3	0	458	0
Restaurant	12	56		0	159	0
Cinema/Entertainment	2	4	0		40	0
Residential	22	11	2	0		0
Hotel	0	2	1	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	24	15	39	15	0	0
Retail	25	86	111	86	0	0
Restaurant	5	7	12	7	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	32	963	995	963	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	18	18	18	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

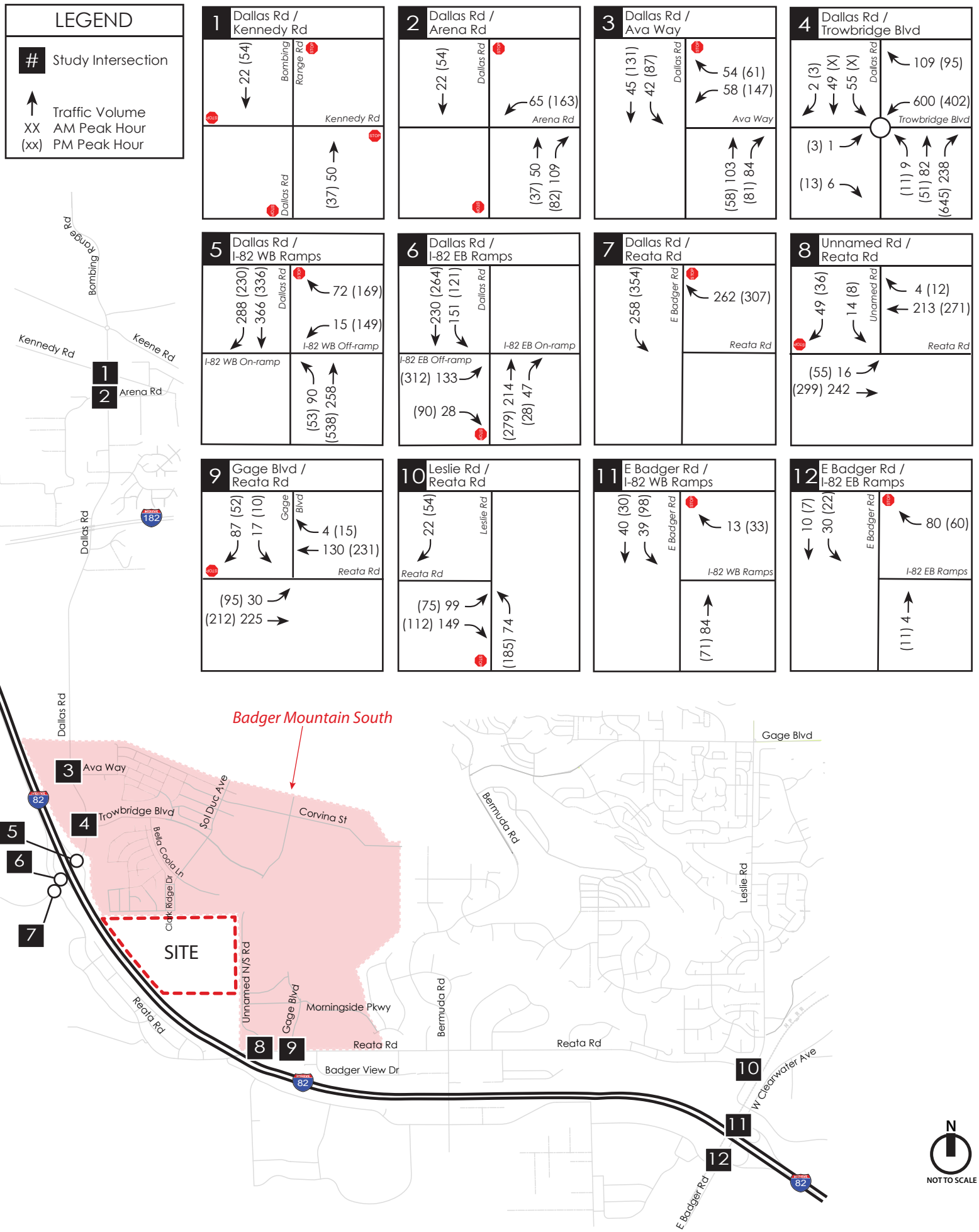
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	11	88	99	88	0	0
Retail	33	73	106	73	0	0
Restaurant	7	4	11	4	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	35	556	591	556	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	22	22	22	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.



2025 Badger Mountain South Peak Hour Trip Assignment

PCM 1.7

Preliminary Storm Drainage Report

Harvest Ridge
Benton County, Washington

Prepared for:
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Contact: Geoff Clark
P.O. Box 1307
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April 27, 2021
PBS Project 66325.000

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APPENDICES

Appendix A: HydroCAD Model
HydroCAD Report
NRCS Web Soil Survey Data

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Certificate of Engineer

Design for the storm system was done in accordance with the Benton County Storm Codes Design and Construction Standards – General Layout Design Standards Section. Design for the storm systems was also done in compliance with applicable sections of the Stormwater Management Manual for Eastern Washington. The technical information and data contained in this report was prepared under the direction and supervision of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

This document was:

Prepared by: _____
Sonia Barakoti, EIT

Approved by: _____
Jason Mattox, P.E.

1 INTRODUCTION

1.1 General

Harvest Ridge is a project seeking to develop 143 residential lots in three phases. The site is located in Section 5, Township 8 North, Range 28 East, W.M. in Benton County, Washington. The site backs up against the Interstate 82 Highway to the west and is south of the West Village residential development located in Richland.

1.2 Project Description

This preliminary storm drainage report addresses the stormwater runoff generated by a roadway standard section with a 28-feet asphalt width, 1-foot gravel shoulder, 12-feet wide roadside ditch, and 6-feet pedestrian walkway. Storm runoff generated on-site will be retained on-site through surface and subsurface infiltration in accordance with current Benton County Code and the Stormwater Management Manual for Eastern Washington (SMMEW) (Publication No. 18-10-044, August 2019). This report looks at a preliminary storm design for a typical drainage basin and typical infiltration swale. Future UIC devices may be needed at concentrated roadway low points, and would be designed upon final site design.

2 EXISTING CONDITIONS

2.1 Topography

The site comprises approximately 173.36 acres in a roughly rectangular shape which has been truncated by neighboring parcels. The project site is divided into three phases – Phase 1 (42 lots), phase 2 (54 lots) and phase 3 (47 lots). The property is bounded to the west by I-82 and by an existing residential development to the north. Existing agricultural properties can be found to the east and south. The site is currently under agricultural production. Based on available preliminary topographical data, the site slopes north, north-easterly, and north-westerly toward low-lying areas that continue to slope in those directions. Slopes vary from 1% in the highest elevations to as much as 17% in the low-lying drainage-like areas.

2.2 Land Use

The site is currently used for agriculture. The property to the north is residential development. Property to the south, west and east of the site is agriculture. There is an existing building to the southeast on the site, and it is unknown if it is to remain.

2.3 Drainage Patterns

The majority of the development drains from the south to the north, northeast, and northwest. Currently, all the precipitation that enters the site is presumed to infiltrate into surface soils. There are no existing drainages entering the site. The existing low-lying drainage areas have been cut-off by I-82 from receiving offsite drainage. Development of the area north of the site will prevent drainage from leaving the site in that direction. A small area of the site to the east drains toward a drainage-way that continues north-easterly. This drainage-way could see some runoff from the area south of the site and could potentially have some runoff flow off-site.

There is not a water body located on the site. The proposed project will convey stormwater to the surface and subsurface infiltration systems and no stormwater is anticipated to discharge off site upon final site grading and roadway installation.

2.4 Water Wells, Septic Tanks, etc.

There are no known wells or septic systems on site. Residences to the east and across I-82 appear to have wells and septic systems. The stormwater management plan will follow the guidelines set forth by the Benton-Franklin Health District and the Washington State Department of Ecology, for well head protection.

3 DESIGN AND PROJECT COMPLIANCE

Benton County requires the proposed project to comply with the standards and requirements of the SMMEW. This project is part of a common plan of development and will comply with the eight core elements listed in the SMMEW.

The eight core elements this project and report will address are:

- Preparation of a Stormwater Site Plan
- Construction Stormwater Pollution Prevention
- Source Control of Pollution
- Preservation of Natural Drainage Systems
- Runoff Treatment
- Flow Control
- Operation and Maintenance
- Local Requirements

3.1 Preparation of a Stormwater Site Plan

Design plans will be prepared by a licensed professional engineer and submitted with each phase of the project construction that is permitted for the site.

3.2 Construction Stormwater Pollution Prevention

The intent of this element is to ensure adequate measures are taken to address construction stormwater. The contractor, selected by the owner, will be appointed as the Erosion Control Lead for this project. The owner will be responsible for a construction Stormwater Pollution Prevention Plan (SWPPP) as well as compliance with the NPDES Construction Stormwater General Permit.

The plan is as follows:

- The contractor should see at a minimum to provide the following measures:
- To control erosion during construction, existing catch basin grates should be wrapped in geotextile fabric or have a silt sack placed in the grate prior to construction, existing roadsides ditches shall have straw waddles placed to prevent sediment laden water traveling downstream of the property, and all downstream property boundaries should have silt fencing measures in place to prevent sediment laden runoff from leaving the site.
- To prevent wind-blown erosion, the contractor should use person-operated watering devices. No unattended watering of the site should be allowed.
- The site should have a construction entrance with a rip rap pad present to prevent the tracking of mud onto County streets. Any mud that is tracked onto County streets should be swept up to prevent sediment from entering the County storm facilities. This maintenance should be the responsibility of the contractor during construction.
- All construction storm facilities shall be protected from sediment intrusion until disturbed soils are stabilized. All disturbed soil areas must be stabilized immediately upon completion of construction.

3.3 Source Control of Pollution

The intent of source control BMPs is to prevent pollutants from coming into contact with stormwater. Following construction, projects shall apply all known, available, and reasonable source control BMPs. Source control BMPs shall be selected, designed and maintained according to the SMMEW. Applicable means of source control include but are not limited to preventative maintenance, spill prevention & cleanup, employee training inspections, and good housekeeping.

3.4 Preservation of Natural Drainage Systems

In order to maintain and preserve natural drainage on-site, all stormwater runoff produced will be retained and infiltrated on-site via roadside swales and will be discharged at or below the rate and volume that existed prior to development or infiltrated through underground injection control (UIC) devices. The UIC devices will infiltrate stormwater runoff at the runoff source. The intent of the design is to preserve the existing infiltration volumes to a condition equal to or better than their current conditions.

3.5 Runoff Treatment

The stormwater treatment methodology will seek to provide runoff treatment via surface and sub-surface infiltration methods as defined in the SMMEW.

The roadside swales are expected to retain and infiltrate runoff. At localized roadway low points, swales would have an overflow to a sub-surface UIC infiltration system that will also seek to provide stormwater treatment via infiltration into vadose zone materials. The required design storm for non-linked networks is a Type 1A 24-hour storm with a 25-year storm return period.

3.6 Flow Control

The site will be utilizing a combination of roadside swales and subsurface infiltration UIC's and no off-site discharge to surface water is anticipated to occur. Wherever possible, infiltration methods will be targeted as the primary means of flow control on the site.

3.7 Operation and Maintenance

Upon project completion, all stormwater facilities within the project limits will be owned and maintained by the County and will be subjected to their current operations and maintenance programs compliant with the SMMEW. All proposed improvements are in compliance with Benton County code and are detailed using County standard details and notes identified on the construction plans.

3.8 Local Requirements

Benton County requires that stormwater disposal methodologies be compliant with Benton County Code and the SMMEW.

4 STORMWATER SYSTEM DESIGN

The stormwater runoff from the new impervious surfaces will be directed and infiltrated on-site. The design of the proposed stormwater collection, conveyance, and infiltration facilities will be done with the aid of HydroCAD version 10.10-4b computer software (HydroCAD). HydroCAD utilizes the SCS TR-20 methodology to determine runoff excess for a given amount of rainfall. The stormwater system will be designed in accordance with Benton County standards. The County's rainfall distribution design requirements are a SCS Type 1A, 25-year, 24-hour distribution. The 25-year event was used to analyze the ability of roadside swales to infiltrate runoff and will be used in final design to size any needed sub-surface infiltration UIC's for concentrated low point areas. Rainfall for the 25-year event is 1.7 inches, as on the National Oceanic and Atmospheric Administration (NOAA) map.

The drainage basins analyzed will account for impervious roadway areas and additional impervious areas from individual lots contributing to a modeled roadside swale. Each lot is assumed to contribute 3,125 square feet of impervious driveway surface, 1,000 square feet of impervious roof area, and 50 feet behind the sidewalk for pervious area to stormwater runoff. A sub-catchment is routed to a typical swale that overflows to a

subsurface UIC, both modeled as a "pond" in HydroCAD to properly account for the storage/discharge relationship. Sizing of sub-surface infiltration facilities will be done upon final site layout and design.

The stage/discharge rate for the system is based on the infiltration rate of the soils. The on-site soils are classified as loamy fine sand according to the NRCS Web Soil Survey data referenced for this site (see Appendix A). A geotechnical report prepared for the West Village development north of this site performed infiltration testing that resulted in 2.5 inches per hour. Using that tested rate and applying a safety factor of 2 resulted in a design rate of 1.25 inches per hour for use in the analysis of this preliminary storm design for the infiltration swales. The geotechnical report also stated that static groundwater may be present at depths greater than 30 feet.

The attached HydroCAD spreadsheet summarize the storage volume and dissipation for a sample swale. Those values were used in the HydroCAD model as input for stage storage and stage discharge curves. HydroCAD then determines the peak stage and storage that occurs during the design storm event. The attached "pond summaries" show the peak stage and storage in the swale during a 25-year, 24-hour event (1.7 inches of rainfall). At this time, it is believed the in-situ soils would provide stormwater runoff treatment via infiltration. See Appendix A for HydroCAD model results.

4.1 Evaluation of Compliance

Design for the swale was done in accordance with the SMMEW BMP T5.21 Infiltration Swale and future design of sub-surface infiltration UIC's shall be in accordance with BMP F6.22: Infiltration Trenches.

4.2 Evaluation of Flood Control Capacity

As mentioned above, no flooding is expected to occur during the 25-year, 24-hour event. Should localized flooding occur due to a storm event happening in excess of one of the required design events or the UIC device fails due to lack of maintenances, the localized low points are located along the north and east property lines. Should flooding continue to increase it would be expected to flow north through the West Village development and to the existing storm pond, and east through agricultural land toward an existing drainage way.

4.3 Evaluation of Water Quality Treatment Compliance

The proposed means of stormwater treatment will be through collection and disposal via means of infiltration through roadside swales and UIC devices.

The existing in-situ soils are believed to provide adequate runoff treatment due to the cation exchange capacity found through the NRCS Web Soil Survey website as well as soil contact time in the vadose zone. For future sub-surface UIC's, the level of treatment that would be required for a low-pollutant loading site with high vadose treatment capacity would be a two-stage drywell. The on-site soils will be classified per Table 5.2 of SMMEW, and the site will be classified per Table 5 (see Appendix A).

5 PROPOSED EROSION CONTROL PLAN

To control erosion during construction, existing catch basin grates should have a geotextile fabric "witch's hat" installed prior to construction, existing roadside ditches are to be stabilized with straw wattles and check dams, and all downstream property boundaries should have silt fencing measures in place to prevent sediment laden runoff from leaving the site. To prevent windblown erosion, the contractor should use person-operated watering devices. No unattended watering of the site should be allowed. The site should have a construction entrance with a rip rap pad present to prevent the tracking of mud onto County streets. Any mud that is tracked onto County streets should be swept up to prevent sediment from entering Benton County

storm facilities, which shall be protected from sediment intrusion until disturbed soils are stabilized. All disturbed soil areas must be stabilized immediately upon completion of construction with a hydroseed mulch placed on the disturbed surfaces.

6 PROPOSED MAINTENANCE PLAN

Once the project is completed, all stormwater systems will become the property of the County, and it is assumed that the system will be cleaned and maintained in accordance with the systems maintenance plan. It is recommended that the owner follow the maintenance criteria described under BMP T5.21 for Infiltration Swales or F6.22 for Infiltration Trenches in order to prevent the buildup of materials that could inhibit infiltration.

During construction, the contractor should be responsible for the maintenance of all erosion control measures to include silt fencing, catch basin fabric measures, and the preventative maintenance to keep tracked mud off County streets.

7 CONCLUSION

The preliminary stormwater system design described in this report is expected to adequately provide storage and treatment of stormwater for the given design storm event as required by the County and the SMMEW. No flooding is anticipated to occur during the 25-year, 24-hour design storm event and treatment of stormwater seeks to be provided through the vadose zone with adequate separation between the bottom of the UIC device and the identified groundwater table. All proposed stormwater storage and infiltration measures are found to be in compliance with BMP T5.21 and will seek to be in compliance with BMP F6.22 of the SMMEW for design of future infiltration trenches.

8 REFERENCES

PBS (PBS Engineering and Environmental Inc.). (April 2018). *Geotechnical Engineering Report* (Project No. 66325.000). Prepared for Badger Developer, LLC.

Washington State Department of Ecology. (2019, August). *2019 Stormwater Management Manual for Eastern Washington*. Water Quality Program. Publication Number 18-10-044.

Web Soil Survey. United States Department of Agriculture, Natural Resources Conservation Service, 04 June 2020, websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed 21 April 2021.

Figures

Figure 1: 25-Year Isopluvial Map
Figure 2: SMMEW Table 4.14
Figure 3. SMMEW Table 5.21
Figure 4. SMMEW Table 5.22
Figure 5. SMMEW Table 5.23
Figure 6. Typical Roadside Ditch Section
Figure 7. Typical Infiltration Facility Detail
Figure 8. Typical Section for Areas with Pedestrian Walkways

Figure 4.10: 25-Year, 24-Hour Isopluvial Map

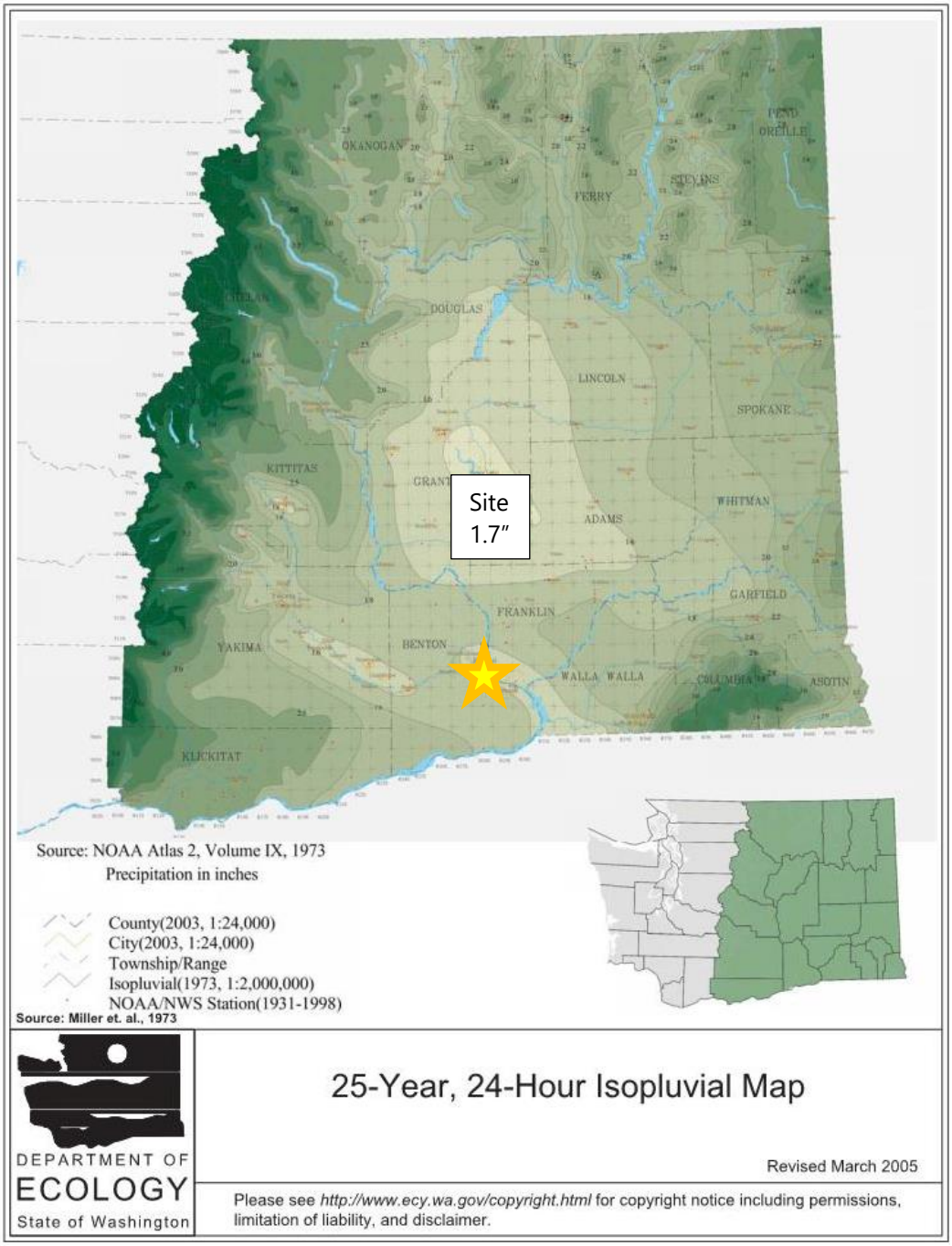


Figure1: 25-Year Isopluvial Map

Table 4.14: Runoff Curve Numbers (CNs) for Selected Agricultural, Suburban, and Urban Areas

Cover type and hydrologic condition	CNs for hydrologic soil group			
	A	B	C	D
Open space (lawns, parks, golf courses, cemeteries, landscaping, etc.)[a]				
Poor condition (grass cover <50% of the area)	68	79	86	89
Fair condition (grass cover on 50% to 75% of the area)	49	69	79	84
Good condition (grass cover on >75% of the area)	39	61	74	80
Impervious areas				
Open water bodies: lakes, wetlands, ponds etc.	100	100	100	100
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)	98	98	98	98
Permeable pavers and permeable interlocking concrete (assumed as 85% impervious and 15% lawn)				
Fair lawn condition (weighted average CNs)	95	96	97	97
Gravel (including right-of-way)	76	85	89	91
Dirt (including right-of-way)	72	82	87	89
Pasture, grassland, or range-continuous forage for grazing				
Poor condition (ground cover <50% or heavily grazed with no mulch)	68	79	86	89
Fair condition (ground cover 50% to 75% and not heavily grazed)	49	69	79	84
Good condition (ground cover >75% and lightly or only occasionally grazed)	39	61	74	80
Cultivated agricultural lands				
Row Crops (good) e.g., corn, sugar beets, soy beans	64	75	82	85
Small Grain (good) e.g., wheat, barley, flax	60	72	80	84
Meadow				
Continuous grass, protected from grazing and generally mowed for hay	30	58	71	78
Brush (brush-weed-grass mixture with brush the major element)				

Figure 2: SMMEW Table 4.14

Table 4.14: Runoff Curve Numbers (CNs) for Selected Agricultural, Suburban, and Urban Areas (continued)

Cover type and hydrologic condition	CNs for hydrologic soil group			
	A	B	C	D
Poor (<50% ground cover)	48	67	77	83
Fair (50% to 75% ground cover)	35	56	70	77
Good (>75% ground cover)	30[b]	48	65	73
Woods-grass combination (orchard or tree farm)[c]				
Poor	57	73	82	86
Fair	43	65	76	82
Good	32	58	72	79
Woods				
Poor (Forest litter, small trees, and brush destroyed by heavy grazing or regular burning)	45	66	77	83
Fair (Woods are grazed but not burned, and some forest litter covers the soil)	36	60	73	79
Good (Woods are protected from grazing, and litter and brush adequately cover the soil)	30	55	70	77
Herbaceous (mixture of grass, weeds, and low-growing brush, with brush the minor element)				
Poor (<30% ground cover)	n/a[d]	80	87	93
Fair (30% to 70% ground cover)		71	81	89
Good (>70% ground cover)		62	74	85
Sagebrush with grass understory				
Poor (<30% ground cover)	n/a[d]	67	80	85
Fair (30% to 70% ground cover)		51	63	70
Good (>70% ground cover)		35	47	55

[a]Composite CNs may be computed for other combinations of open space cover type.

[b]Actual CN is < 30; use CN = 30 for runoff computations.

[c]The indicated CNs were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CNs for woods and pasture.

[d]CNs have not been developed for hydrologic soil group A.

Figure 2: SMMEW Table 4.14

Table 5.21: Vadose Zone Treatment Capacity

Treatment Capacity Classification and Required Minimum Thickness	Description of Vadose Zone Layer[c,d]

HIGH
A minimum thickness of 5 feet
	Meets all of the following characteristics:
	• Materials with median grain size < 0.125 mm
	• Having a sand to silt/clay ratio of < 1:1 and sand plus gravel < 50%
	• Field-tested saturated hydraulic conductivity below 2.4 in/hr at the bottom elevation of the proposed BMP
	• Materials with CEC of ≥ 5 milliequivalents CEC/100 g dry soils, and a minimum of 1% organic content, ≥ 18-inch minimum thickness
	• Typical geotechnical descriptive words for appropriate soils:
	  ○ Lean, fat, or elastic clay
	  ○ Sandy or silty clay
	  ○ Silt
	  ○ Clayey or sandy silt
	  ○ Sandy loam or loamy sand
	  ○ Silt/clay with interbedded sand
	  ○ Well-compacted, poorly sorted materials
	This category generally includes till, hardpan, caliche, and loess.

MEDIUM A minimum thickness of 10 feet	Meets all of the following characteristics: • Materials with average grain size 0.125 to 4 mm • Having a sand to silt/clay ratio from 1:1 and 9:1 and percent sand > percent gravel • Field-tested saturated hydraulic conductivity between 2.4 in/hr and 6 in/hr at the bottom elevation of the proposed BMP • Materials between 2 and 5 milliequivalents CEC/100 g dry soils, and a minimum of 0.5% to 1% organic content, • Typical geotechnical descriptive words for appropriate soils: ○ Fine, medium, or coarse sand

Figure 3: SMMEW Table 5.21

Table 5.21: Vadose Zone Treatment Capacity (continued)

Treatment Capacity Classification and Required Minimum Thickness	Description of Vadose Zone Layer[c,d]
	◦ Sand with interbedded clay and/or silt ◦ Poorly compacted, poorly sorted materials *This category includes some alluvium and outwash deposits.*
LOW A minimum thickness of 25 feet	Meets all of the following characteristics: • Materials with median grain size > 4 mm to 64 mm • Having a sand to silt/clay ratio > 9:1 and percent sand less than percent gravel • Field-tested saturated hydraulic conductivity between 6 in/hr and 12 in/hr at the bottom elevation of the proposed BMP • Materials with CEC of ≤ 2 milliequivalents CEC/100 g dry soils and a minimum of < 0.5% organic content • Typical geotechnical descriptive words for appropriate soils: ◦ Poorly sorted, silty, or muddy gravel ◦ Sandy gravel, gravelly sand, or sand and gravel *This category includes some alluvium and outwash deposits.*
NONE Minimum thickness not applicable	Meets any of the following characteristics: • Vadose zone conditions are unknown; or • Vadose zone conditions are known and are characterized in any of the following ways: ◦ Sedimentary materials with median grain size > 64 mm ◦ Total fines (sand and mud) < 5% ◦ Field-tested saturated hydraulic conductivity > 12 in/hr at the bottom elevation of the proposed BMP ◦ Materials with no measurable CEC or organic content ◦ Typical geotechnical descriptive words for appropriate soils: ■ Well-sorted or clean gravel ■ Boulders and/or cobbles ■ Fractured rock *This category generally includes vadose zones with conditions that are unknown or vadose zones that are known to be composed of fractured basalt, other fractured bedrock, and cavernous limestone.*

Figure 3: SMMEW Table 5.21

Table 5.22: Pollutant Loading Classifications for Solids, Metals, and Oil in Stormwater Runoff Directed to UIC Wells

Classification	Areas Contributing Runoff to the UIC Well
Insignificant	• Impervious surfaces not subject to motorized vehicle traffic or application of sand or deicing chemicals • Unmaintained open space
Low	• Parking areas with < 40 total trip ends per 1,000 square feet (sf) of gross building area and < 100 total trip ends (if you exceed either threshold, move to the Medium Classification) • Other land uses with similar traffic/use characteristics (e.g., most residential parking and employee-only parking areas for small office parks or other commercial buildings) • **Inside Urban Growth Management Areas** ◦ Fully controlled and partially controlled limited access highways with ADT < 15,000 ◦ Other roads with ADT < 7,500 vehicles • **Outside Urban Growth Management Areas** ◦ All roads with ADT < 15,000 vehicles
Medium	• Parking areas with between 40 and 100 trip ends per 1,000 sf of gross building area and between 100 and 300 total trip ends (if you exceed either threshold, move to the High Classification) • Primary access points for high-density residential apartments • Intersections controlled by traffic signals that do not meet the definition of a high-density intersection (see the Glossary) • Transit center bus stops • **Inside Urban Growth Management Areas** ◦ Fully controlled and partially controlled limited access highways with ADT between 15,000 and 30,000 vehicles ◦ Other roads with ADT between 7,500 and 30,000 vehicles • **Outside Urban Growth Management Areas** ◦ All roads with ADT between 15,000 and 30,000 vehicles
High	• High-use sites ◦ Includes roads with ADT > 30,000 vehicles • On-street parking areas of municipal streets in commercial and industrial areas
	• Highway rest areas • Other land uses with similar traffic/use characteristics (e.g., commercial buildings with a frequent turnover of visitors, such as grocery stores, shopping malls, restaurants, drive-through services, etc.)

Notes:

a. This table is applicable to designers intending to use the presumptive approach to identify the necessary level of treatment upstream of a UIC well. Designers for industrial sites with no outdoor processing, storage, or handling of raw or finished products may also use these tables.

b. This table is not applicable to stormwater runoff from industrial activities, outdoor processing, storage, or handling of raw or finished products; or areas where stormwater runoff comes into contact with leachate or other prohibited discharges.

Figure 4: SMMEW Table 5.22

Table 5.23: Treatment Required for Solids, Oil, and Metals

Pollutant Loading	Treatment Capacity			
	High	**Medium**	**Low**	**None**
Insignificant	Two-stage drywell[a]	Two-stage drywell[a]	Two-stage drywell[a]	Two-stage drywell[a]
Low	Two-stage drywell[a]	Pretreatment[b]	Pretreatment[b]	Remove solids[c]
Medium	Pretreatment[b]	Remove solids[c]	Remove solids[c]	Remove solids[c]
High	Remove oil[d]	Remove oil[d]	Remove oil and solids[c,d]	Remove oil and solids[c,d]

Notes:

a. A two-stage drywell has a catch basin or other presettling device that traps small quantities of oils and solids. Regularly inspect and maintain the catch basin or other presettling device.

b. Pretreatment removes solids, but at a level less than basic treatment. Ecology's definition for pretreatment is 50% removal. See the definition for pretreatment in the Glossary.

c. Treatment to remove solids means basic treatment. See the definition of basic treatment in the Glossary. Removal of solids removes a large portion of the total metals in most stormwater runoff. Any special treatment requirements in this chapter still apply. Owners may use appropriate source control BMPs for low-pollutant-loading sites, in lieu of structural treatment BMPs.

d. Treatment to remove oil is to be accomplished by applying one of the oil control BMPs identified in this manual. See BMP BMP T5.100: API Separator Bay and BMP T5.110: Coalescing Plate (CP) Separator Bay.

- At high-density intersections and at commercial or industrial sites subject to an expected average daily traffic (ADT) count of 100 vehicles/1,000 sf gross building area, sufficient quantities of oil may be generated to justify operation of a separator BMP.
- At other high-use sites, project proponents may select a basic treatment BMP that also provides adsorptive capacity, such as a biofiltration or bioinfiltration swale, a filter, or other adsorptive technology, in lieu of a separator BMP. A catch basin with a turned down elbow is not adequate for oil control in this case.
- For roads in eastern Washington with ADT >30K, basic treatment with sorptive characteristics (i.e., swale or sand filter) is required, and suffices for the oil treatment requirement.
- The requirement to apply a basic treatment BMP with adsorptive characteristics also applies to commercial parking and to streets with ADT > 7,500.

Figure 5: SMMEW Table 5.23

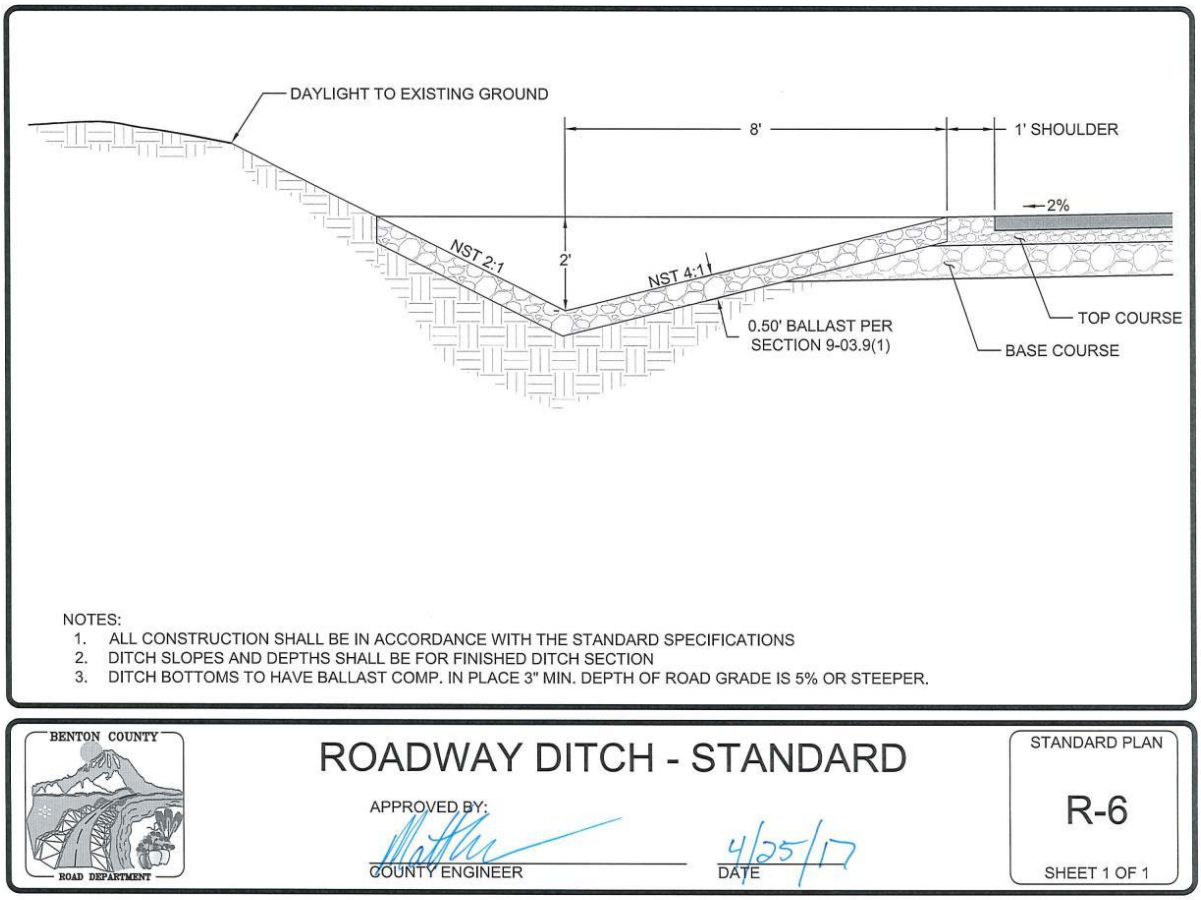


Figure 6: Typical Roadside Ditch

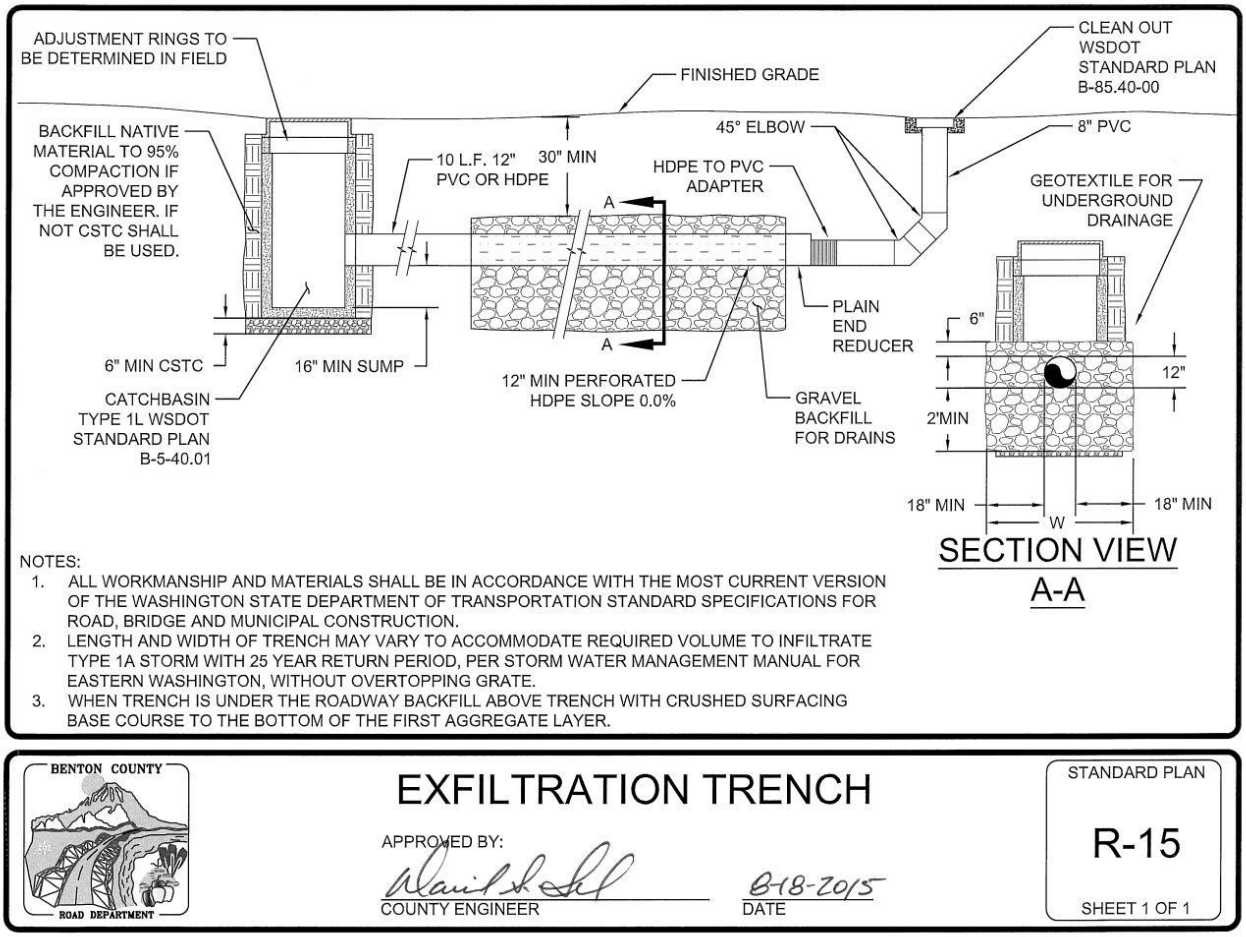


Figure 7: Typical Infiltration Facility Detail

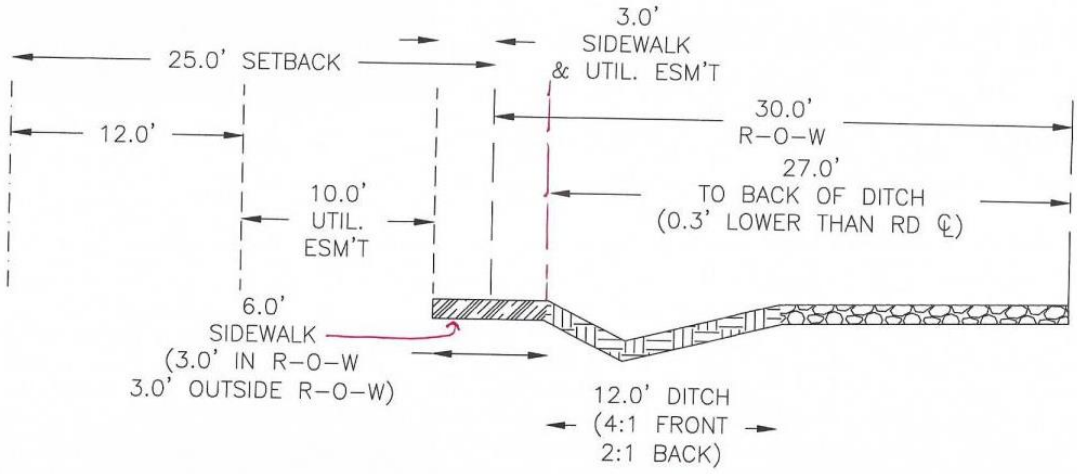
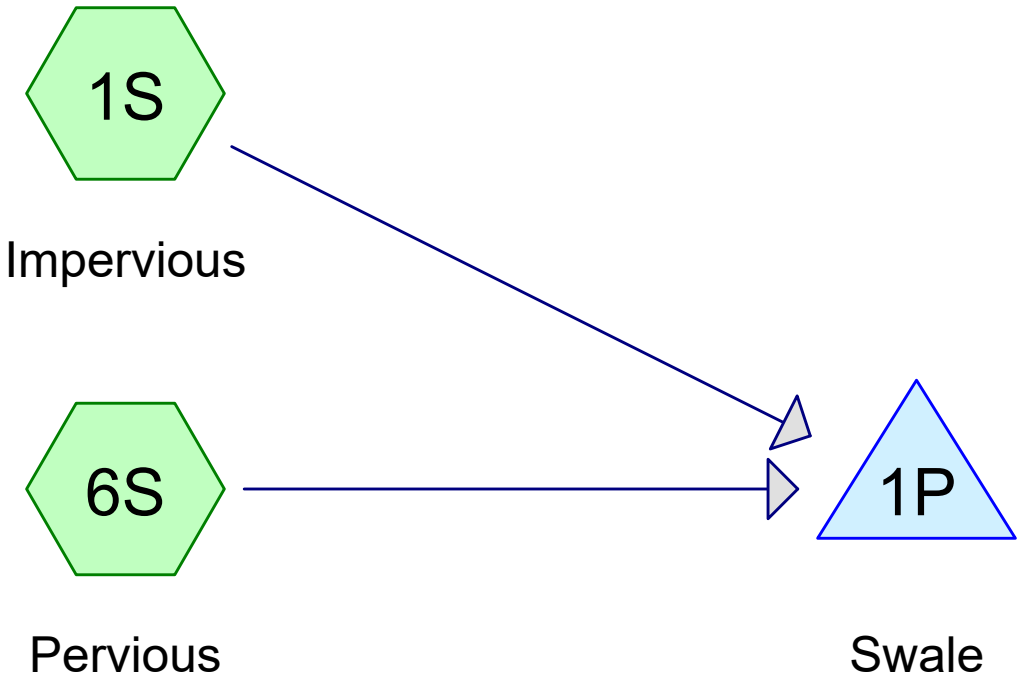


Figure 8: Typical Section for Areas with Pedestrian Walkways

Appendix A

HydroCAD Report
NRCS Web Soil Survey Data



Subcat Reach Pond Link

Routing Diagram for 66325.000_PrelimModel-3Lots
Prepared by PBS Engineering and Environmental Inc., Printed 4/26/2021
HydroCAD® 10.10-4b s/n 00702 © 2020 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	25-YR 24-HR	Type IA 24-hr		Default	24.00	1	1.70	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.577	74	>75% Grass cover, Good, HSG C (6S)
0.215	98	Average Driveways (3 lots @ 3125 SF) (1S)
0.173	98	Half-Road (1S)
0.069	98	Pedestrian Pathway (1S)
0.069	98	Roofs (3 @ 1000 SF) (1S)
1.103	**85**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.577	HSG C	6S
0.000	HSG D	
0.526	Other	1S
1.103		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatc Number
0.000	0.000	0.577	0.000	0.000	0.577	>75% Grass cover, Good	
0.000	0.000	0.000	0.000	0.215	0.215	Average Driveways (3 lots @ 3125 SF)	
0.000	0.000	0.000	0.000	0.173	0.173	Half-Road	
0.000	0.000	0.000	0.000	0.069	0.069	Pedestrian Pathway	
0.000	0.000	0.000	0.000	0.069	0.069	Roofs (3 @ 1000 SF)	
0.000	**0.000**	**0.577**	**0.000**	**0.526**	**1.103**	**TOTAL AREA**	

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Impervious Runoff Area=22,926 sf 100.00% Impervious Runoff Depth=1.48"
Tc=5.0 min CN=98 Runoff=0.20 cfs 0.065 af

Subcatchment6S: Pervious Runoff Area=25,122 sf 0.00% Impervious Runoff Depth=0.22"
Tc=5.0 min CN=74 Runoff=0.01 cfs 0.011 af

Pond 1P: Swale Peak Elev=9.49' Storage=846 cf Inflow=0.20 cfs 0.075 af
Outflow=0.05 cfs 0.075 af

Total Runoff Area = 1.103 ac Runoff Volume = 0.075 af Average Runoff Depth = 0.82"
52.29% Pervious = 0.577 ac 47.71% Impervious = 0.526 ac

Summary for Subcatchment 1S: Impervious

[49] Hint: Tc<2dt may require smaller dt

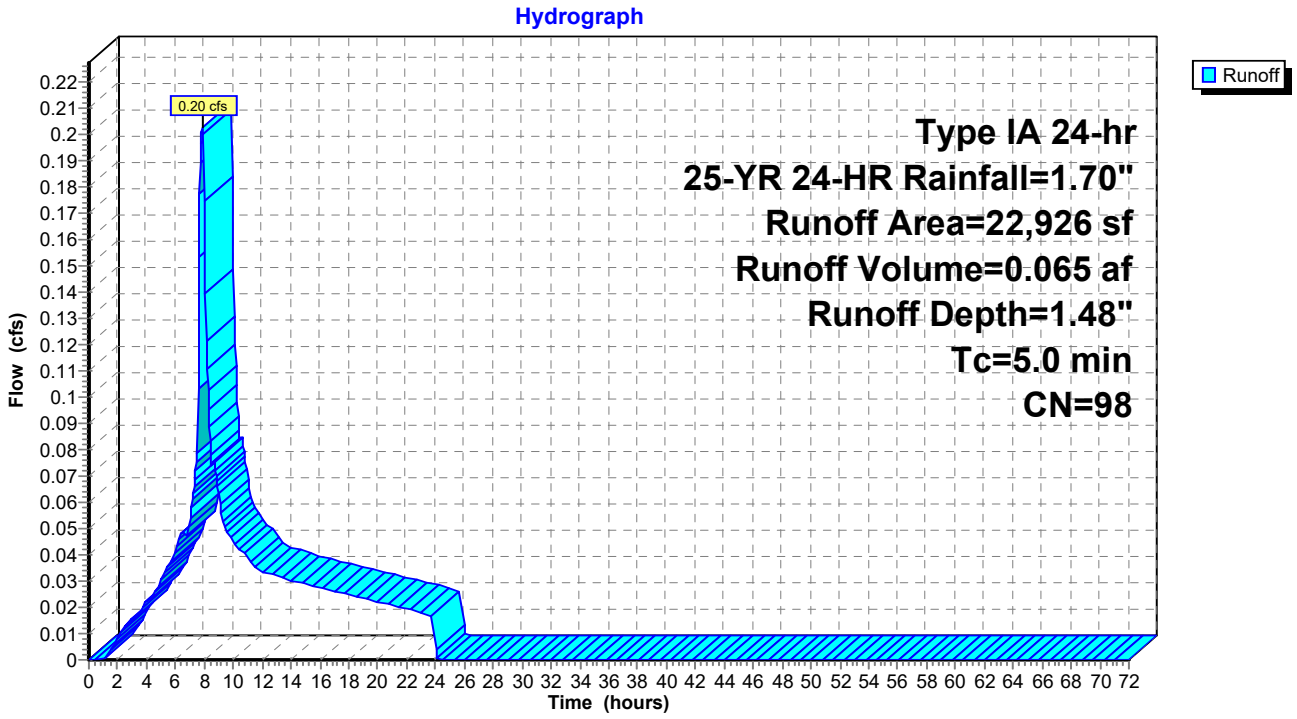
Runoff = 0.20 cfs @ 7.87 hrs, Volume= 0.065 af, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-YR 24-HR Rainfall=1.70"

	Area (sf)	CN	Description
*	9,375	98	Average Driveways (3 lots @ 3125 SF)
*	3,000	98	Roofs (3 @ 1000 SF)
*	7,536	98	Half-Road
*	3,015	98	Pedestrian Pathway
	22,926	98	Weighted Average
	22,926		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Impervious



Summary for Subcatchment 6S: Pervious

[49] Hint: Tc<2dt may require smaller dt

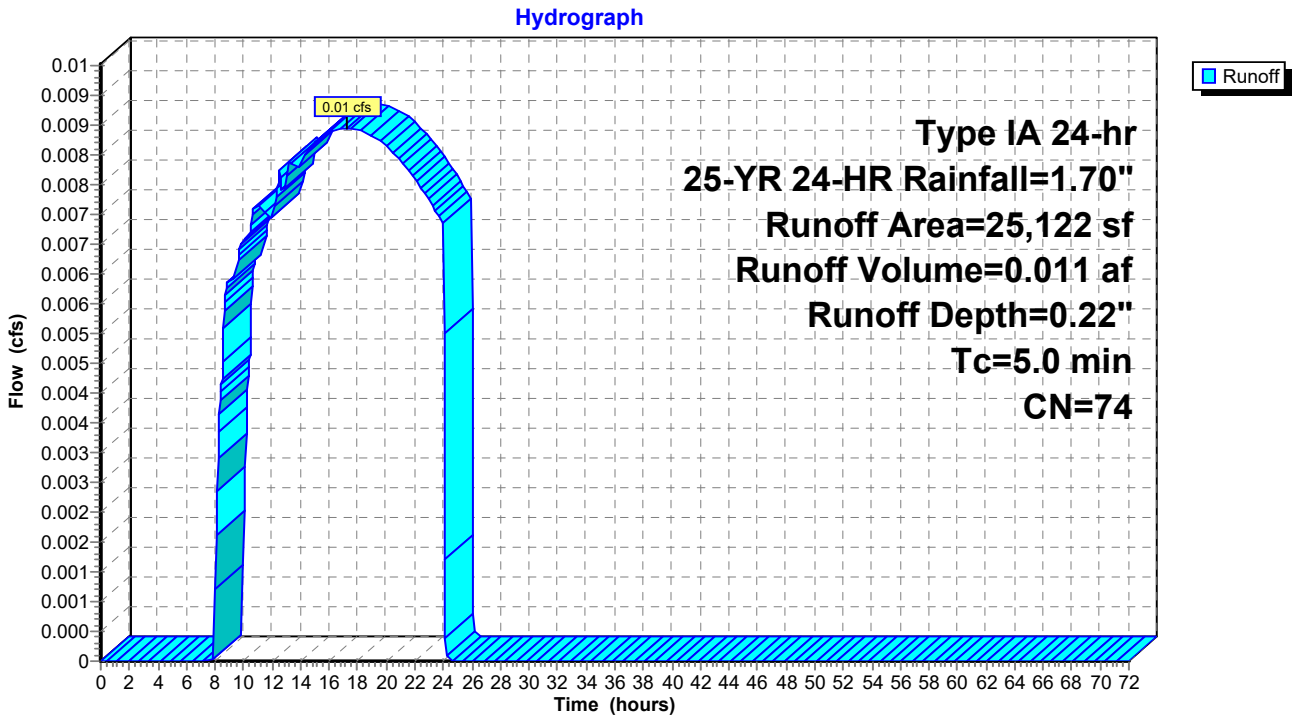
Runoff = 0.01 cfs @ 17.25 hrs, Volume= 0.011 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-YR 24-HR Rainfall=1.70"

Area (sf)	CN	Description
25,122	74	>75% Grass cover, Good, HSG C
25,122		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: Pervious



Summary for Pond 1P: Swale

Inflow Area = 1.103 ac, 47.71% Impervious, Inflow Depth = 0.82" for 25-YR 24-HR event
Inflow = 0.20 cfs @ 7.87 hrs, Volume= 0.075 af
Outflow = 0.05 cfs @ 10.39 hrs, Volume= 0.075 af, Atten= 76%, Lag= 151.1 min
Discarded = 0.05 cfs @ 10.39 hrs, Volume= 0.075 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 9.49' @ 10.39 hrs Surf.Area= 1,681 sf Storage= 846 cf

Plug-Flow detention time= 251.4 min calculated for 0.075 af (100% of inflow)
Center-of-Mass det. time= 251.3 min (979.2 - 727.9)

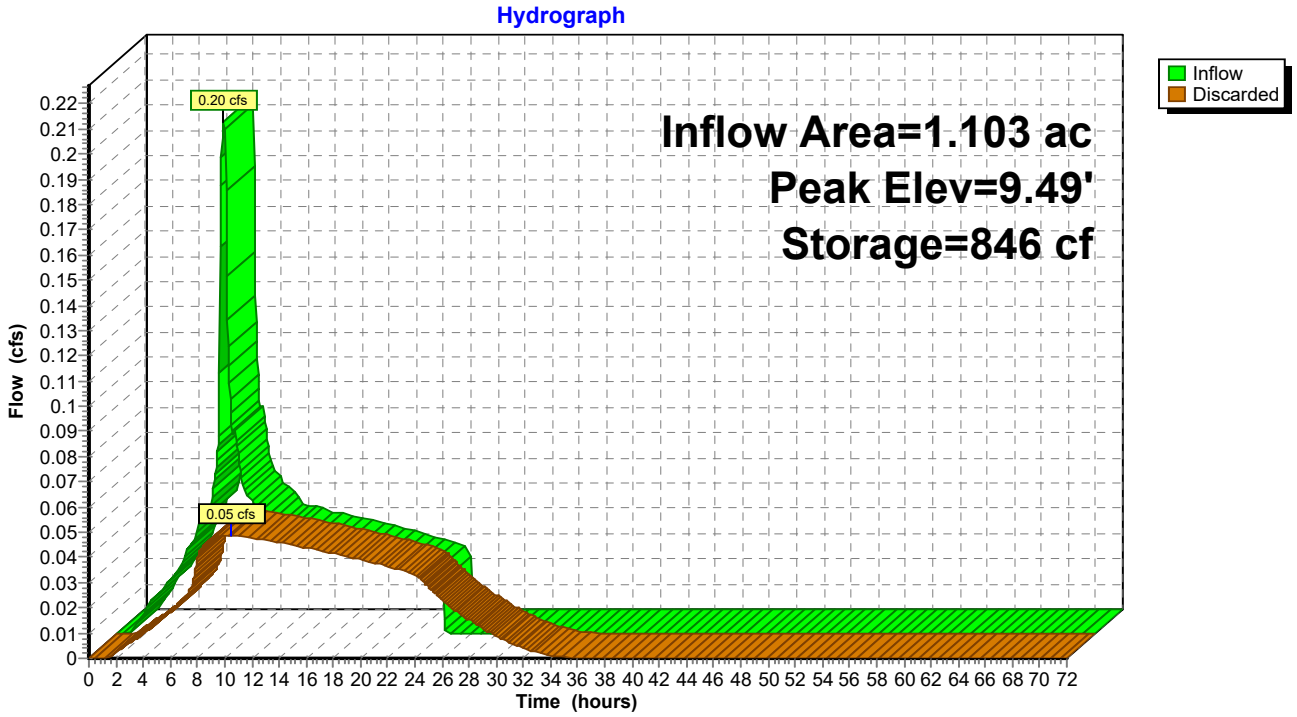
Volume	Invert	Avail.Storage	Storage Description
#1	8.00'	2,019 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
8.00	1	16.0	0	0	1
9.00	753	502.0	260	260	20,036
10.00	3,015	1,005.0	1,758	2,019	80,362

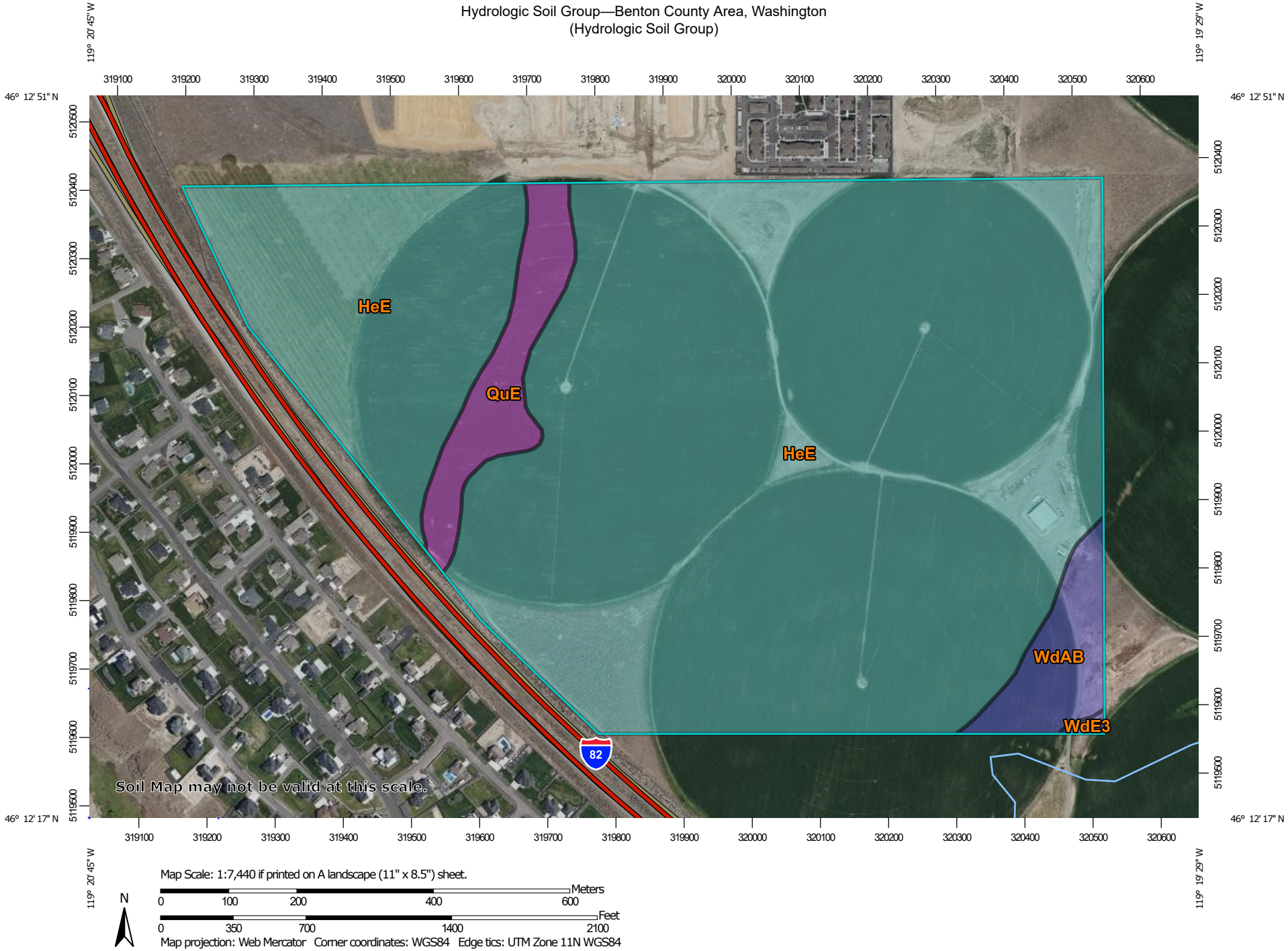
Device	Routing	Invert	Outlet Devices
#1	Discarded	8.00'	**1.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.05 cfs @ 10.39 hrs HW=9.49' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Pond 1P: Swale



Hydrologic Soil Group—Benton County Area, Washington
(Hydrologic Soil Group)



Map Scale: 1:7,440 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 100 200 400 600

Feet
0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Benton County Area, Washington
Survey Area Data: Version 16, Jun 4, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 4, 2020—Jul 2, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HeE	Hezel loamy fine sand, 0 to 30 percent slopes	C	200.5	91.9%
QuE	Quincy loamy sand, 0 to 30 percent	A	9.8	4.5%
WdAB	Warden silt loam, 0 to 5 percent slopes	B	7.5	3.4%
WdE3	Warden silt loam, 15 to 30 percent slopes, severely eroded	B	0.3	0.2%
Totals for Area of Interest			**218.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Report—Physical Soil Properties

Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

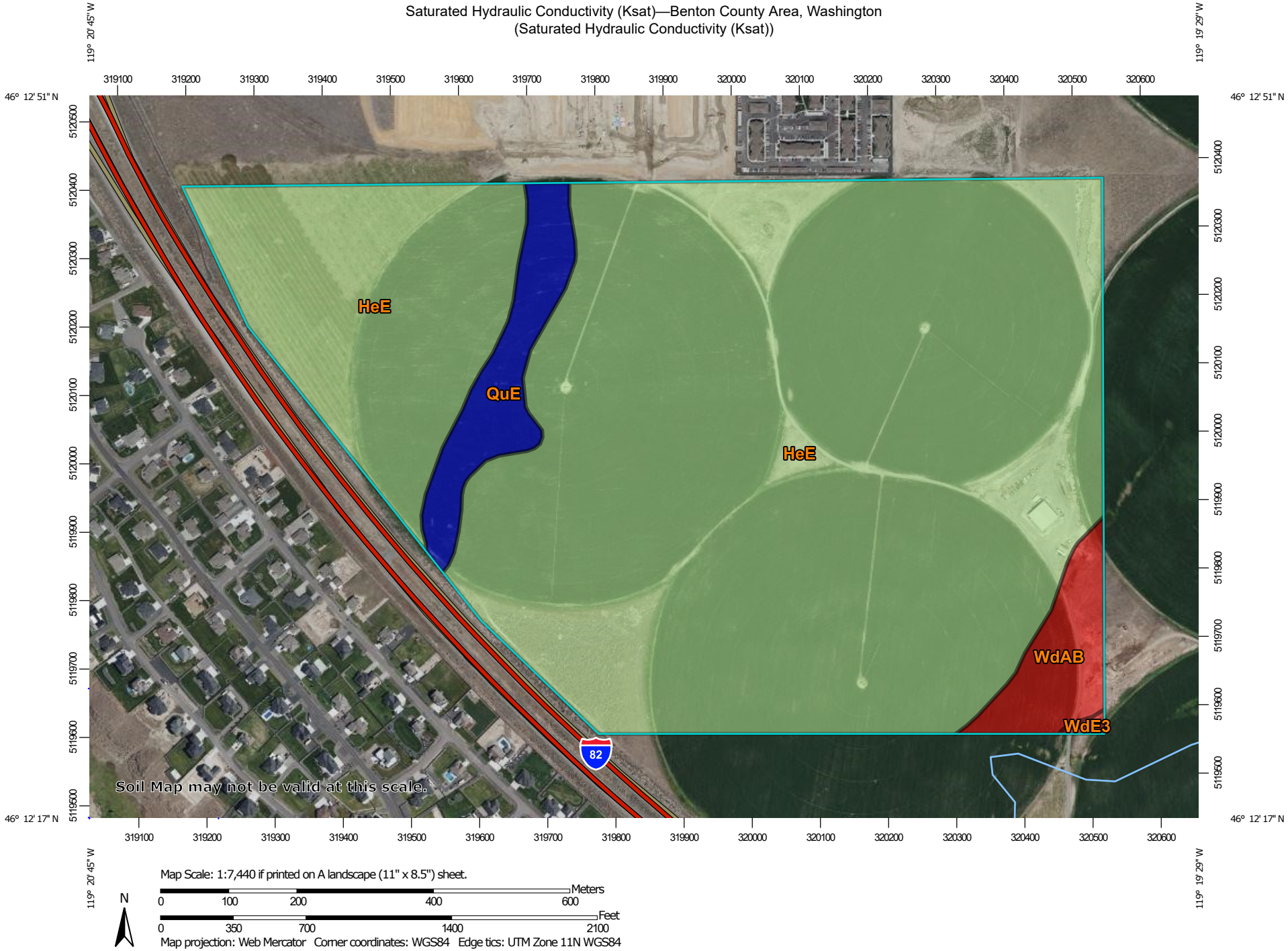
Physical Soil Properties–Benton County Area, Washington														
Map symbol and soil name	**Depth**	**Sand**	**Silt**	**Clay**	**Moist bulk density**	**Saturated hydraulic conductivity**	**Available water capacity**	**Linear extensibility**	**Organic matter**	**Erosion factors**			**Wind erodibility group**	**Wind erodibility index**
										Kw	**Kf**	**T**		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
HeE—Hezel loamy fine sand, 0 to 30 percent slopes														
Hezel	0-3	-80-	-17-	2- 4- 5	1.25-1.35 -1.45	42.00-92.00-141.00	0.09-0.11-0.13	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.32	.32	5	2	134
	3-16	-81-	-17-	0- 3- 5	1.40-1.50 -1.60	42.00-92.00-141.00	0.08-0.10-0.12	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.43	.43			
	16-60	-34-	-59-	5- 7- 8	1.30-1.40 -1.50	1.40-3.00-4.00	0.13-0.17-0.21	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.64	.64			
QuE—Quincy loamy sand, 0 to 30 percent														
Quincy	0-9	-80-	-16-	1- 4- 6	1.45-1.55 -1.65	42.00-92.00-141.00	0.09-0.11-0.12	0.0- 1.5- 2.9	0.5- 0.8- 1.0	.15	.15	5	2	134
	9-60	-79-	-17-	1- 4- 7	1.50-1.60 -1.70	42.00-92.00-141.00	0.08-0.10-0.12	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.32	.32			

Physical Soil Properties–Benton County Area, Washington														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
WdAB—Warden silt loam, 0 to 5 percent slopes														
Warden	0-9	-21-	-68-	8-12- 15	1.15-1.23 -1.30	4.00-9.00-14.00	0.19-0.20-0. 21	0.0- 1.5- 2.9	1.0- 2.0- 3.0	.43	.43	5	5	56
	9-19	-21-	-68-	8-12- 15	1.30-1.38 -1.45	4.00-9.00-14.00	0.16-0.18-0. 20	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.55	.55			
	19-60	-21-	-68-	8-12- 15	1.35-1.43 -1.50	4.00-9.00-14.00	0.19-0.20-0. 21	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.55	.55			
WdE3—Warden silt loam, 15 to 30 percent slopes, severely eroded														
Warden	0-2	-21-	-68-	8-12- 15	1.15-1.23 -1.30	4.00-9.00-14.00	0.19-0.20-0. 21	0.0- 1.5- 2.9	1.0- 2.0- 3.0	.43	.43	5	5	56
	2-12	-21-	-68-	8-12- 15	1.30-1.38 -1.45	4.00-9.00-14.00	0.16-0.18-0. 20	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.55	.55			
	12-60	-21-	-68-	8-12- 15	1.35-1.43 -1.50	4.00-9.00-14.00	0.19-0.20-0. 21	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.55	.55			

Data Source Information

Soil Survey Area: Benton County Area, Washington
Survey Area Data: Version 16, Jun 4, 2020

Saturated Hydraulic Conductivity (Ksat)—Benton County Area, Washington
(Saturated Hydraulic Conductivity (Ksat))



Map Scale: 1:7,440 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 100 200 400 600

Feet
0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

<= 9.0000

> 9.0000 and <= 27.0066

> 27.0066 and <= 92.0000

Not rated or not available

Soil Rating Lines

<= 9.0000

> 9.0000 and <= 27.0066

> 27.0066 and <= 92.0000

Not rated or not available

Soil Rating Points

<= 9.0000

> 9.0000 and <= 27.0066

> 27.0066 and <= 92.0000

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Benton County Area, Washington
Survey Area Data: Version 16, Jun 4, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 4, 2020—Jul 2, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
HeE	Hezel loamy fine sand, 0 to 30 percent slopes	27.0066	200.5	91.9%
QuE	Quincy loamy sand, 0 to 30 percent	92.0000	9.8	4.5%
WdAB	Warden silt loam, 0 to 5 percent slopes	9.0000	7.5	3.4%
WdE3	Warden silt loam, 15 to 30 percent slopes, severely eroded	9.0000	0.3	0.2%
Totals for Area of Interest			**218.1**	**100.0%**

Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): All Layers (Weighted Average)

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

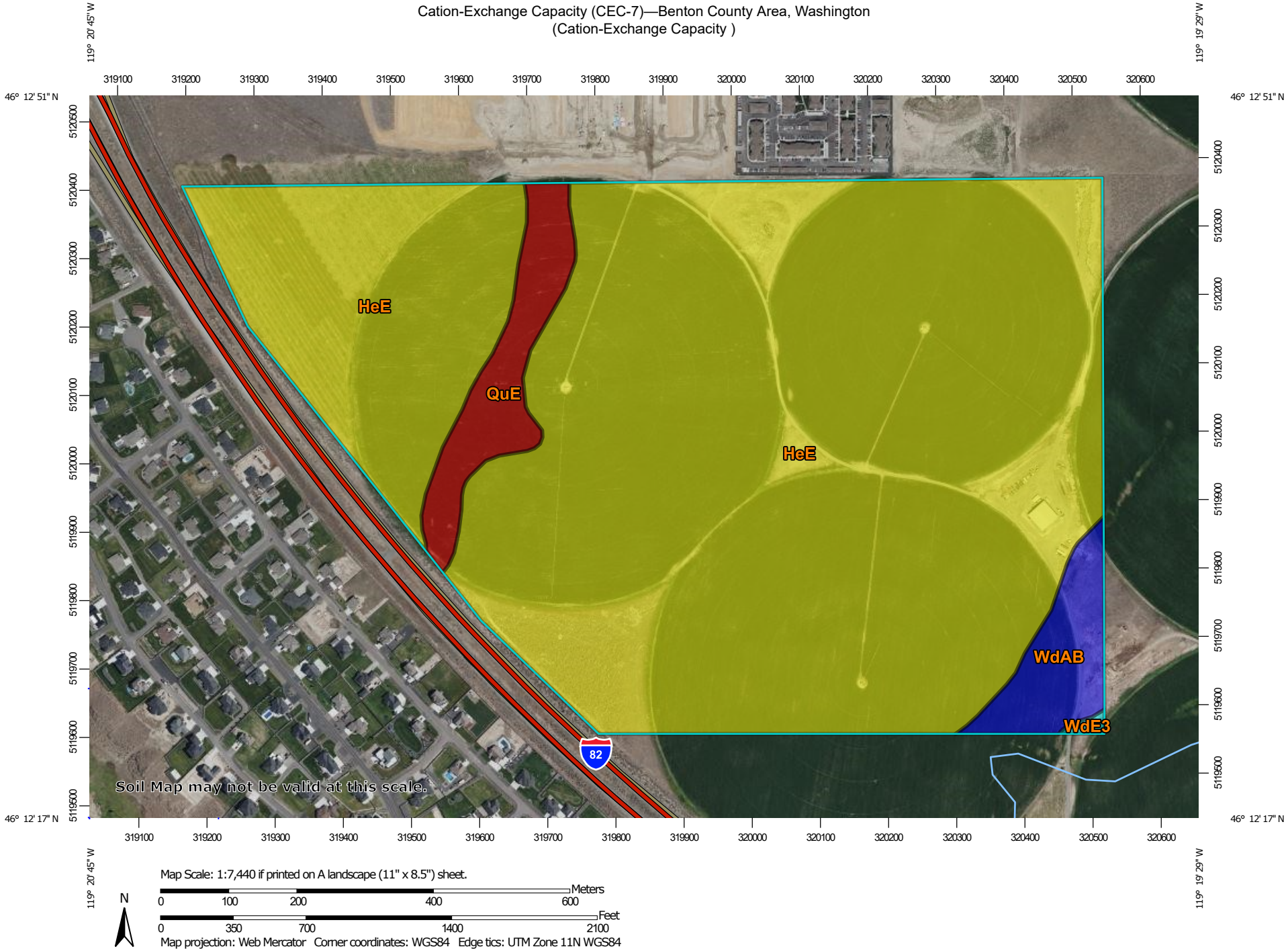
Engineering Properties–Benton County Area, Washington														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
HeE—Hezel loamy fine sand, 0 to 30 percent slopes														
Hezel	100	C	0-3	Loamy fine sand	SM	A-2	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	50-68-85	15-25-35	0-5 -10	NP
			3-16	Loamy fine sand, loamy sand, fine sand	SM	A-2	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	50-63-75	15-25-35	0-5 -10	NP
			16-60	Stratified fine sandy loam to silt loam	ML	A-4	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	80-90-100	50-65-80	15-20 -25	NP-3 -5
QuE—Quincy loamy sand, 0 to 30 percent														
Quincy	90	A	0-9	Loamy sand	SM	A-2	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	65-83-100	15-23-30	0-5 -10	NP
			9-60	Loamy fine sand, fine sand, sand	SM	A-2	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	65-73-80	10-20-30	0-5 -10	NP

Engineering Properties–Benton County Area, Washington														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
WdAB—Warden silt loam, 0 to 5 percent slopes														
Warden	100	B	0-9	Silt loam	ML	A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	85-93-100	70-75-80	25-28-30	NP-3 -5
			9-19	Very fine sandy loam, silt loam	ML	A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	95-98-100	75-83-90	25-28-30	NP-3 -5
			19-60	Stratified very fine sandy loam to silt loam	ML	A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	95-98-100	75-83-90	25-28-30	NP-3 -5
WdE3—Warden silt loam, 15 to 30 percent slopes, severely eroded														
Warden	100	B	0-2	Silt loam	ML	A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	85-93-100	70-75-80	25-28-30	NP-3 -5
			2-12	Very fine sandy loam, silt loam	ML	A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	95-98-100	75-83-90	25-28-30	NP-3 -5
			12-60	Stratified very fine sandy loam to silt loam	ML	A-4	0- 0- 0	0- 0- 0	95-98-100	95-98-100	95-98-100	75-83-90	25-28-30	NP-3 -5

Data Source Information

Soil Survey Area: Benton County Area, Washington
Survey Area Data: Version 16, Jun 4, 2020

Cation-Exchange Capacity (CEC-7)—Benton County Area, Washington
(Cation-Exchange Capacity)



Map Scale: 1:7,440 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 100 200 400 600

Feet
0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- <= 3.7
- > 3.7 and <= 7.5
- > 7.5 and <= 7.6
- > 7.6 and <= 7.9
- Not rated or not available

Soil Rating Lines
- <= 3.7
- > 3.7 and <= 7.5
- > 7.5 and <= 7.6
- > 7.6 and <= 7.9
- Not rated or not available

Soil Rating Points
- <= 3.7
- > 3.7 and <= 7.5
- > 7.5 and <= 7.6
- > 7.6 and <= 7.9
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Benton County Area, Washington
Survey Area Data: Version 16, Jun 4, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 4, 2020—Jul 2, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Cation-Exchange Capacity (CEC-7)

Map unit symbol	Map unit name	Rating (milliequivalents per 100 grams)	Acres in AOI	Percent of AOI
HeE	Hezel loamy fine sand, 0 to 30 percent slopes	7.5	200.5	91.9%
QuE	Quincy loamy sand, 0 to 30 percent	3.7	9.8	4.5%
WdAB	Warden silt loam, 0 to 5 percent slopes	7.9	7.5	3.4%
WdE3	Warden silt loam, 15 to 30 percent slopes, severely eroded	7.6	0.3	0.2%
Totals for Area of Interest			**218.1**	**100.0%**

Description

Cation-exchange capacity (CEC-7) is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: milliequivalents per 100 grams

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): All Layers (Weighted Average)

PCM 1.8

HARVEST RIDGE AND SOUTH ORCHARD RESIDENTIAL DEVELOPMENTS BENTON COUNTY AND RICHLAND, WASHINGTON

For:

MR. KALEB MAPSTEAD, EIT
AHBL, INC.
5804 ROAD 90, SUITE H
PASCO, WASHINGTON 99301

Provided By:

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June 14, 2021
Project No: 21-135

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Baer Testing & Engineering, Inc.

1106 Ledwich Ave.
Yakima, WA 98902

June 14, 2021

Mr. Kaleb Mapstead, EIT
AHBL, Inc.
5804 Road 90, Suite H
Pasco, Washington 99301

RE: **GEOTECHNICAL ENGINEERING STUDY; PROPOSED BADGER SOUTH RESIDENTIAL DEVELOPMENTS, RICHLAND, BENTON COUNTY, WASHINGTON**

Dear Mr. Mapstead:

At your request, Baer Testing & Engineering, Inc. (BAER) conducted a Geotechnical Engineering study for the Harvest Ridge and South Orchard residential developments in the Badger Mountain South area of Benton County and Richland, Washington. This report presents the results of the field explorations, laboratory testing, and engineering analyses.

This report presents recommendations for site grading, utility construction, and seismic design. Building foundation design recommendations are provided for typical residential structures, as well as construction recommendations for the various project features.

We appreciate the opportunity to be of service. If you have questions or comments, please contact our office.

Sincerely,

BAER TESTING, INC.

Dee J. Burrie, P.E.
Chief Engineer

Enclosures: Geotechnical Engineering Report

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APPENDICIES

Appendix A – Test Pit Logs
Appendix B – Laboratory Test Results

1.0 INTRODUCTION

Baer Testing & Engineering, Inc. (BAER) is pleased to present the results of our geotechnical engineering study for the proposed Harvest Ridge and South Orchard developments in Benton County, Washington. This geotechnical engineering study provides subsurface information to support site grading, drainage, utility design and construction, and recommendations for foundation design and construction and paved streets. Our scope of work includes:

- observing 11 test pit excavations and field soil sampling;
- conducting laboratory testing to determine soil properties;
- performing engineering analyses; and
- preparing this report.

This report provides results of our field observations, engineering analysis, and laboratory test results. It also provides recommendations for site grading, drainage, underground utility installation, paved roadways, foundation design and construction, and IBC seismic design criteria.

2.0 PROJECT DESCRIPTION AND PROPOSED DEVELOPMENT

The proposed residential development is located north of Reata Road and east of Interstate-82, in Benton County and the City of Richland, Washington. (**Figure 1 – Site Location Map**). Harvest Ridge approximate mid-site coordinates are 46°12' 30.61"N Latitude; 119°20' 2.13"W Longitude. South Orchard approximate mid-site coordinates are 46°12' 24.60"N Latitude; 119°18' 59.90"W Longitude.

The proposed Harvest Ridge development consists of 143, approximately 1-acre lots. Harvest Ridge is primarily in the N2 of S5, T8N, R28E, WM in Benton County, Washington **(Figure 2A – Harvest Ridge Site Layout)**. The South Orchard development is comprised of approximately 195 acres and will include 474 approximately 0.2 acres residential lots. The South Orchard development also includes a park, school areas, and multi-family housing areas **(Figure 2B – South Orchard Site Layout)**. The South Orchard development is primarily in the SW4 of S4, T8N, R28E, WM in Richland, Washington, and portions of the N2 and SE4 of Section 4.

The approximately 650-acre site generally consists of rolling hills. The site recently consisted of irrigated agricultural fields/circles. Slopes typically range from nearly level to 10% or less. Isolated slopes in some areas may exceed 15 percent.

The developments will include underground utilities, paved streets, and development-wide stormwater management and disposal. Typical residences will consist of single- or two-story, wood frame structures with concrete slab-on grade or crawl space foundations. Specific foundation design criteria for major structures should be site/lot specific and consider structure size and configuration.

3.0 FIELD EXPLORATIONS

The exploration program consisted of excavating eleven test pits designated TP-1 through TP-11 on the Exploration Plan **(Figure 3 – Exploration Plan)**. Double J Excavation (Double J) excavated the test pits on June 2 through 4, 2021 using a CAT 312D excavator equipped with a 30-inch bucket.

Where possible, soil in situ strength was estimated using a dynamic, mini-cone penetrometer (DCP) and our observations of the relative excavation difficulty. The mini cone uses a 15-pound slide

hammer dropped 20 inches to drive a conical tip into the soil. The number of hammer blows required to drive the cone 1¾-inch increments is roughly equivalent to a SPT blow count. The blows per increment provide an indication of the relative soil density. The blow counts are recorded on the logs. The mini-cone penetrometer test method is described in ASTM STP399.

BAER's geologist counted the blows required to drive the rod into the ground for each 1¾-inch increment over a given depth. The recorded blow count data was evaluated using correlation charts to estimate the soil bearing capacity. BAER's geologist observed the test pits; collected representative soil samples, and prepared test pit logs.

The subsurface conditions are known only at the test pit locations on the date explored and should be considered approximate. Actual subsurface conditions may vary between excavation locations. The test pit locations are presented in Figure 2 and the test pit logs are presented in Appendix A. Our geologist classified the soil in the field and transported the soil samples to the laboratory for further examination and testing.

4.0 LABORATORY TESTING

BAER performed the following laboratory tests on selected soil samples from our explorations.

- Moisture Content (American Society for Testing and Materials (ASTM) Designation: D 2216) for material characterization and soil index properties; and
- Particle Distribution (ASTM Designation: D 422 and ASTM Designation: D 1140) for material characterization and soil index properties.

Northwest Agricultural Consultants performed the following laboratory tests on a selected soil sample.

- Organic Matter Content (ASTM Designation: D 2974) for soil index properties; and
- Cation Exchange Capacity (Environmental Protection Agency (EPA) Designation: 9081) for soil properties

Copies of the laboratory test reports are enclosed in Appendix B.

5.0 SUBSURFACE CONDITIONS

The following discussion summarizes the subsurface conditions encountered during the test pit explorations. Please refer to the enclosed test pit logs (Appendix A) for more detailed information regarding subsurface conditions.

5.1 Regional Geologic Setting

The *Geologic Map of Richland 1:100,000 Quadrangle, Washington*; Washington Division of Geology and Earth Resources, Open File Report 94-8 (1994), shows near-surface geology in the site vicinity is mapped as Q_{fs3} – Outburst flood deposits. Q_{fs3} consists of lacustrine silt and fine sand, rhythmically bedded with stringers of coarse sand and gravel and small-scale cross-bedding and discrete layers of volcanic ash. In our opinion, the soils encountered in the test pit excavations are consistent with the mapped geology.

5.2 Soils

The soil profile generally consists of a very stiff to hard ***Sandy Silt (ML)*** with some dense ***Silty Sand (SM)***, which extends to the full excavation depths. Several test pits also encountered a thin (2 inch) ash deposit, at varying depths below the ground surface (bgs).

5.3 Groundwater

Groundwater was not encountered in the test pit explorations. Based on logs from nearby wells, groundwater is approximately 150 to 200 ft feet below the existing surface elevation.

6.0 HAZARDOUS AREA EVALUATION

The City of Richland Geologic Hazards and Critical Areas Map does not identify any areas of the project as within a Steep Slopes area with slopes greater than 15 percent **(Figure 4 - Geologic Hazards and Critical Areas Map).** Hidden thrust faults are located approximately 0.5 and 1.5 miles southwest and northeast of the site, respectively. **(Figure 5 - Geologic Hazards - Faults**). Significant development, including excavating roads and creating building pads, has occurred in the area with little geologic hazard impact.

Although the area is not identified as a critical slope area, we recommend slope preparation and fill placement follow IBC 2018 Appendix J requirements. Constructed fills should be constructed with 2 horizontal:1 vertical (2H:1V) cut and fill slopes. Proposed structures should be located with setbacks as required by IBC 2018. **Figure 6 - IBC Benching Requirements** shows the IBC recommended benching method presented in IBC 2018 Appendix J.

Stormwater and erosion hazards will be managed through on-site collection and retention facilities. Vegetative cover or landscaping will be used to control erosion on individual building sites.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 General

The entire site is used for agriculture and generally consists of rolling hills, with some level sections. The existing vegetation and brush must be removed prior to grading. Moderate to extensive grading is anticipated to accommodate construction across the site.

7.1.1 Test Pit Backfill

Double J used the excavator to backfill each test pit upon completion. The operator compacted the excavated material into the test pits using the excavator bucket. The test pits should be over-excavated and backfilled with compacted structural fill during site grading in accordance with Section “7.2 Earthwork” below.

7.2 Earthwork

Any existing vegetation and deleterious debris should be removed from building and pavement areas. We anticipate approximately 6 inches of topsoil should be removed. However, deeper brush roots will require additional effort. Stripped soil with organic materials may be stockpiled for use in future landscape areas but may not be used as structural fill.

7.2.1 Pre-Wetting Borrow Areas

Soils at the site were typically dry at the time of our explorations. Depending on conditions at the time of construction, the soils may require moisture conditioning, either by adding moisture or drying, prior to being compacted.

Our experience indicates adding moisture to the borrow area prior to excavation is an effective way to moisture condition the material. We recommend adding water by sprinkling the borrow area until the wetted front extends approximately 2 feet below the excavation depth.

7.2.2 Fill Subgrade Preparation

Subgrade areas to receive fill should be moisture conditioned to within 2 percent of optimum in the upper 12 inches and compacted to a minimum 92 percent of the maximum laboratory dry density as determined by the ASTM Designation: D 1557 – *Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.* We recommend using a heavy, kneading-type compactor (sheepsfoot) in the static mode to compact the fine-grained materials. Vibratory compactors tend to pump moisture to the surface of fine-grained materials resulting in unstable areas. The subgrade should be proof rolled using a loaded water truck or dump truck to identify loose or unstable areas. The geotechnical engineer should observe the subgrade proof-rolling to assist in determining loose soils.

To reduce the potential for slide planes developing between the native soils and the structural fill, we recommend constructing slopes in accordance with IBC 2018 Appendix J. The IBC recommends constructing a keyway at the toe of the proposed fill slope to reduce sliding potential. The horizontal keyway should extend perpendicular to the underlying slope. The keyway should be a minimum 2 feet deep and 10 feet wide. The IBC recommends benches be created at approximately 2-foot intervals to tie fill to the underlying surface. For every 2 feet of fill placed, the native slope should be benched horizontally to accommodate another 2-foot lift, as shown in **Figure 6**.

The finished building pads should be constructed with 2H:1V cut and fill slopes. The fill slopes must extend from the building pad elevation until it intercepts the native slopes. Proposed structures must be located with setbacks as required by IBC 2015.

7.2.3 Material Reuse

The onsite silty sand and sandy silt, free of organics and debris, and with material larger than 3-inch diameter removed, may be used for general and backfill. If imported fill is needed, we recommend a well-graded, 2-inch minus, pit-run sand and gravel with less than 5 percent fines. All fill should be placed in accordance with Section “7.2.4 Fill Placement and Compaction”.

7.2.4 Fill Placement and Compaction

Fill and backfill should be moisture conditioned to within 2 percent of optimum, placed in maximum 8-inch loose lifts, and compacted to a minimum 95 percent of ASTM D 1557. We recommend in-place density tests be performed to verify that the compaction requirements are achieved. Density tests should be performed a minimum of every 2 feet of fill placed during grading.

Compaction efforts on silty material is best accomplished using a heavy, sheepsfoot-type or kneading compactor in static mode. Using vibratory, flat-drum compactors on the silt soils at this site may result in pumping moisture to the surface during compaction.

Building pads created in cut areas should be scarified a minimum of 12 inches, moisture conditioned to within 2 percent of optimum, and compacted to 95 percent of ASTM D 1557.

7.2.5 Slopes

Occupational Safety and Health Administration (OSHA) Type C soil best describes the onsite silty sand with gravel. Type C soils may have maximum temporary construction slopes of 1.5 Horizontal to 1 Vertical (1.5H:1V). Permanent cut or fill slopes should be no steeper than 2H:1V and

must be protected from both wind and water erosion. Erosion protection may consist of vegetative cover or a minimum 3 inches of coarse concrete aggregate conforming to the requirements of WSDOT Specification 9-03.1(4) c, "Concrete Aggregate AASHTO Grading No. 57."

7.2.6 Utility Trenching

Utility trenching should be accomplished in accordance with American Public Works Association (APWA) Standard Specifications. Based on our explorations, we anticipate excavations may be made using standard excavation equipment. Utility piping should be bedded as recommended in the APWA specifications. Utility trenches should be backfilled using structural fill compacted as specified in section "7.2.3 Fill Placement and Compaction". Enough backfill should be placed over the utility before compacting with heavy compactors to prevent damage. Onsite sandy silt materials with gravels smaller than 3 inches may be used for utility trench backfill.

7.2.7 Wet Weather Construction

The site soils are typically dry to moist fine sand and silt. The stability of the exposed soils may deteriorate due to change in moisture content. If construction occurs during wet weather, we recommend:

- Fill material consist of clean, granular soil with less than 5 percent fines passing the #200 sieve. Fines should be non-plastic.
- The ground surface in the construction area should be sloped to drain and sealed to reduce water infiltration and to prevent water ponding.
- Work areas and stockpiles should be covered with plastic. Geotextile silt fences, straw bales, straw wattles, and/or other measures should be used as needed to control soil erosion.

7.2.8 Infiltration Rate

We understand stormwater will be managed using infiltration basins. We conducted an infiltration test in Test Pits 1 through 8 at approximately 5 feet bgs. The infiltration tests were conducted in general accordance with the Small PIT method described in the 2019 Washington Department of Ecology Stormwater Management Manual Table 6.3 and Appendix 6.B.

We filled each test pit with approximately 2 feet of water. The water was allowed to saturate the underlying soils for a minimum of 2 hours. The pits were again filled with water and the depth below the reference was measured when filling stopped. We obtained measurements at 15-minute intervals over the following hour. The water surface elevation changes between the 30- and 60-minute readings are used to calculate the infiltration rate. The test results are summarized below:

Table 7.2.8- 1 Infiltration Test Results

Location	TP-1	TP-2	TP-3	TP-4	TP-5	TP-6	TP-7	TP-8
Pre-soak Period (hours)	2	4	2	2	5	2	2	2
Initial Test (inches below reference)	24.5	32.5	30.75	24.25	38.0	33.25	37.0	36.25
15 Minutes (inches below reference)	26.0	35.0	33.5	27.75	41.5	34.5	38.75	39.0
30 Minutes (inches below reference)	27.5	37.0	37.5	30.25	43.75	36.0	39.75	41.25
45 Minutes (inches below reference)	28.5	39.25	39.0	32.5	45.0	38.0	40.75	43.5
60 Minutes (inches below reference)	29.75	41.0	41.0	34.5	46.5	38.5	42.0	45.5
Infiltration Rate (inches/minute)	0.075	0.133	0.117	0.142	0.092	0.083	0.075	0.142
Infiltration Rate (minutes/inch)	13.3	7.5	8.6	7.1	10.9	12	13.3	7.1
Infiltration Rate **(inches/hour)**	**4.5**	**8**	**7**	**8.5**	**5.5**	**5**	**4.5**	**8.5**

Due to the stratified fine to medium sand seams and pockets, and the cementation observed, the indicated rates may be greater or less than those anticipated across the site. Based on the results of the infiltration tests and our experience with silty soils, we recommend using an infiltration rate of 4 inches per hour. This rate does not include safety factors. The system designer should incorporate an appropriate factor of safety against slowing rates over time due to biological and sediment clogging.

8.0 FOUNDATION DESIGN RECOMMENDATIONS

8.1 Footings

Typical residential structures may be supported on conventional spread or continuous footings bearing on the native sandy silt, silty sand, or compacted structural fill. Exterior footings should be embedded a minimum 24 inches below adjacent grades for bearing considerations and frost protection. To avoid differential settlement, it is important all footings bear on similar soils. If footing excavations encounter differing soils at footing depth, or are founded partially on native soils and partially on fill soils, we recommend over-excavating the footings and installing 6 inches of compacted ⅝-inch minus CSTC. The CSTC should be compacted to 95 percent of ASTM D 1557. Prior to placing CSTC or footing concrete, footing subgrade should be moisture conditioned and compacted to 95% of ASTM D 1557.

If ash is encountered in footing excavations, the ash should be removed and replaced with compacted CSTC.

We recommend constructing footings a minimum 2 feet wide for spread footings and minimum 16 inches wide for continuous footing. Footings constructed in accordance with these recommendations can be designed with an allowable bearing pressure of 1,800 pounds per square foot (psf). The

allowable bearing pressure may be increased by one-third for short-term transient loading conditions (i.e., seismic and/or wind loads).

We anticipate settlement will be the limiting factor for foundation design. Foundation settlement estimates are based on the soil profile and soil density encountered at the site. Foundations designed as outlined above should experience less than ½-inch of settlement. We anticipate differential settlement will be less than half of total settlements between adjacent footings or across approximately 20 feet of continuous footings. Settlement should occur rapidly as loads are applied.

Lateral forces may be resisted using a combination of friction and passive earth pressure against the buried portions of the structure. For design, a coefficient of friction of 0.35 may be assumed along the interface between the footing base and the compacted silt. If CSTC is used below the footings, a 0.45 coefficient of friction may be used. Passive earth pressure from the sand backfill may be calculated using an equivalent fluid weight of 250 psf per foot of embedment depth. The recommended coefficient of friction and passive earth pressure values do not include a safety factor.

8.2 Concrete Slabs-on-Grade

The exposed subgrade in areas to receive a concrete slabs-on-grade should be moisture conditioned and compacted to a minimum of 95 percent of the maximum laboratory dry density as determined by ASTM D 1557.

After compacting the subgrade, we recommend placing a minimum 6-inch layer of 5/8-inch CSTC under the concrete slab. The CSTC should be compacted to a firm, non-yielding condition. The geotechnical engineer should observe subgrade preparation prior to gravel placement.

8.3 Retaining Walls

Retaining wall foundations should be designed and constructed in accordance with the footing recommendations. All retaining walls should be designed with a minimum 12-inch-wide drainage zone directly behind the wall. The on-site sandy silt may be used as backfill behind the drainage zone. The drainage zone should be separated from the backfill using a separation geotextile. Backfill should be placed in maximum 8-inch loose lifts and compacted to 95 percent of ASTM D 1557.

If retaining walls are constructed as recommended above, the values in the following table may be used for design.

Table 8.3-1 Retaining Wall Design

Design Parameter	Value, pcf/ft. depth
Active Earth Pressure (unrestrained walls)	35
At-rest Earth Pressure (restrained walls)	55

8.4 Pavement Sections

We anticipate traffic will consist of automobiles and light trucks, with occasional heavier garbage and delivery trucks. Based on the anticipated traffic, we recommend using the following pavement section.

Table 8.4-1 Recommended Pavement Section

Material Layer	Layer Thickness, inches	Compaction Standard
Asphaltic Concrete Pavement (HMACP)	3	91 percent of Maximum Theoretical Specific Gravity (Rice's)
Crushed Stone Top Course (CSTC) WSDOT 5/8-inch minus Top Course	6	95 percent of ASTM D 1557
Compacted Subgrade	12	95 percent of ASTM D 1557

The upper 12 inches of the pavement subgrade should be moisture conditioned and compacted to 95 percent of ASTM D 1557. The geotechnical engineer should observe the subgrade prior to base course placement. Soft or unstable areas should be stabilized or over-excavated and replaced with compacted structural fill prior to paving.

8.5 Seismic Design

Structures should be designed in accordance with the 2018 International Building Code (IBC). The Site Class is based on the average conditions present within 100 feet of the ground surface. The Site Classification is based on shear wave velocity. To establish a higher site class, additional explorations are required, including deep borings and geophysical measurements. Based on the available information, we recommend using the default classification Site Class D (Stiff Soil). Design values determined for the center coordinates of the site using the United States Geological Survey (USGS) *Earthquake Ground Motion Parameters* utility (ATC Hazards by Location Tool – ASCE 7-16) are summarized in Table 8.4-1 below.

Table 8.5-1 Recommended Earthquake Ground Motion Parameters (2018 IBC)

Parameter	Value
Location (Latitude, Longitude), degrees	46.207750; -119.325556
Mapped Spectral Acceleration Values (MCE, Site Class D):	
Short Period, S_s	0.438 g
1.0 Sec. Period, S_1	0.166 g
Soil Factors for Site Class D:	
F_a	1.45 g
F_v	2.268
S_{DS}	0.423 g
S_{D1}	0.251

8.5.1 Liquefaction

Soil liquefaction occurs when saturated soil deposits temporally lose strength and behave as a liquid in response to earthquake shaking. Liquefaction typically occurs in loose, granular soils located in the upper 50 feet and below the water table. The onsite sandy silt is firm to hard and groundwater is typically encountered 150 to 200 feet below the site surface. In our opinion, the liquefaction potential

at this site is low. Additional explorations and analysis are required to quantify anticipated settlements due to potential liquefaction.

8.5.2 Fault Rupture Potential

Based on our review of available geologic literature, two hidden, northwest - southeast trending hidden thrust faults generally follow the base of the hills (Badger Mountain and Horse Heaven Hills) 1.5 miles northeast, and 0.5 miles southwest of the site, respectively. We are not aware of any demonstrated movement along these faults in the last 10,000 years. We did not observe evidence of surface rupture or recent faulting during our field observation. Therefore, we conclude the fault rupture potential is low at this site.

8.5.3 Slope stability

The natural terrain in the area is generally stabilized dunes with varying minor slopes and elevation changes. Isolated areas may have slopes greater than 15 percent as discussed in Section 6 above. In our opinion, the potential for slope failure impacting the proposed project site is low.

9.0 ADDITIONAL SERVICES

BAER is available to provide further geotechnical consultation during the project design phase. We should review the final design and specifications to verify earthwork and foundation recommendations have been properly interpreted and incorporated into the project design and construction specifications. We are also available to provide geotechnical engineering and special inspection services during construction. Observation during construction provides the geotechnical engineer the opportunity to assist in making engineering decisions if variations in subsurface conditions become apparent. If BAER is not retained to provide construction phase services, we cannot be responsible for soil-related construction errors or omissions.

Construction observation and special inspection services are not part of this geotechnical engineering study scope of work. We will be pleased to provide a separate proposal for the construction phase services, if desired.

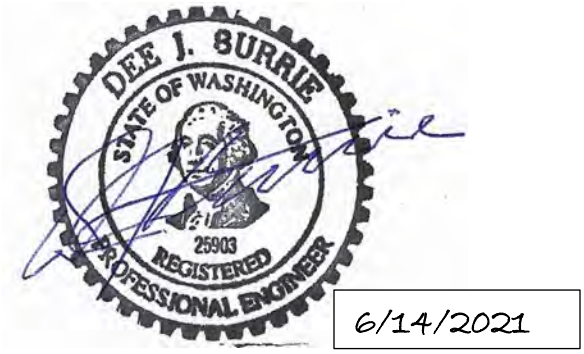
10.0 UNCERTAINTIES AND LIMITATIONS

This report was prepared for use the exclusive use of AHBL, Inc. and their design team for the proposed Harvest Ridge development in Benton County and South Orchard development in Richland, Washington. This report presents the data from observation and field testing and is based on subsurface conditions at the specific locations and depths indicated. No other representation is made. This report should be made available to potential contractors for information on factual data only. Conclusions and interpretations presented in this report should not be construed as a guarantee or warranty of the subsurface conditions. If changes are made to the project components or layout, additional geotechnical data and analyses may be necessary.

Within the limitations of scope, schedule, and budget, BAER attempted to execute these services in accordance with generally accepted professional principles and practices in the field of geotechnical engineering at the time the report was prepared. No warranty, expressed or implied, is made. The scope of our services did not include environmental screening of soil samples retrieved from the explorations completed for this project. Further, we did not complete environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic materials in the soil, rock, surface water, or air in the project area.

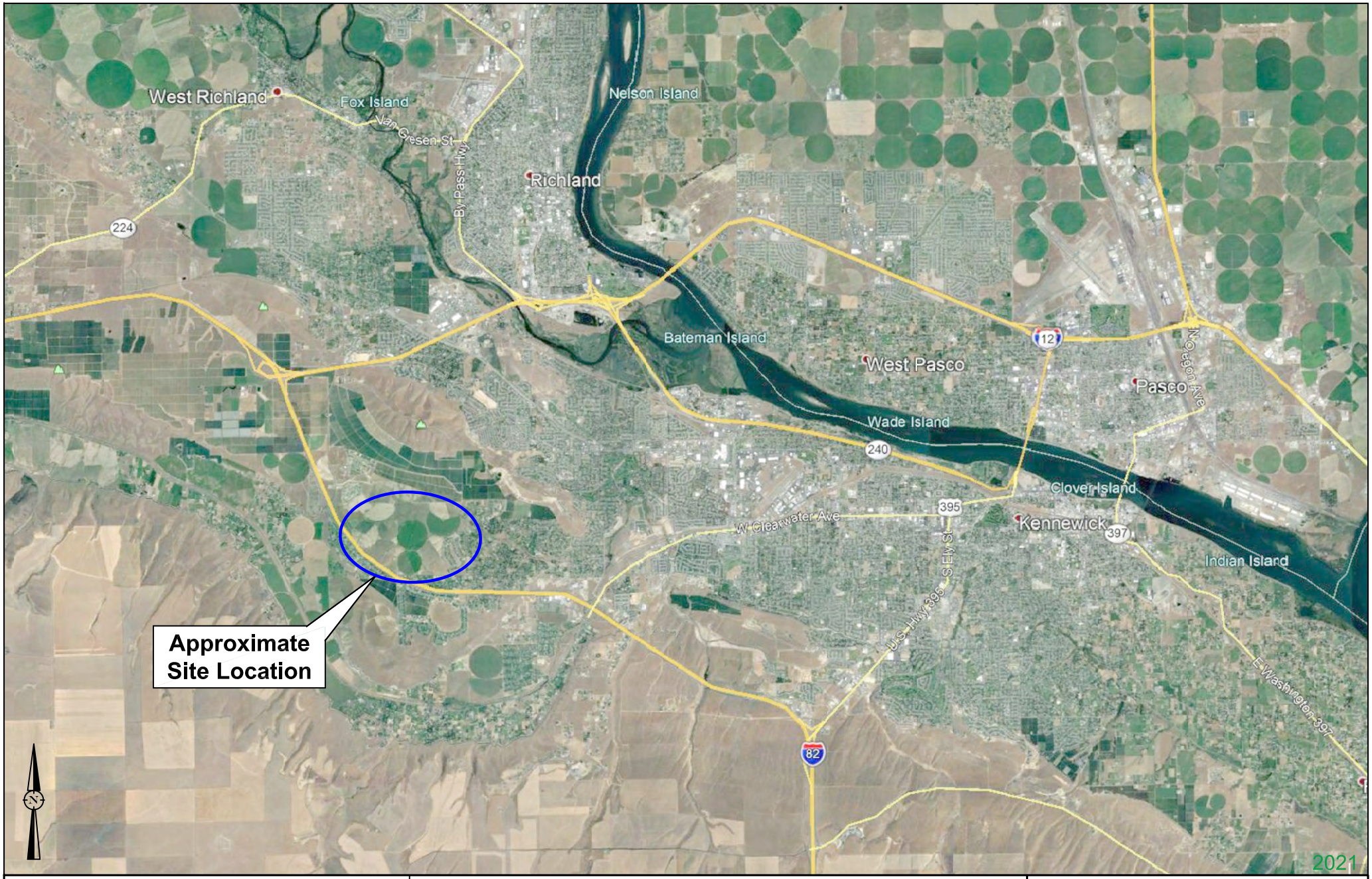
We appreciate the opportunity to be of service. If you have questions or comments, please contact our office.

Sincerely,
BAER TESTING & ENGINEERING, INC.



Dee J. Burrie, P.E.
Chief Engineer

: general@baertesting.com



Notes:
Location Map developed using Images by Google Earth Pro.

0 2 4

Approximate Scale in Miles

: (509) 469-3068
: (509) 469-3070
: www.baertesting.com

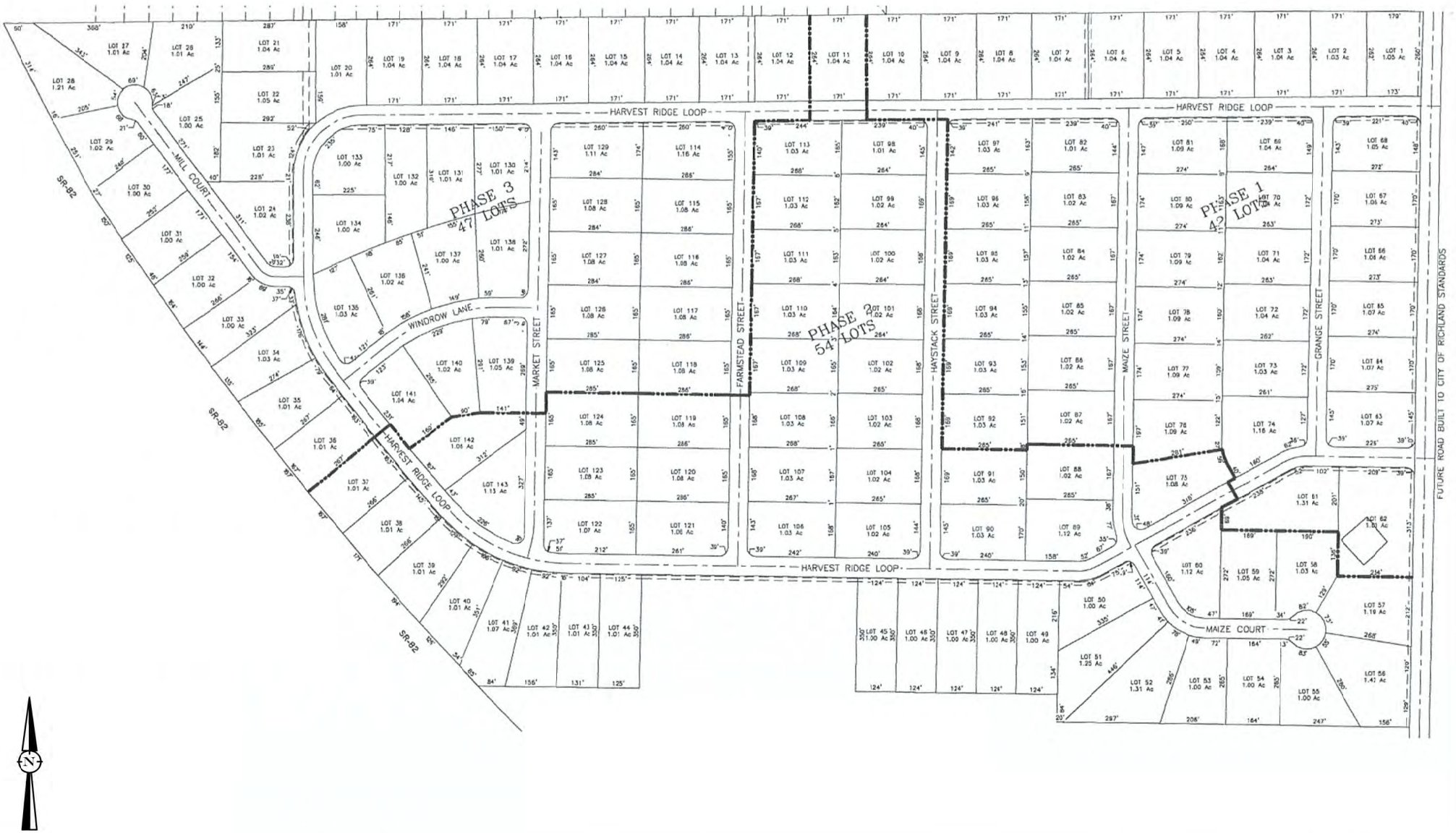
Baer Testing & Engineering, Inc.

1106 Ledwich Ave.
Yakima, WA 98902

Harvest Ridge and South Orchard Residential Developments
Benton County, Washington

Site Location Map

21-135	FIG. 1



Notes:

Location Map developed using Images Provided by AQTERA Engineering.

0 300 600

Approximate Scale in Feet

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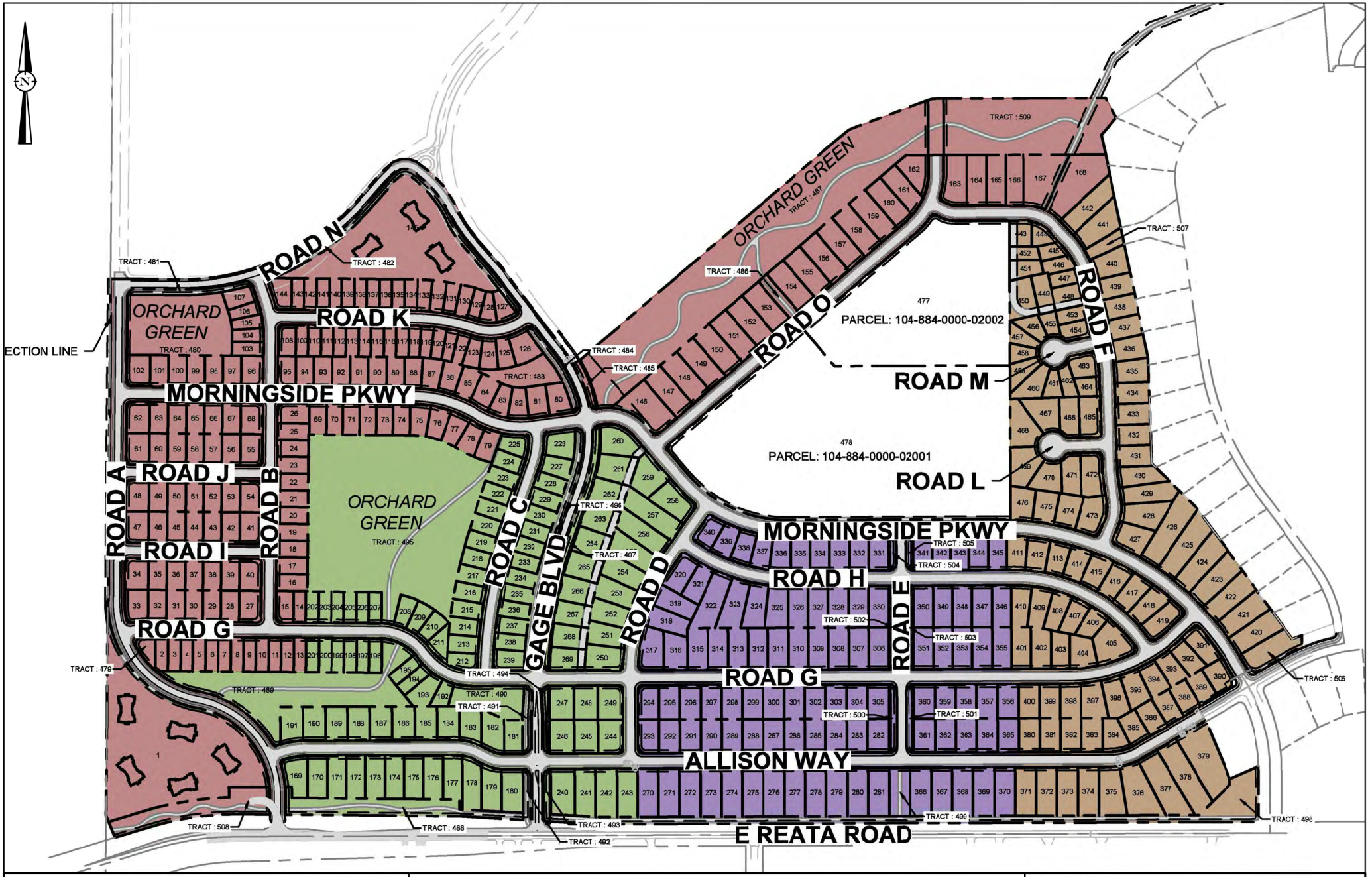
Harvest Ridge and South Orchard Residential Developments
Benton County, Washington

Harvest Ridge Site Layout

21-135 | FIG. 2A



Notes:

Location Map developed using Images Provided by AQTERA Engineering.

0 300 600

Approximate Scale in Feet

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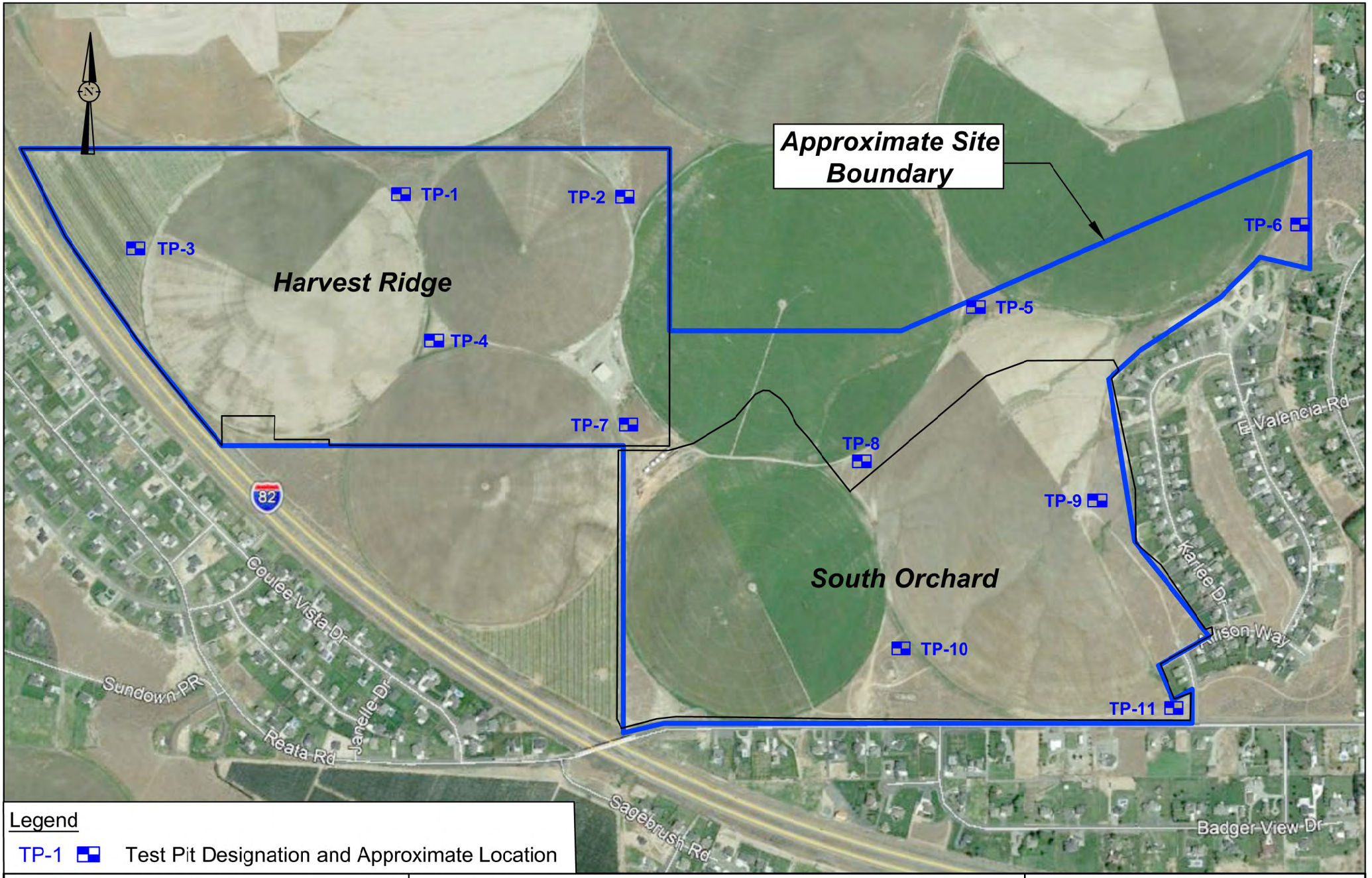
South Orchard Site Layout

21-135 | FIG. 2B



Legend

TP-1 Test Pit Designation and Approximate Location

Notes:

Location Map developed using Images Provided by Google Earth Pro.

0 1000 2000

Approximate Scale in Feet

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Exploration Map

21-135 | FIG. 3

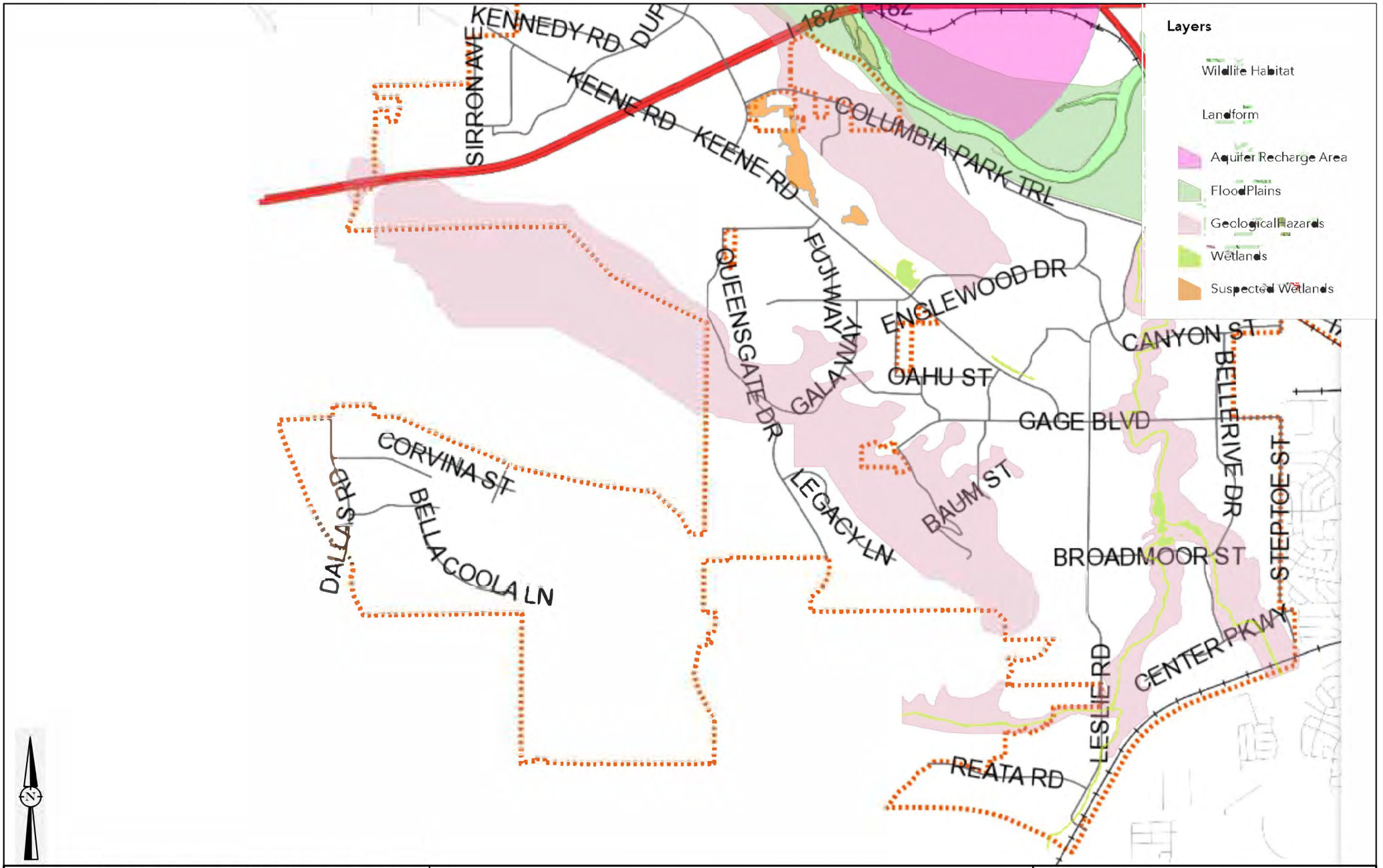

Image created using the City of Richland, WA, Geologic Hazards and Critical Areas map.
https://richlandwa.maps.arcgis.com/apps/webappviewer/index.html

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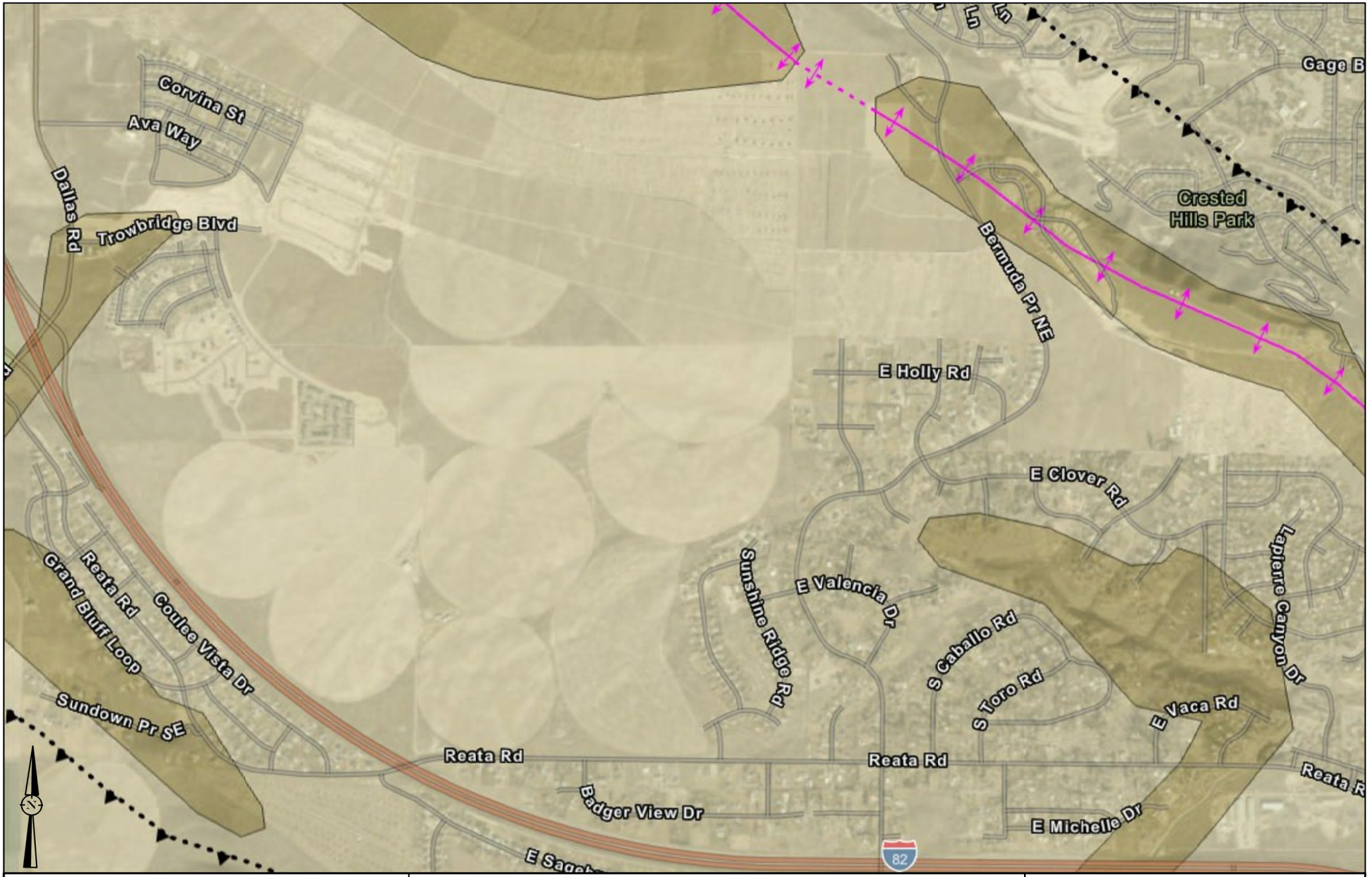
Benton County, Washington

Geologic Hazards and Critical Areas Map

21-135 | FIG. 4



Notes:

Location Map developed using the Washington State Departmend of Natural Resources, Natural Hazards. (https://www.dnr.wa.gov/geologyportal)

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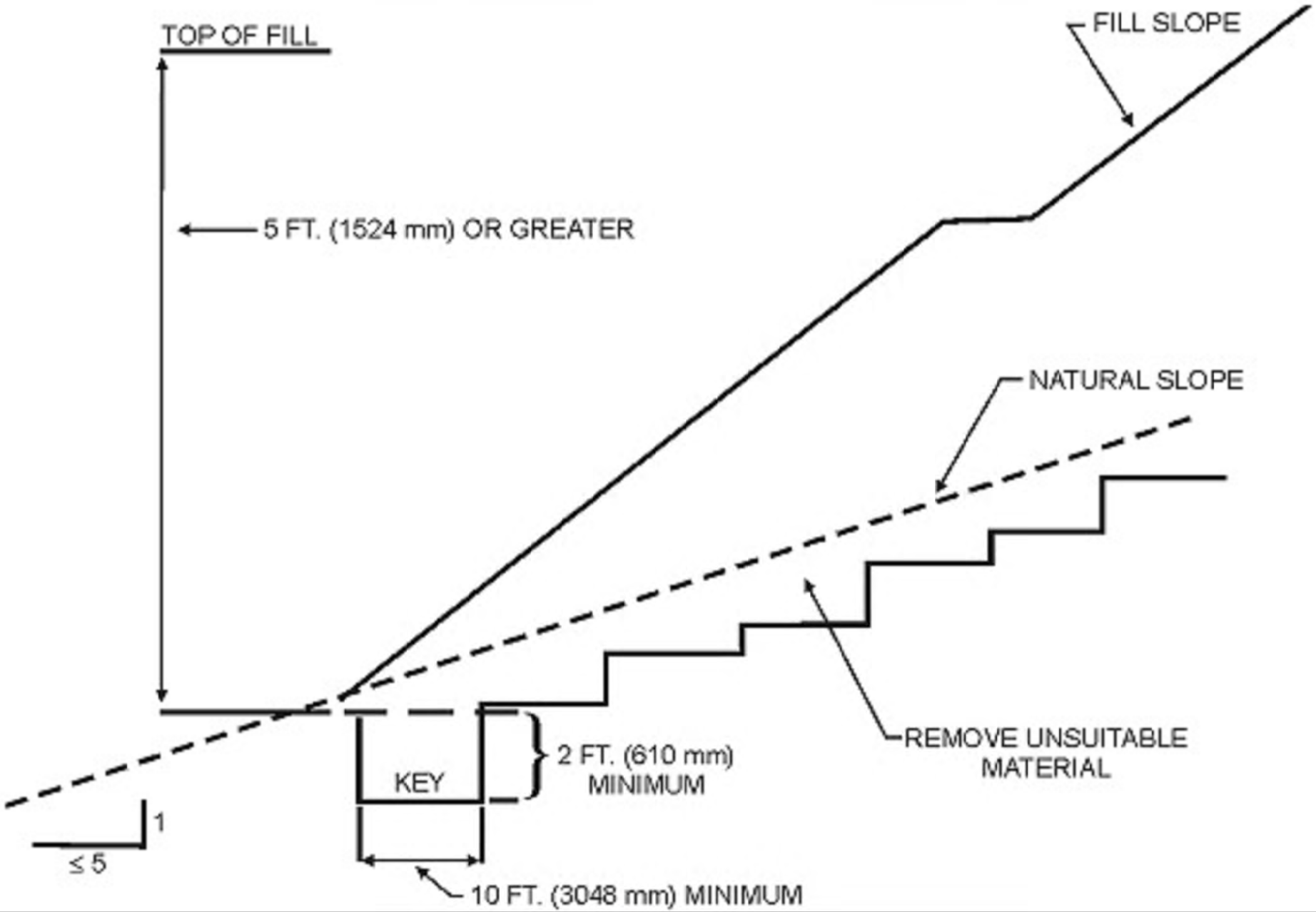
Geologic Hazards - Faults

21-135 | FIG. 5



Notes:
Image Developed From the 2015 International Building Code (IBC) Appendix J.

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IBC Benching Requirements

21-135 | FIG. 6

APPENDIX A
TEST PIT LOGS

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JOB NO: 21-135 EX. DATE: 6/2/2021 LOCATION: NW Corner of North Edge

PROJECT: Harvest Ridge and South Orchard Residential Development, Benton County, WA

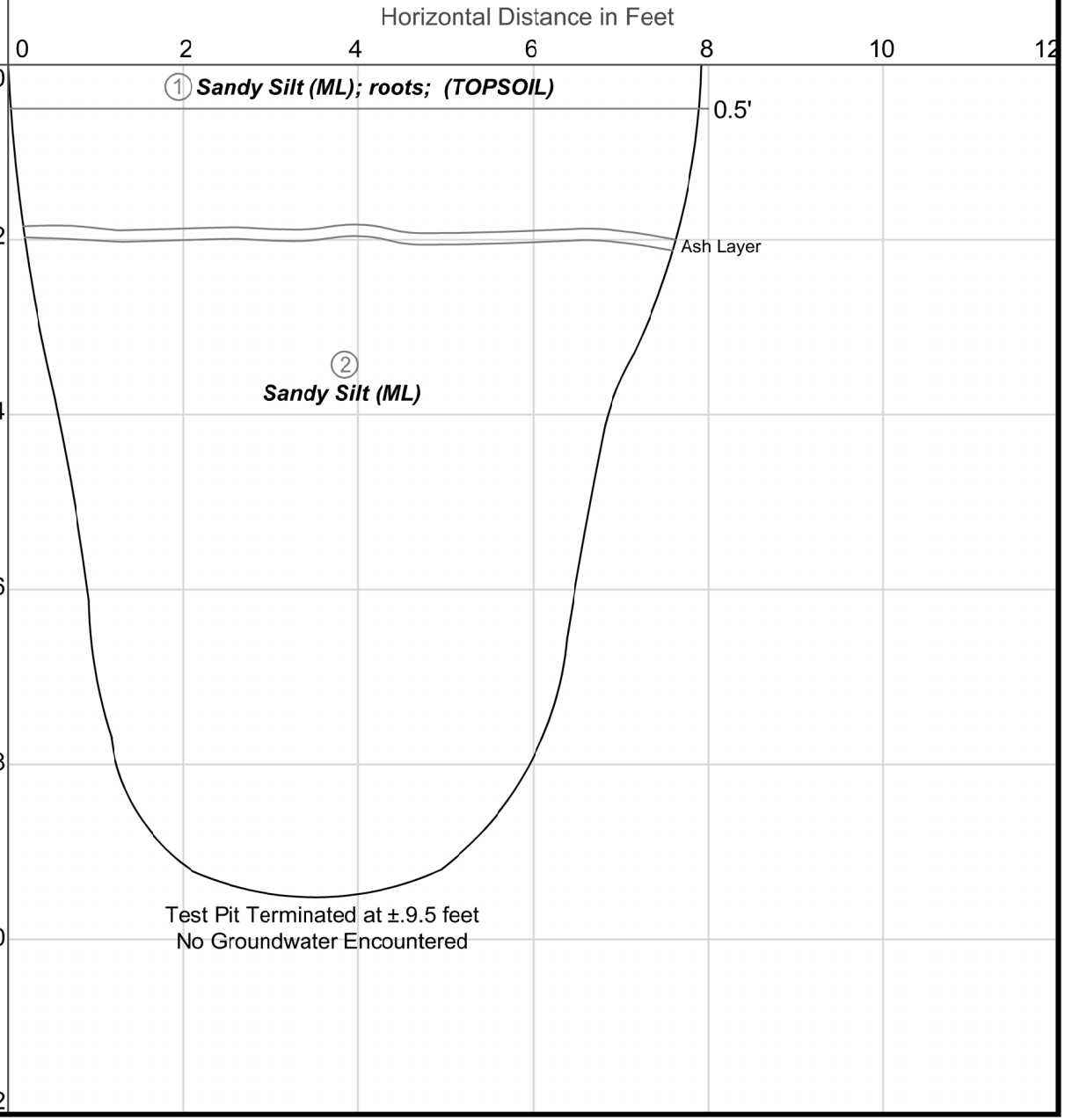
LOG OF Test Pit TP-1

Logged By: BH GPS Coordinates: N 46.212763 E -119.341077

SOIL DESCRIPTION	Ground Water	Blow Counts ASTM STP399	Samples	Depth, Ft.
Surface Description: Sparse Grass				
① 0-0.5' Light brown ***Sandy Silt (ML)***; roots throughout. (TOPSOIL)	None Observed			0
② 0.5-9.5' Very Stiff to hard, light brown, ***Sandy Silt (ML)***; Dry; fine to medium sand; nonplastic silt; strongly cemented; volcanic ash layer at approximately 1.5 feet.		5-50/1½"	S-1	2, 4, 6, 8
Test Pit Terminated at ±9.5 feet No Groundwater Encountered				10, 12

Sketch of West Pit Side

Surface Elevation:



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JOB NO: 21-135 EX. DATE: 6/3/2021 LOCATION: NW Corner of North Edge

PROJECT: Harvest Ridge and South Orchard Residential Development, Benton County, WA

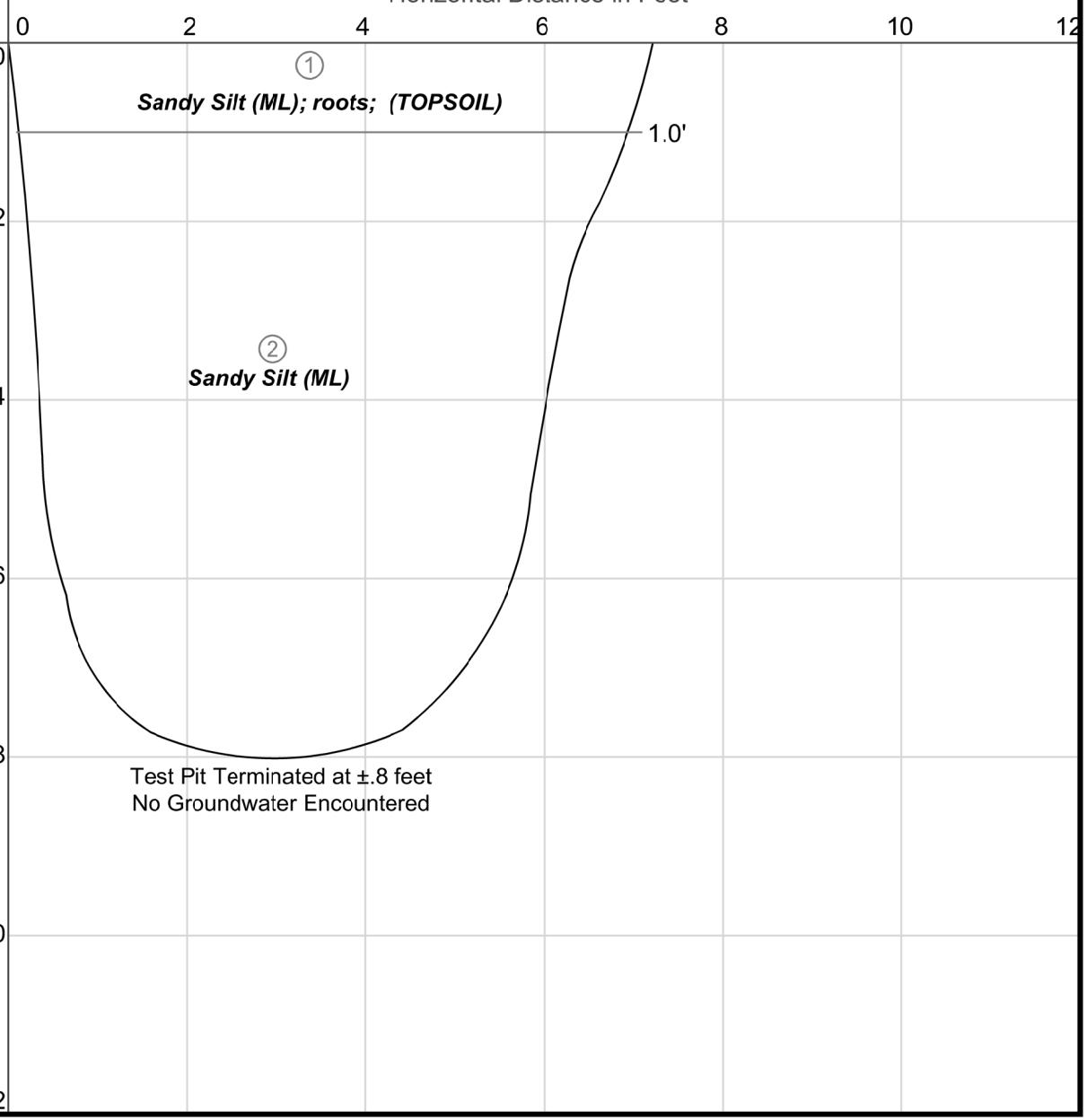
LOG OF Test Pit TP-2

Logged By: BH GPS Coordinates: N 46.212082 E -119.326898

SOIL DESCRIPTION	Ground Water	Blow Counts ASTM STP399	Samples	Depth, Ft.
Surface Description: Sparse Brush				
① 0-1.0' Light brown ***Sandy Silt (ML)***; roots throughout. (TOPSOIL)	None Observed			0
②1.0-8.0' Hard, light brown, ***Sandy Silt (ML)***; Dry; fine to medium sand; nonplastic silt; strongly cemented.		12-31-33		2, 4, 6
Test Pit Terminated at ±8 feet No Groundwater Encountered			S-1 ☒	8
				10, 12

Sketch of West Pit Side

Surface Elevation:



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JOB NO: 21-135 EX. DATE: 6/2/2021 LOCATION: NW Corner of West Edge

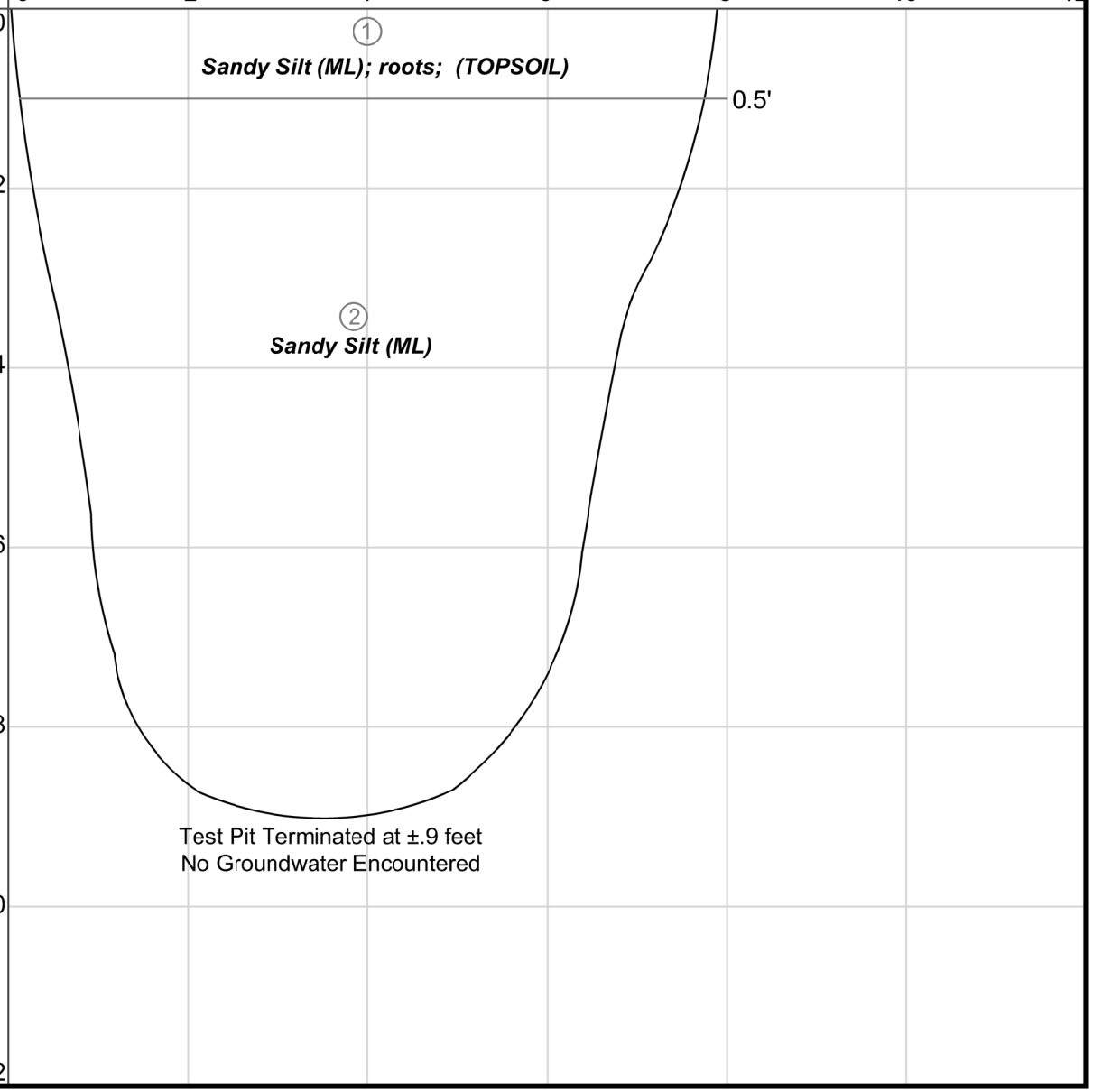
PROJECT: Harvest Ridge and South Orchard Residential Development, Benton County, WA

LOG OF Test Pit TP-3

Logged By: BH GPS Coordinates: N 46.210642 E -119.341077

SOIL DESCRIPTION	Ground Water	Blow Counts ASTM STP399	Samples	Depth, Ft.
Surface Description: Grass				
① 0-1.0' Light brown ***Sandy Silt (ML)***; roots throughout. (TOPSOIL)	None Observed			0
②1.0-9.0' Very Stiff to hard, light brown, ***Sandy Silt (ML)***; Dry; trace subrounded and subangular gravel, maximum diam. approximately 2 inches; fine to medium sand; nonplastic silt; strongly cemented.		5-50/1"	S-1 ☒	2
* increased sand with depth.		10-50/1¾"		4
				6
				8
			S-2 ☒	
Test Pit Terminated at ±9 feet No Groundwater Encountered				10
Infiltration Test Performed				12

Sketch of West Pit Side Surface Elevation:



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JOB NO: 21-135 EX. DATE: 6/2/2021 LOCATION: Middle of NW Corner

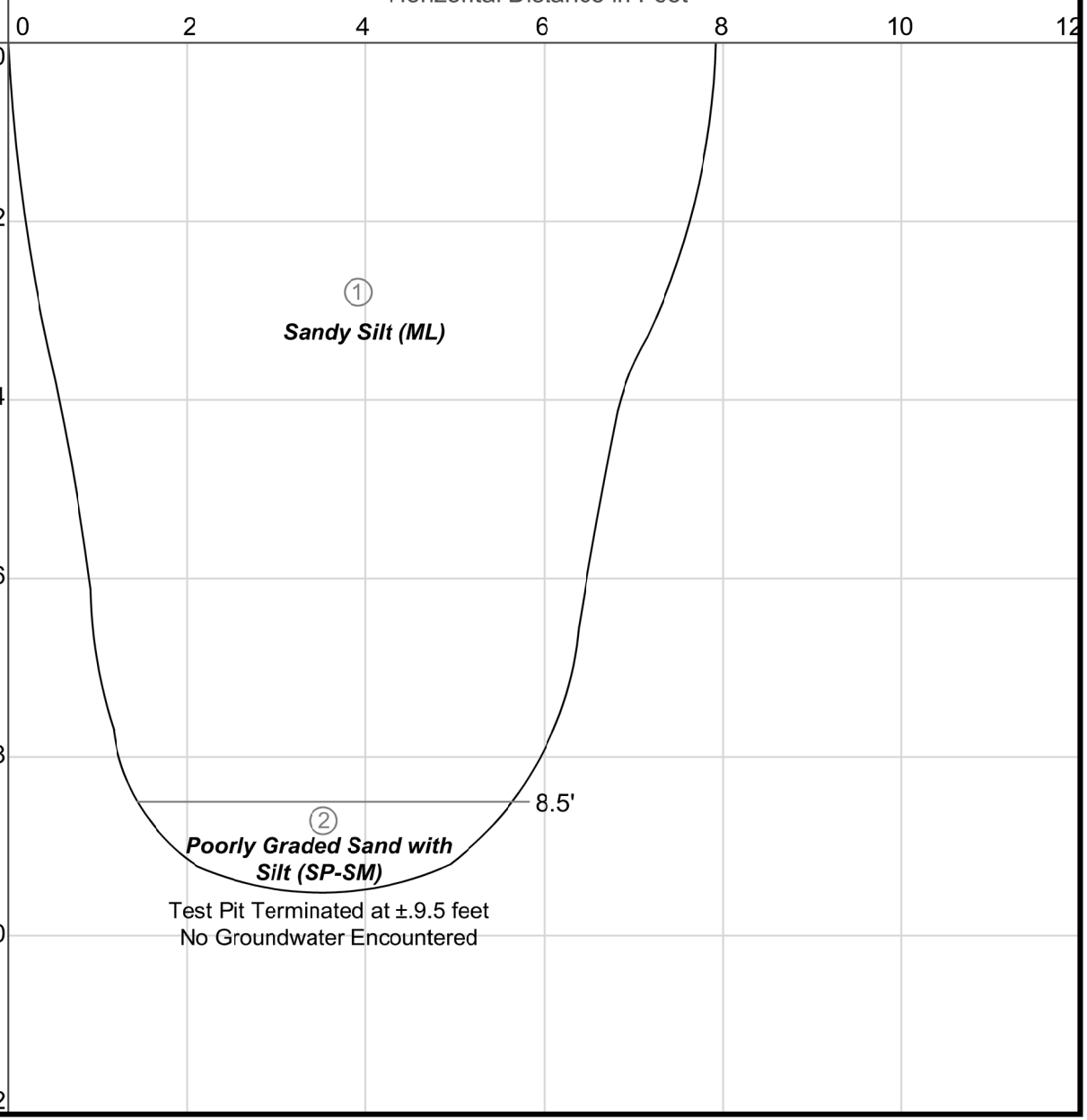
PROJECT: Harvest Ridge and South Orchard Residential Development, Benton County, WA

LOG OF Test Pit TP-4

Logged By: BH GPS Coordinates: N 46.209808 E -119.334377

SOIL DESCRIPTION	Ground Water	Blow Counts ASTM STP399	Samples	Depth, Ft.
Surface Description: Sand/Silt				
① 0-8.5' Very Stiff to hard, light brown, ***Sandy Silt (ML)***; Moist; fine to medium sand; nonplastic silt; strongly cemented. *trace gravel near surface, subrounded and subangular, max. diam. 2 inches.	None Observed			0
				2
				4
				6
② 8.5-9.5' Dense, gray/brown, ***Poorly Graded Sand with Silt (SP-SM)***; Moist; fine to medium sand; trace nonplastic silt.			S-1 ☒	8
Test Pit Terminated at ±9.5 feet No Groundwater Encountered				10
				12

Sketch of West Pit Side Surface Elevation:



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JOB NO: 21-135 EX. DATE: 6/3/2021 LOCATION: Middle of NE Corner

PROJECT: Harvest Ridge and South Orchard Residential Development, Benton County, WA

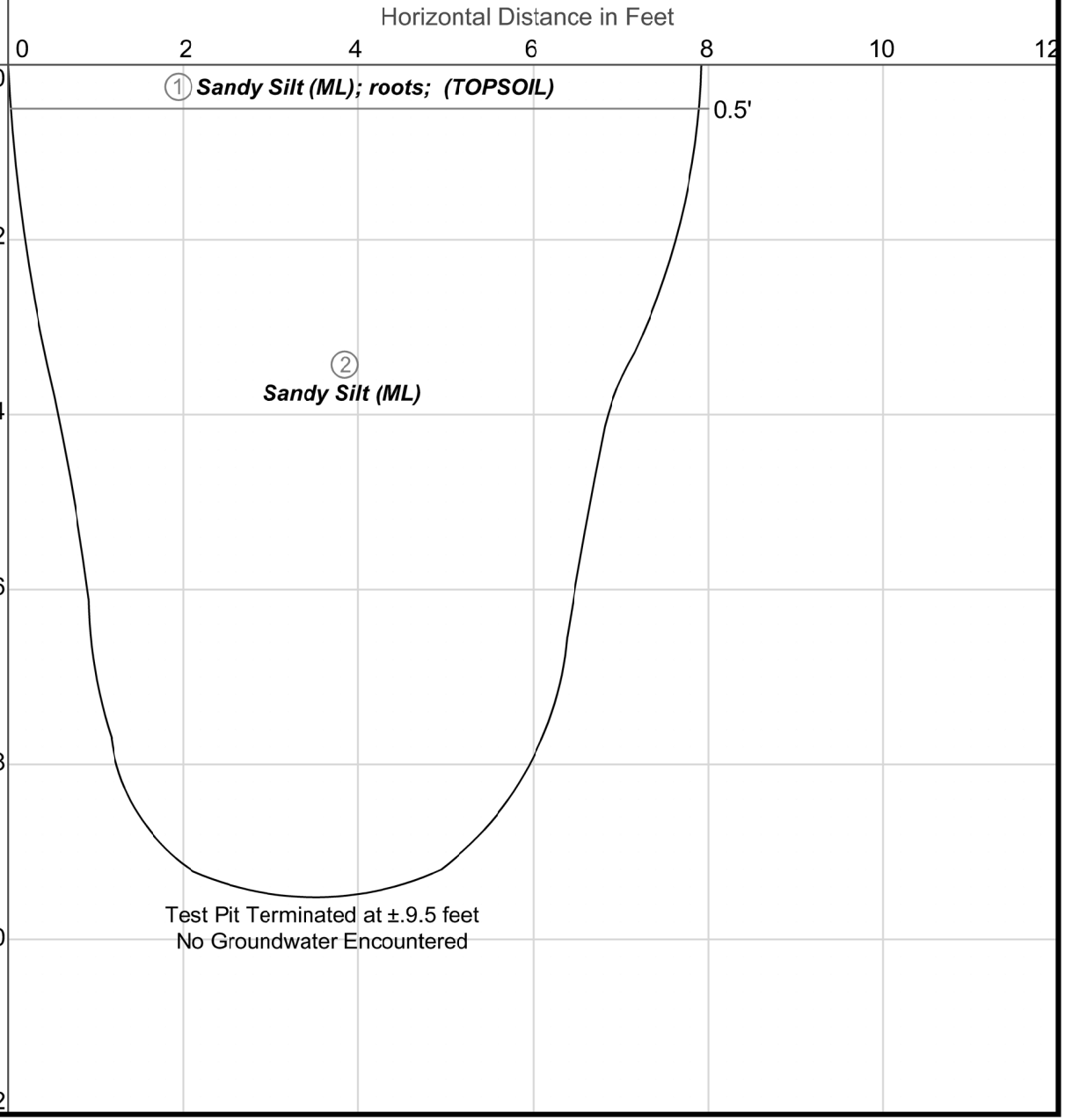
LOG OF Test Pit TP-5

Logged By: BH GPS Coordinates: N 46.211123 E -119.317662

SOIL DESCRIPTION	Ground Water	Blow Counts ASTM STP399	Samples	Depth, Ft.
Surface Description: Sparse Brush /Grass				
① 0-0.5' Light brown ***Sandy Silt (ML)***; roots throughout. (TOPSOIL)	None Observed			0
② 0.5-9.5' Very Stiff to hard, light brown, ***Sandy Silt (ML)***; Dry; fine to medium sand; nonplastic silt; strongly cemented.		8-30-50/1½"	S-1 ☒	2, 4, 6, 8
Test Pit Terminated at ±9.5 feet No Groundwater Encountered				10
Infiltration Test Performed				12

Sketch of West Pit Side

Surface Elevation:



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JOB NO: 21-135 EX. DATE: 6/3/2021 LOCATION: NE Corner

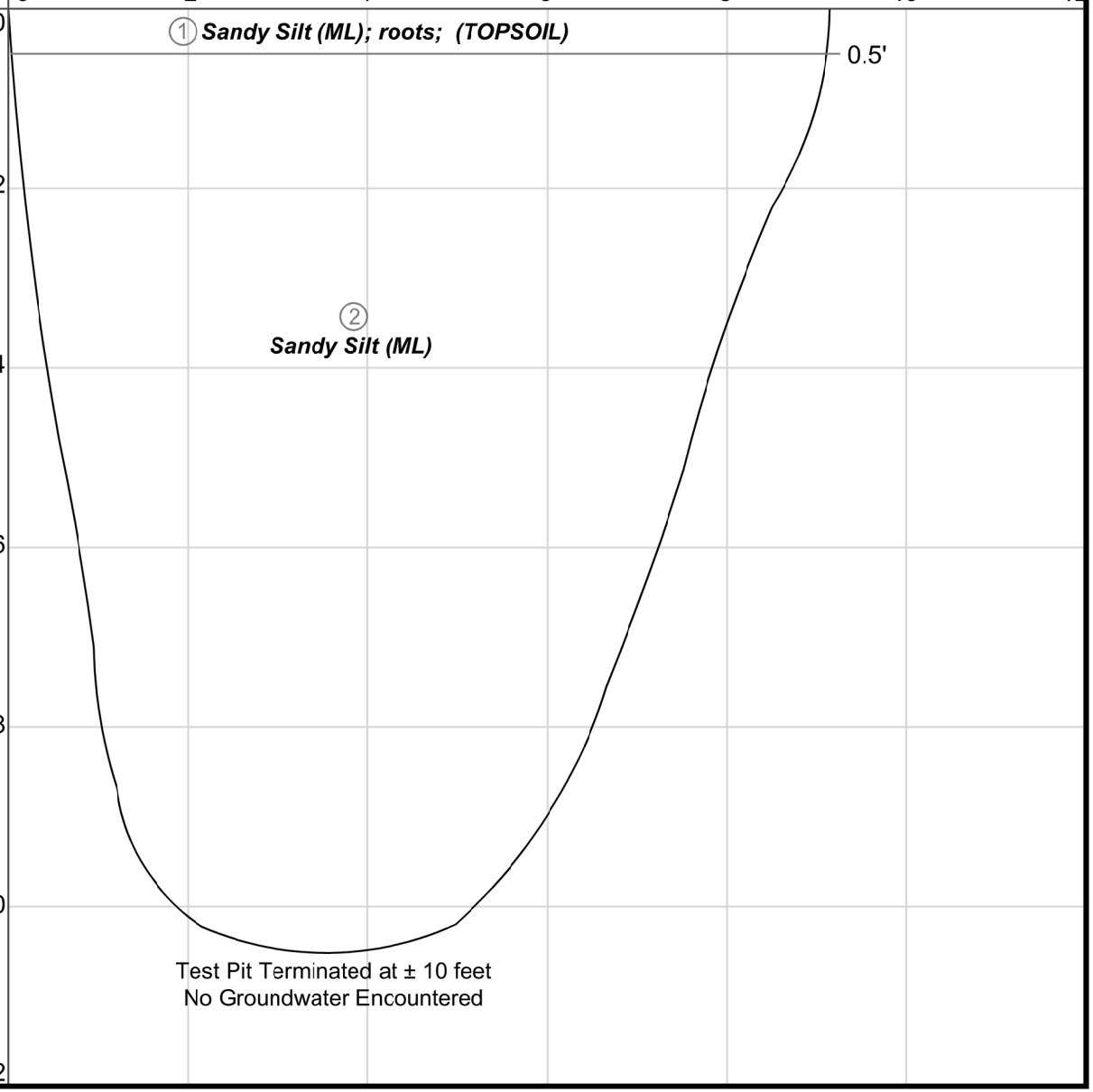
PROJECT: Harvest Ridge and South Orchard Residential Development, Benton County, WA

LOG OF Test Pit TP-6

Logged By: BH GPS Coordinates: N 46.211463 E -119.307760

SOIL DESCRIPTION	Ground Water	Blow Counts ASTM STP399	Samples	Depth, Ft.
Surface Description: Light Brush Grass				
① 0-0.5' Light brown ***Sandy Silt (ML)***; roots throughout. (TOPSOIL)	None Observed			0
② 0.5-9.5' Very Stiff to hard, light brown, ***Sandy Silt (ML)***; Dry; fine to medium sand; nonplastic silt; strongly cemented.		5-20-25	S-1	2, 4, 6, 8, 10
Test Pit Terminated at ±10 feet No Groundwater Encountered				12
Infiltration Test Performed				

Sketch of West Pit Side Surface Elevation:



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JOB NO: 21-135 EX. DATE: 6/3/2021 LOCATION: Middle of West Edge

PROJECT: Harvest Ridge and South Orchard Residential Development, Benton County, WA

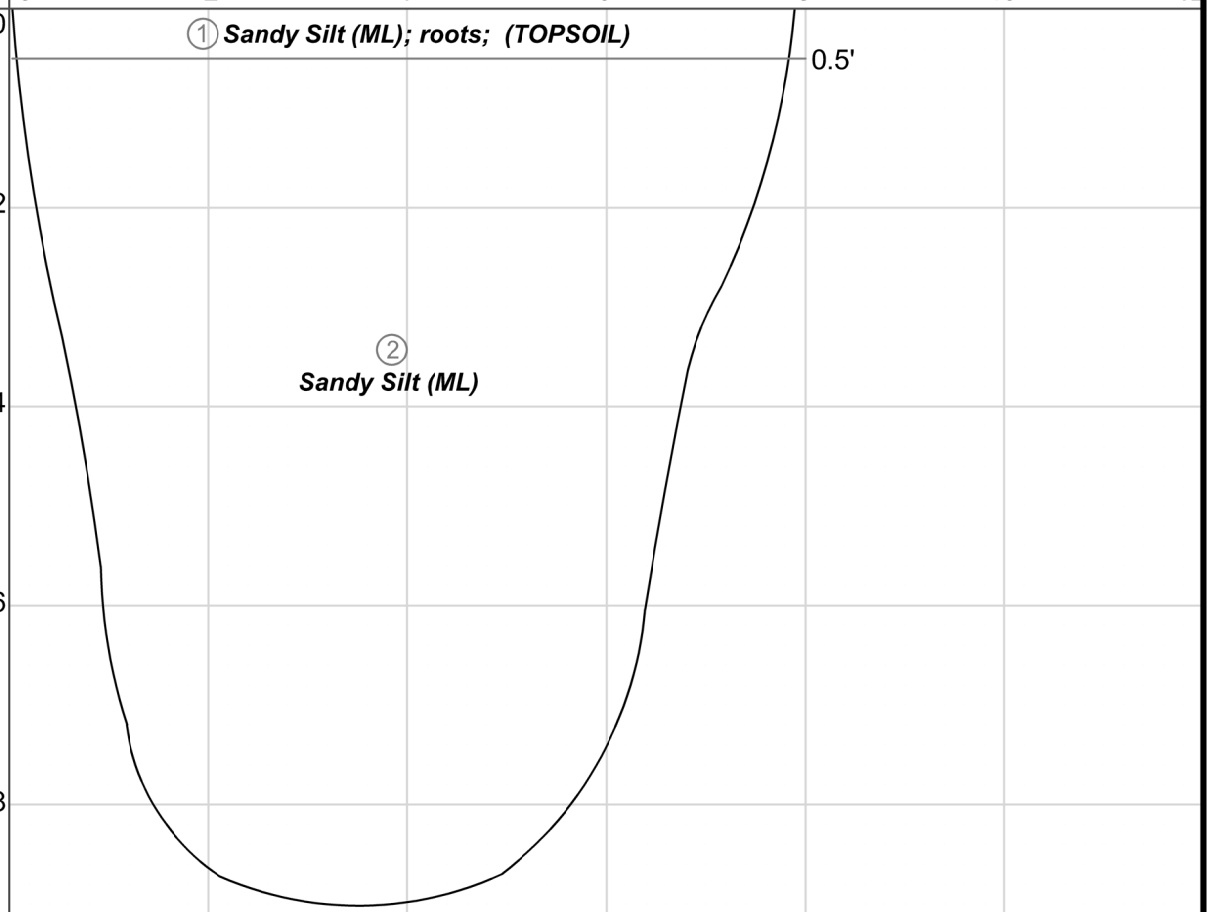
LOG OF Test Pit TP-7

Logged By: BH GPS Coordinates: N 46.207715 E -119.327165

SOIL DESCRIPTION	Ground Water	Blow Counts ASTM STP399	Samples	Depth, Ft.
Surface Description: Light Grass				
① 0-0.5' Light brown ***Sandy Silt (ML)***; roots throughout. (TOPSOIL)	None Observed			0
② 0.5-9.5' Very Stiff to hard, light brown, ***Sandy Silt (ML)***; Dry; fine to medium sand; nonplastic silt; strongly cemented.				2
				4
				6
				8
Test Pit Terminated at ±9 feet No Groundwater Encountered				10
Infiltration Test Performed				12

Sketch of South Pit Side Surface Elevation:

Horizontal Distance in Feet



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JOB NO: 21-135 EX. DATE: 6/2/2021 LOCATION: Middle of East Side

PROJECT: Harvest Ridge and South Orchard Residential Development, Benton County, WA

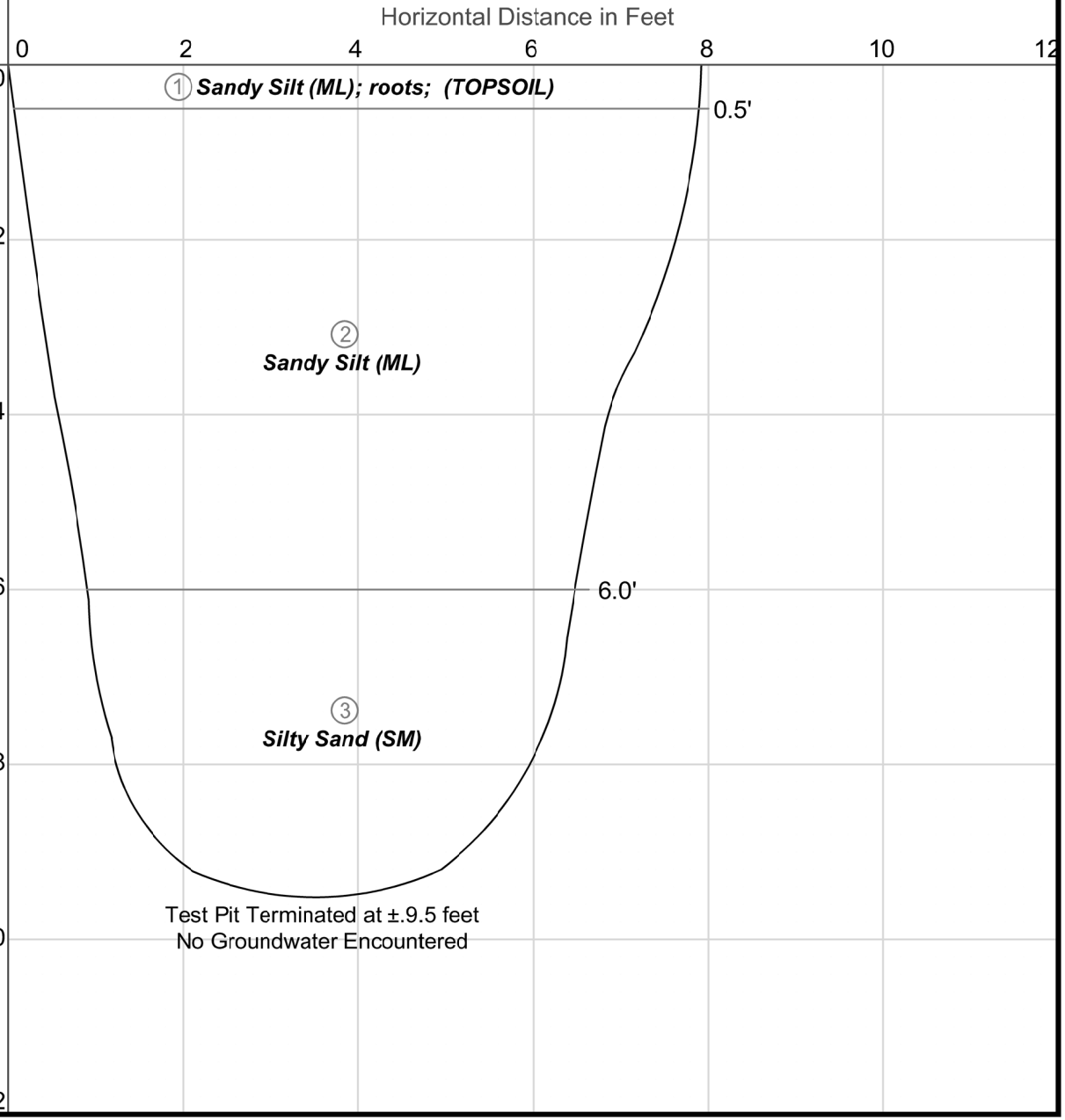
LOG OF Test Pit TP-8

Logged By: BH GPS Coordinates: N 46.207022 E -119.320244

SOIL DESCRIPTION	Ground Water	Blow Counts ASTM STP399	Samples	Depth, Ft.
Surface Description: Sparce Grass				
① 0-0.5' Light brown ***Sandy Silt (ML)***; roots throughout. (TOPSOIL)	None Observed	7-26-16	S-1	0
② 0.5-6.0' Stiff to Very Stiff, light brown, ***Sandy Silt (ML)***; Dry; fine to medium sand; nonplastic silt; strongly cemented.				2
				4
③ 6.0-9.5' Medium dense, light brown, ***Silty Sand (SM)***; Dry; fine to medium sand; nonplastic silt; strongly cemented.				6
				8
Test Pit Terminated at ±9.5 feet No Groundwater Encountered				10
Infiltration Test Performed				12

Sketch of West Pit Side

Surface Elevation:



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JOB NO: 21-135 EX. DATE: 6/2/2021 LOCATION: Middle of East Edge

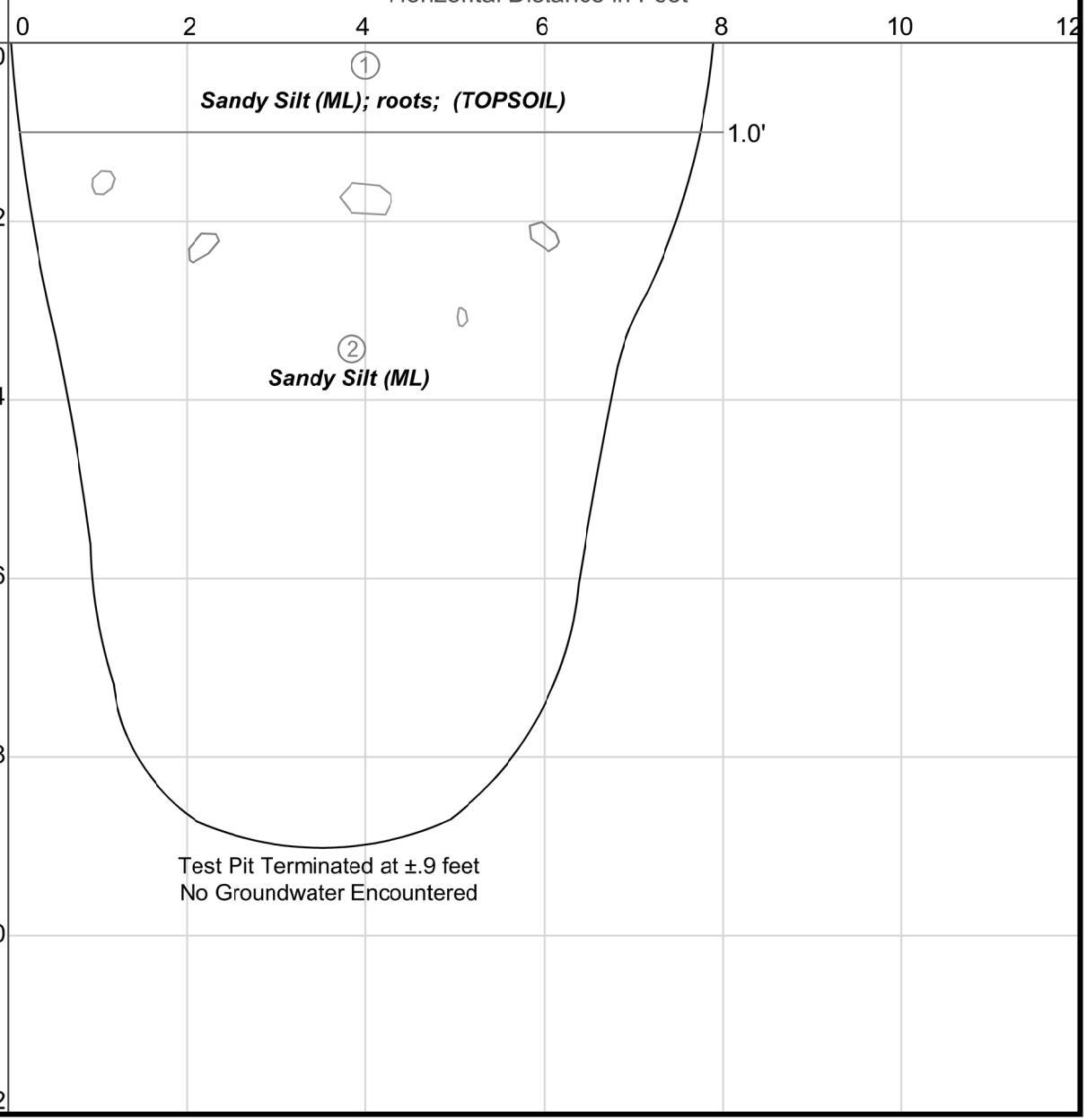
PROJECT: Harvest Ridge and South Orchard Residential Development, Benton County, WA

LOG OF Test Pit TP-9

Logged By: BH GPS Coordinates: N 46.206077 E -119.313290

SOIL DESCRIPTION	Ground Water	Blow Counts ASTM STP399	Samples	Depth, Ft.
Surface Description: Grass				
① 0-1.0' Light brown ***Sandy Silt (ML)***; roots throughout. (TOPSOIL)	None Observed	12-20-24		0
②1.0-9.0' Very Stiff to Stiff, light brown, ***Sandy Silt (ML)***; Dry; trace subrounded and subangular gravel and cobbles, maximum diam. approximately 9 inches; fine to medium sand; nonplastic silt; strongly to moderately cemented.				2
				4
				6
				8
Test Pit Terminated at ±9 feet No Groundwater Encountered				10
				12

Sketch of East Pit Side Surface Elevation:



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JOB NO: 21-135 EX. DATE: 6/2/2021 LOCATION: Middle of South Edge

PROJECT: Harvest Ridge and South Orchard Residential Development, Benton County, WA

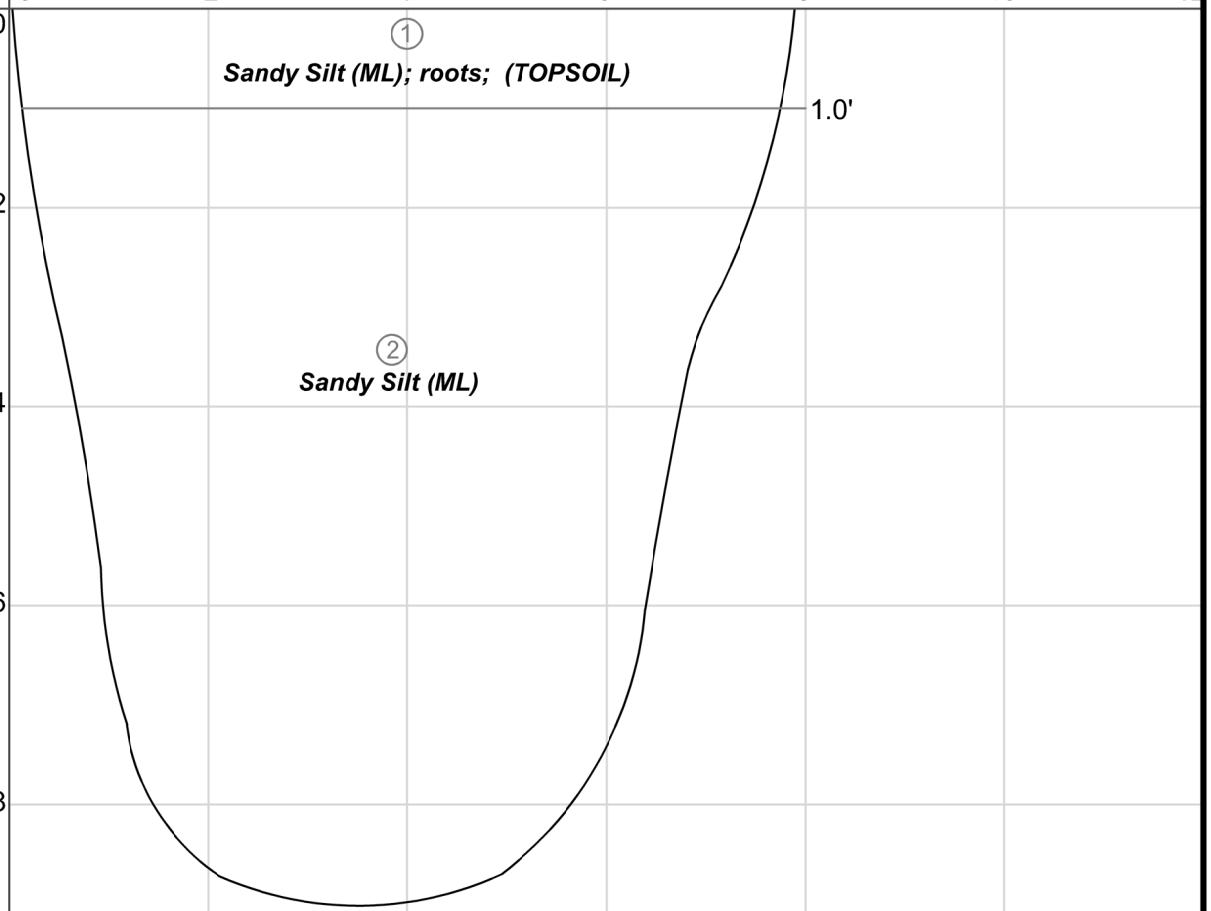
LOG OF Test Pit TP-10

Logged By: BH GPS Coordinates: N 46.203165 E -119.319144

SOIL DESCRIPTION	Ground Water	Blow Counts ASTM STP399	Samples	Depth, Ft.
Surface Description: Light Brush / Grass				
① 0-1.0' Light brown ***Sandy Silt (ML)***; roots throughout. (TOPSOIL)	None Observed	2-16-22		0
②1.0-9.0' Very Stiff, light brown, ***Sandy Silt (ML)***; Dry; trace subrounded and subangular gravel and cobbles, maximum diam. approximately 9 inches; fine to medium sand; nonplastic silt; strongly to moderately cemented.				2
				4
				6
				8
Test Pit Terminated at ±9 feet No Groundwater Encountered				10
				12

Sketch of South Pit Side Surface Elevation:

Horizontal Distance in Feet



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JOB NO: 21-135 EX. DATE: 6/3/2021 LOCATION: SE Corner

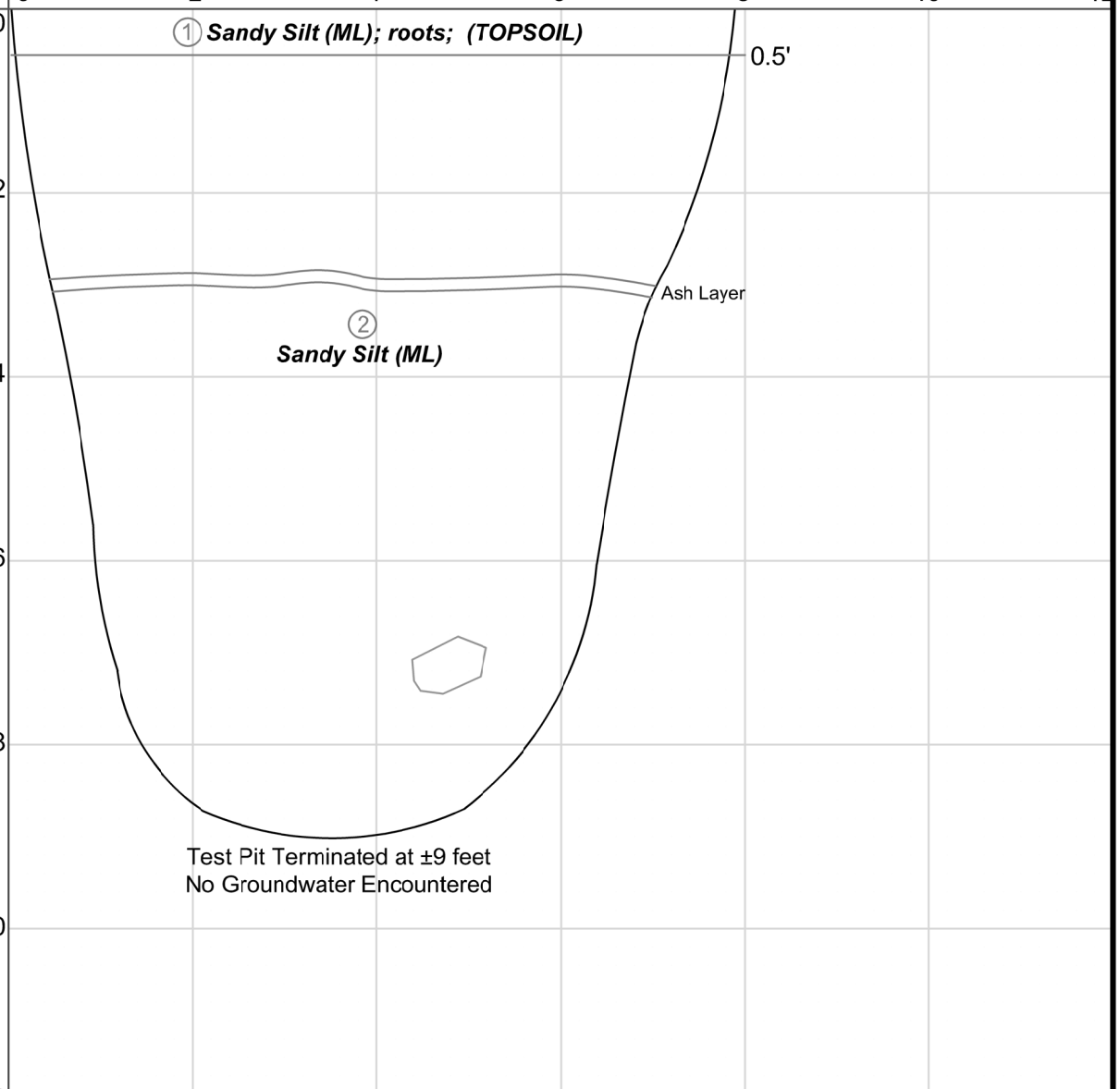
PROJECT: Harvest Ridge and South Orchard Residential Development, Benton County, WA

LOG OF Test Pit TP-11

Logged By: BH GPS Coordinates: N 46.201942 E -119.311792

SOIL DESCRIPTION	Ground Water	Blow Counts ASTM STP399	Samples	Depth, Ft.
Surface Description: Grass				
① 0-0.5' Light brown ***Sandy Silt (ML)***; roots throughout. (TOPSOIL)	None Observed			0
② 0.5-9.5' Stiff to very stiff, light brown, ***Sandy Silt (ML)***; Dry; fine to medium sand; nonplastic silt; strongly cemented.		8-12-14		2
* thin volcanic ash layer at approximately 3 feet				
				4
* minor sand deposits near 6 feet				6
*trace cobbles near 7 feet				8
Test Pit Terminated at ±9 feet No Groundwater Encountered				10
Infiltration Test Performed				12

Sketch of East Pit Side Surface Elevation:



APPENDIX B
LABORATORY TEST RESULTS

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CLIENT:	AHBL, Inc.	**PROJECT NUMBER:**	21-135
PROJECT:	Harvest Ridge	**WORK ORDER #:**	21-1112
SAMPLE SOURCE:	TP1 @ 6'	**SAMPLE NUMBER:**	21-1112-1
DATE SAMPLED:	6/2/2021	**DATE TESTED:**	6/7/2021
MATERIAL TYPE:	Sandy Silt	**TESTED BY:**	AJD

Sampled in Accordance with ASTM D 75 and reduced in accordance with ASTM C 702 or D 421 unless otherwise noted.

SIEVE ANALYSIS OF SOILS ASTM C 136/D 1140

Sieve Size:	Percent Passing:	Specs:	Sieve Size:	Percent Passing:	Specs:
4"			#4	100%	
3"			#8		
2 1/2"			#10	99%	
2"			#16		
1 1/2"			#20	99%	
1 1/4"			#30		
1"			#40	97%	
3/4"			#50		
5/8"			#60		
1/2"			#80	91%	
3/8"			#100	87%	
1/4"	100%		#200	59.8%	

SOIL MOISTURE DETERMINATION ASTM D 2216

6.7%

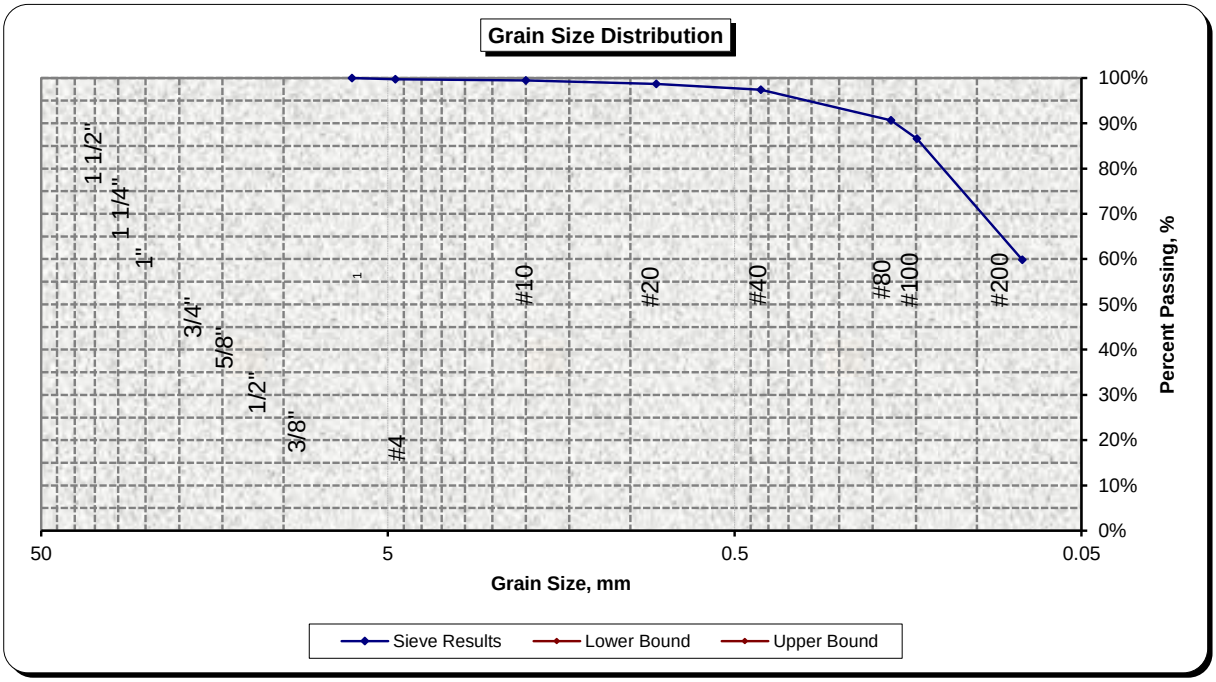
FINENESS MODULUS - ASTM C 136

0.14

HYDROMETER (.02MM) - D 422

FINER THAN #200 - C 117

FRACTURED FACE COUNT ASTM D 5821



REVIEWED BY:
Dee Burrie, Technical Director

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CLIENT:	AHBL, Inc.	**PROJECT NUMBER:**	21-135
PROJECT:	Harvest Ridge	**WORK ORDER #:**	21-1112
SAMPLE SOURCE:	TP3 @ 9'	**SAMPLE NUMBER:**	21-1112-2
DATE SAMPLED:	6/2/2021	**DATE TESTED:**	6/7/2021
MATERIAL TYPE:	Sandy Silt	**TESTED BY:**	AJD

Sampled in Accordance with ASTM D 75 and reduced in accordance with ASTM C 702 or D 421 unless otherwise noted.

SIEVE ANALYSIS OF SOILS ASTM C 136/D 1140

Sieve Size:	Percent Passing:	Specs:	Sieve Size:	Percent Passing:	Specs:
4"			#4	100%	
3"			#8		
2 1/2"			#10	100%	
2"			#16		
1 1/2"			#20	100%	
1 1/4"			#30		
1"			#40	99%	
3/4"			#50		
5/8"			#60		
1/2"			#80	95%	
3/8"			#100	93%	
1/4"	100%		#200	71.2%	

SOIL MOISTURE DETERMINATION ASTM D 2216

10.3%

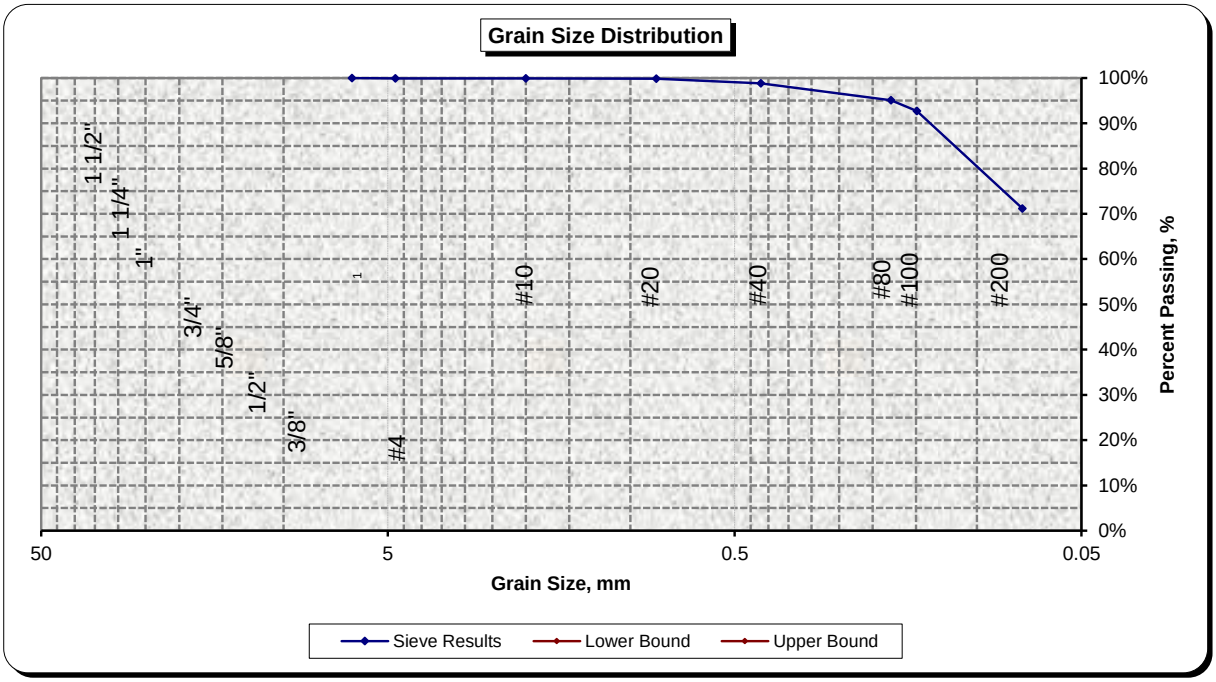
FINENESS MODULUS - ASTM C 136

0.07

HYDROMETER (.02MM) - D 422

FINER THAN #200 - C 117

FRACTURED FACE COUNT ASTM D 5821



REVIEWED BY:
Dee Burrie, Technical Director

This report is the property of the above named Client and is only applicable to the project named above. It shall not be duplicated or reproduced for the use of any other Client or Project.

: (509) 469-3068
: (509) 469-3070
: www.baertesting.com

Baer Testing & Engineering, Inc.

1106 Ledwich Ave.
Yakima, WA 98902

CLIENT:	AHBL, Inc.	**PROJECT NUMBER:**	21-135
PROJECT:	Harvest Ridge	**WORK ORDER #:**	21-1112
SAMPLE SOURCE:	TP4 @ 9'	**SAMPLE NUMBER:**	21-1112-3
DATE SAMPLED:	6/2/2021	**DATE TESTED:**	6/7/2021
MATERIAL TYPE:	Silty Sand	**TESTED BY:**	AJD

Sampled in Accordance with ASTM D 75 and reduced in accordance with ASTM C 702 or D 421 unless otherwise noted.

SIEVE ANALYSIS OF SOILS ASTM C 136/D 1140

Sieve Size:	Percent Passing:	Specs:	Sieve Size:	Percent Passing:	Specs:
4"			#4	99%	
3"			#8		
2 1/2"			#10	97%	
2"			#16		
1 1/2"			#20	81%	
1 1/4"			#30		
1"			#40	57%	
3/4"			#50		
5/8"	100%		#60		
1/2"	100%		#80	35%	
3/8"			#100	30%	
1/4"			#200	15.0%	

SOIL MOISTURE DETERMINATION ASTM D 2216

4.4%

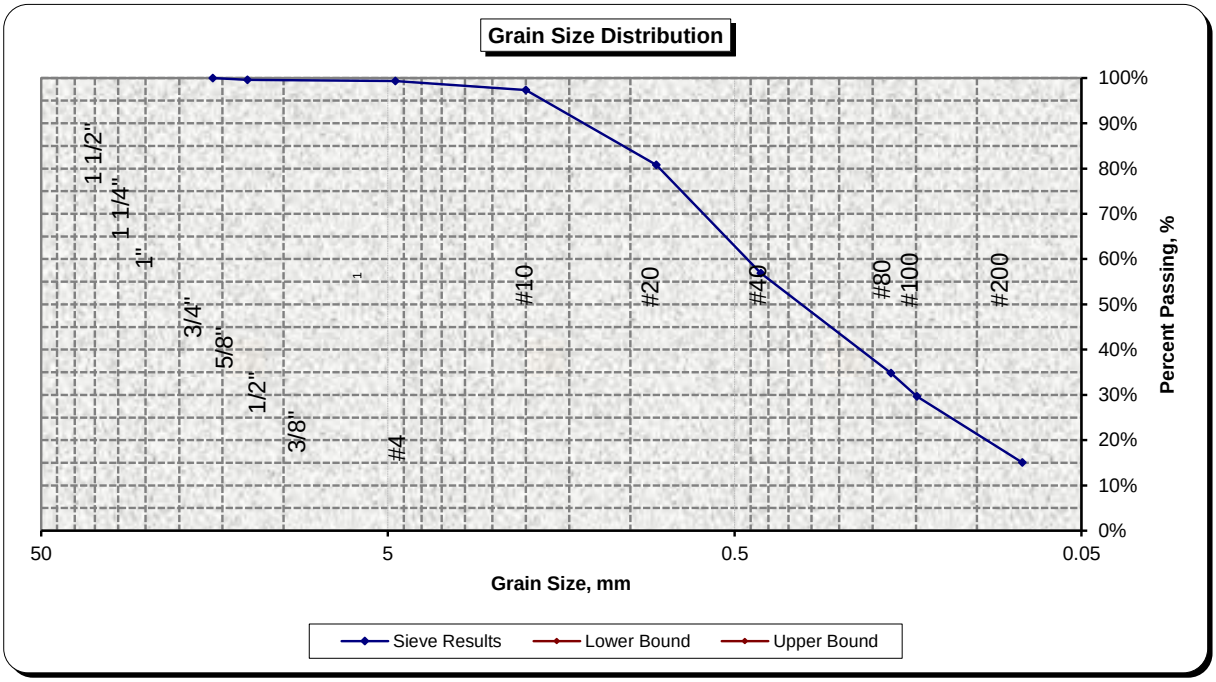
FINENESS MODULUS - ASTM C 136

0.71

HYDROMETER (.02MM) - D 422

FINER THAN #200 - C 117

FRACTURED FACE COUNT ASTM D 5821



REVIEWED BY:
Dee Burrie, Technical Director

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: www.baertesting.com

Baer Testing & Engineering, Inc.

1106 Ledwich Ave.
Yakima, WA 98902

CLIENT:	AHBL, Inc.	**PROJECT NUMBER:**	21-135
PROJECT:	Harvest Ridge	**WORK ORDER #:**	21-1112
SAMPLE SOURCE:	TP11 @ 5'	**SAMPLE NUMBER:**	21-1112-4
DATE SAMPLED:	6/4/2021	**DATE TESTED:**	6/7/2021
MATERIAL TYPE:	Sandy Silt	**TESTED BY:**	AJD

Sampled in Accordance with ASTM D 75 and reduced in accordance with ASTM C 702 or D 421 unless otherwise noted.

SIEVE ANALYSIS OF SOILS ASTM C 136/D 1140

Sieve Size:	Percent Passing:	Specs:	Sieve Size:	Percent Passing:	Specs:
4"			#4	100%	
3"			#8		
2 1/2"			#10	99%	
2"			#16		
1 1/2"			#20	96%	
1 1/4"			#30		
1"			#40	92%	
3/4"			#50		
5/8"			#60		
1/2"			#80	86%	
3/8"			#100	84%	
1/4"	100%		#200	65.4%	

SOIL MOISTURE DETERMINATION ASTM D 2216

3.5%

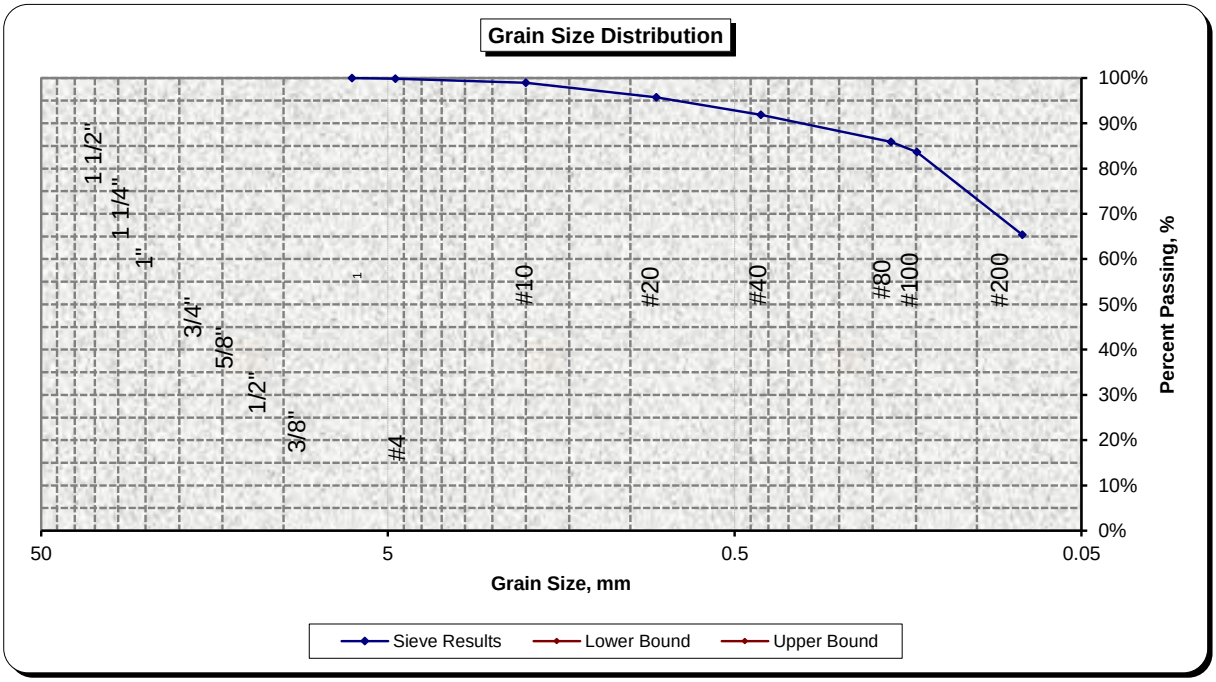
FINENESS MODULUS - ASTM C 136

0.16

HYDROMETER (.02MM) - D 422

FINER THAN #200 - C 117

FRACTURED FACE COUNT ASTM D 5821



REVIEWED BY:
Dee Burrie, Technical Director

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Northwest Agricultural Consultants

2545 W Falls Avenue
Kennewick, WA 99336
509.783.7450
www.nwag.com
lab@nwag.com

PAP-Accredited
NAPT

BAER Testing Inc.
1106 Ledwich Ave.
Yakima, WA 98902

Report: 55343-1-1
Date: June 5, 2021
Project Name:
Project Number:

Sample ID	Organic Matter	Cation Exchange Capacity
TP-1 @ 5.0’	1.47%	13.1 meq/100g
TP-2 @ 5.0’	1.59%	10.8 meq/100g
TP-3 @ 5.0’	1.41%	12.5 meq/100g
TP-4 @ 5.0’	1.56%	13.3 meq/100g
TP-5 @ 5.0’	1.31%	13.3 meq/100g
TP-6 @ 5.0’	1.67%	14.7 meq/100g
TP-7 @ 5.0’	1.85%	14.1 meq/100g
TP-8 @ 5.0’	1.52%	13.3 meq/100g
Method	**ASTM D2974**	**EPA 9081**

Sample ID	Sand	Silt	Clay	Texture Class
TP-1 @ 5.0’	44.0%	52.0%	4.0%	Silt Loam
TP-2 @ 5.0’	50.0%	46.0%	4.0%	Sandy Loam
TP-3 @ 5.0’	48.0%	48.0%	4.0%	Sandy Loam
TP-4 @ 5.0’	52.0%	44.0%	4.0%	Sandy Loam
TP-5 @ 5.0’	62.0%	36.0%	2.0%	Sandy Loam
TP-6 @ 5.0’	58.0%	40.0%	2.0%	Sandy Loam
TP-7 @ 5.0’	42.0%	54.0%	4.0%	Silt Loam
TP-8 @ 5.0’	46.0%	50.0%	4.0%	Silt Loam

PCM 1.9

6 13 22

C .

P

To: Michelle Cooke
Assistant Planning Manager Benton County Washington

From: Kirk Rathbun
Summit View Water Works

Re: Harvest Ridge Plat – Phases 1-3

Mrs. Cooke,

Summit View Water Works, LLC has holds irrigation water right WDOE G4-30505. The annual quantity is for 810 acre-feet per year for irrigation of 270 acres from March 1 to October 31 each year.

The place of use is Section 5, T 8 N, R 28 E.W.M. lying North of Interstate 82.

The instantaneous quantity shall not exceed 2160 gallons per minute, or 8 gallons per minute per acre.

The quantities listed above are adequate to provide service for the plat of Harvest Ridge. Please call if you require additional information.

Summit View Water Works, LLC
Kirk Rathbun
Owner/Manager

Community Development Department
Prosser Office: 620 Market Street, 1st Floor
Kennewick Office: 102206 East Wiser Parkway
www.co.benton.wa.us

Planning Division
(509) 786-5612
P.O. Box 910, Prosser, WA 99350
planning.department@co.benton.wa.us

PCM 1.12

MITIGATED DETERMINATION OF NON-SIGNIFICANCE

Proponent:
Geoff Clark dba Candy Mountain LLC
PO Box 1307
Gig Harbor, WA 98335

File No. EA 2022-013

Project Description: The applicant is proposing a preliminary plat (Harvest Ridge, Phase 2) with 101 residential lots on 120.90 acres with an average lot size of 1.04 acres.

Project Location: The site is located east of Interstate 82 and north of Reata Road on the west half of the north half of Lot 1 of the plat of the Ridge at Reata West Phase 1, in Section 5, Township 8 North, Range 28 East, W.M. in Richland, WA on parcel number 1-0588-402-0000-052.

Jurisdiction: Benton County, Washington.

Lead Agency: Benton County Planning Division.

Threshold Determination: The lead agency for this proposal has determined that it will not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(3), provided that the following measures are taken to mitigate potential adverse impacts. Substantive authority to require mitigation is derived from WAC 197-11-660 and Benton County Code, Chapter 6.35.120. The decision was made after review of a completed environmental checklist, comments received from various agencies and other information on file with the lead agency. This information is available to the public on request.

This MDNS is issued under WAC 197-11-355; no additional comments are being requested.

Conditions/Mitigating Measures: See Attached.

Appeals: You may appeal this determination to the Benton County Planning Division at Post Office Box 910, Prosser, WA 99350, **no later than June 17, 2022, by written notice.** The fee for a threshold determination appeal is $700.00. An appeal of the determination must be made in writing to the Benton County Planning Department and a public hearing will be scheduled and the appellant will be notified of the date, time, and place. You should be prepared to make specific factual objections. Contact the Planning Department to read or ask about the procedures for SEPA appeals.

SEPA Responsible Official: Michelle L. Cooke
Position/Title: Planning Division Manager
Address: P.O. Box 910, Prosser WA 99350

Date**: June 3, 2022**

Michelle L. Cooke, Planning Manager

CONDITIONS/MITIGATION MEASURES

File No.: EA 2022-013- Harvest Ridge, Phase 2 Subdivision

Applicant:
Geoff Clark dba Candy Mountain LLC
PO Box 1307
Gig Harbor, WA 98335

Documents and Regulations:

The environment threshold determination and conditions are based on an analysis of information contained in the following documents or the applicable regulations and restrictions of various agencies:

1. Benton County, BCC Title 6.35 Environmental Policy (SEPA);
2. Benton County, BCC Title 11, Zoning;
3. Benton County, BCC Title 9, Subdivisions;
4. Benton County Comprehensive Plan;
5. Benton County, BCC Title 15 Critical Area Ordinance;
6. Benton County, BCC Title 3 Building Code, Fire Code, and Road Standards;
7. Regulations of the Benton Clean Air Agency;
8. Regulations of the Washington State Department of Fish and Wildlife, Department of Transportation, Department of Ecology, Department of Natural Resources and Department of Archaeology and Historic Preservation; and
9. Application submittal materials including a Geotechnical Engineering Report, dated June 14, 2021, Preliminary Storm Drainage Report, dated April 27, 2021, a Transportation Impact Analysis dated March 1, 2022, and SEPA Environmental Checklist dated April 15, 2022.

Findings:

1. Location:
    a. The site is located east of Interstate 82 and north of Reata Road on approximately the northern half of Lot 1 of the plat of the Ridge at Reata West Phase 1, in Section 5, Township 8 North, Range 28 East, W.M. in Richland, WA on parcel number 1-0588-402-0000-052.
2. Benton County, BCC Title 11, Zoning:

a. The zoning designation for the project area is Rural Lands One Acre Zoning District (RL-1). This zoning district has a minimum lot size of one acre; and

b. A single-family home is an allowed use in the RL-1 Zoning District.

3. Benton County, BCC Title 9, Subdivisions:

   a. Applicant has applied for preliminary plat consideration in accordance with BCC 9.05 Preliminary Plats.

4. Benton County Comprehensive Plan:

   a. The property is designated Rural Transition in the Benton County Comprehensive Plan.

5. Benton County, BCC Title 15, Critical Area Ordinance:

   a. Upon completion of a review of BCC Title 15 and the Benton County Critical Area Maps, no designated critical areas have been identified on this property. A critical area report is not required for the processing of a preliminary plat at this location.

   b. Wetlands: None identified.

   c. Critical Aquifer Recharge Area: None identified.

   d. Fish and Wildlife Habitat Conservation Area: None identified.

   e. Frequently Flooded Areas: None identified.

   f. Geologically Hazardous Areas: None identified.

6. The applicant is proposing a preliminary plat with 101 residential lots on 120.90 acres with an average lot size of 1.05 acres (Phase 2).

7. The applicant submitted the following materials for the SEPA review process:

   a. Preliminary Storm Drainage Report, dated April 27, 2021;

   b. Transportation Impact Analysis dated March 1, 2022; and

   c. SEPA Environmental Checklist dated April 15, 2022.

Conditions:

The applicant must complete and comply with the following mitigating conditions for this Mitigated Determination of Non-Significance (MDNS).

1. **Benton County Planning Division**. Meet and comply with BCC Title 9, Subdivisions, including preliminary and final plat requirements, if approved.

   Compliance is required with the following for this project:

   Geotechnical Engineering Report, dated June 14, 2021, Preliminary Storm Drainage Report, dated April 27, 2021, a Transportation Impact Analysis dated March 1, 2022, and SEPA Environmental Checklist dated April 15, 2022.

2. **City of Richland Public Works**. The Leslie/Reata intersection lies within City of Richland. Mitigation proposed in both the Badger Mountain South TIA and the Harvest Ridge TIA is proposed as a roundabout or signal. As expressed in the

Badger Mountain South TIA comments, the City's recommended mitigation is a roundabout with lane configurations requiring modification from the TIA proposed roundabout design. The City concurs with the prorate share of 1.6% for the Harvest Ridge development. The City expects the developer to work with the City to produce a mitigation agreement that will establish their share of the cost this improvement.

The City agrees with pedestrian connectivity that is proposed through the 20' walking trail easements adjacent to Lots 12, 13, 20, and 21. The developer should provide an adequate connection to the sidewalk at the road stubs on the south side of the West Village Phase 5 and 6 plats and not terminate the walking trail at the roadway.

3. **Washington State Department of Ecology**. If the 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.

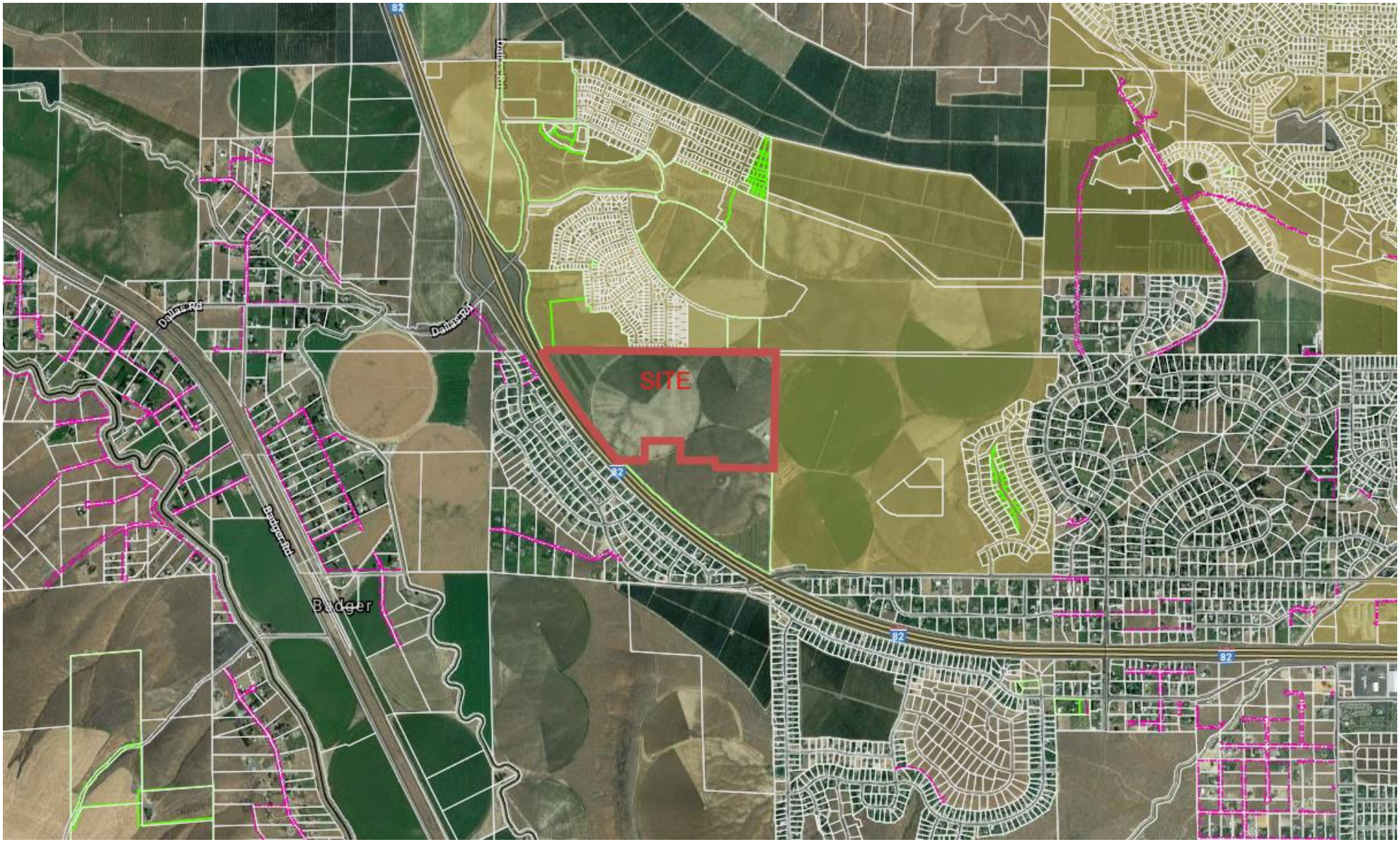
   The permit requires that a Stormwater Pollution Prevention Plan (Erosion Sediment Control Plan) shall be prepared and implemented for all permitted construction sites. These control measures must be able to prevent soil from being carried into surface water and storm drains by stormwater runoff. Permit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

4. **Benton Clean Air Agency**. The Benton Clean Air Agency (BCAA) requires the applicant submit a Proof of Contact: Soil Destabilization Notification for this project prior to any excavation/construction taking place. This will ensure that the proponent has the ability and resources to control fugitive dust emissions that may be created as a result of construction activities. This will also inform them of the regulations and requirements of the BCAA. Additionally, a written dust control plan must be developed and maintained for all soil destabilization projects and must be readily available upon request by the BCAA. Part of this plan is submitting the name of at least one person for the project so that the BCAA has a point of contact should we receive any dust complaints from the project. The Soil Destabilization Notification form can be found and submitted on our website, www.bentoncleanair.org.

5. **State of Washington Department of Transportation.** This residential subdivision adjacent to I-82 increase the likelihood of safety concerns with children and pets. For the safety and security of I-82, the proponent is required to construct a minimum six foot tall fence on their property along the interstate right-of-way. The existing WSDOT fence typically lies one foot inside our boundary and must not be altered or moved without prior WSDOT approval.

Stormwater and surface runoff generated by this project must be retained and treated on site. Any discharge into I-82 right-of-way will require an approved WSDOT Utility Permit.

SUB 2022-001/EA 2022-013 Harvest Ridge Phase 2
April 27, 2022



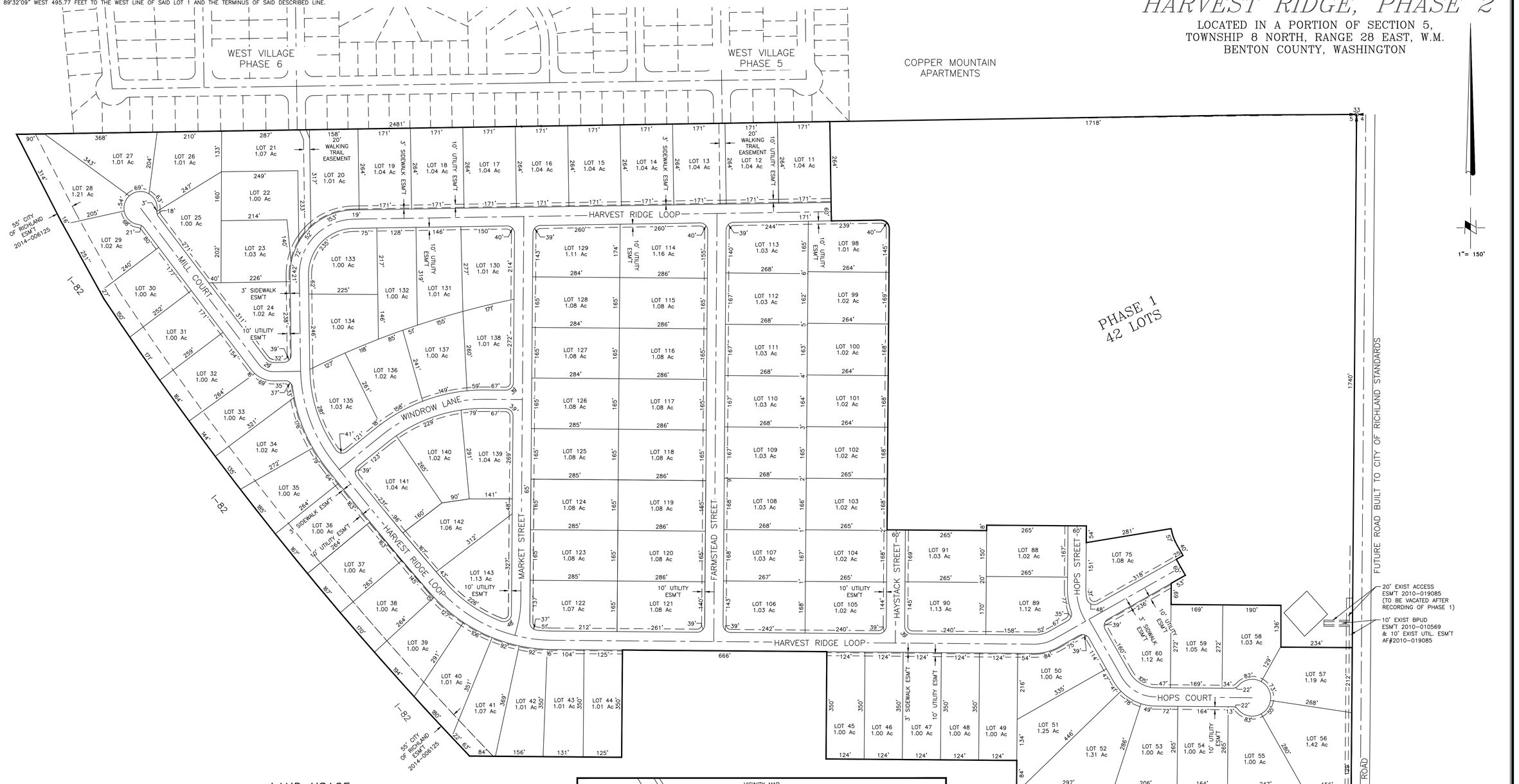
PRELIMINARY PLAT OF HARVEST RIDGE, PHASE 2

LOCATED IN A PORTION OF SECTION 5,
TOWNSHIP 8 NORTH, RANGE 28 EAST, W.M.
BENTON COUNTY, WASHINGTON

LEGAL DESCRIPTION

THAT PORTION OF LOT 1, PLAT OF THE RIDGE AT REATA WEST PHASE 1, ACCORDING TO THE SURVEY THEREOF RECORDED UNDER AUDITOR'S FILE NUMBER 2012-034163, RECORDS OF BENTON COUNTY, WASHINGTON, SITUATE IN SECTION 5, TOWNSHIP 8 NORTH, RANGE 28 EAST, WILLAMETTE MERIDIAN, LYING NORTHERLY OF THE FOLLOWING DESCRIBED LINE:

BEGINNING AT THE NORTHEAST CORNER OF SAID LOT 1 (SAID POINT BEING THE NORTHEAST CORNER OF SAID SECTION 5); THENCE SOUTH 00°27'45" WEST 2200.66 FEET ALONG THE EAST LINE OF SAID LOT 1 TO THE TRUE POINT OF BEGINNING; THENCE NORTH 89°32'10" WEST 1090.85 FEET; THENCE NORTH 00°27'46" EAST 84.01 FEET; THENCE NORTH 89°32'09" WEST 622.28 FEET; THENCE NORTH 0°27'46" EAST 350.00 FEET; THENCE NORTH 89°32'09" WEST 666.37 FEET; THENCE SOUTH 00°27'51" WEST 350.00 FEET; THENCE NORTH 89°32'09" WEST 495.77 FEET TO THE WEST LINE OF SAID LOT 1 AND THE TERMINUS OF SAID DESCRIBED LINE.



DEVELOPER

CANDY MOUNTAIN, L.L.C.
GEOFF CLARK
P.O. BOX 1307
GIG HARBOR, WA. 98335
253-677-3402 (OFFICE)
253-265-3163 (FAX)

OWNER

CANDY MOUNTAIN, L.L.C.
GEOFF CLARK
P.O. BOX 1307
GIG HARBOR, WA. 98335
253-677-3402 (OFFICE)
253-265-3163 (FAX)

PREPARED BY

ROGERS SURVEYING INC.
1455 COLUMBIA PARK TRAIL-STE 201
RICHLAND, WASHINGTON 99352
509-783-4141 (OFFICE)
509-783-2994 (FAX)

LAND USAGE

GROSS PLANNING AREA	=	120.90 ACRES
5,331.05 LINEAR FEET PLAT STREETS	=	15.46 ACRES
NET PLANNING AREA		= 105.44 ACRES

56.84 ACRES X 43560 SQ. FT. / 101 LOTS = 45,601 SQ. FT. = 1.05 ACRES AVERAGE LOT SIZE

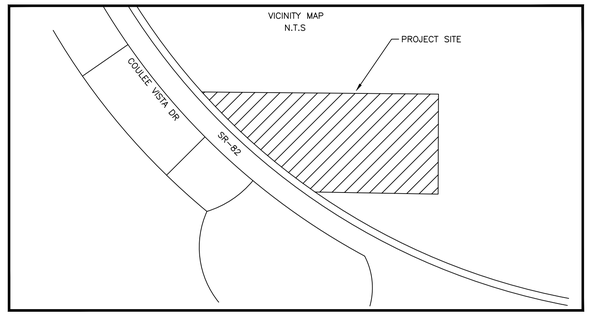
1.25 ACRES LARGEST LOT (51)

1.00 ACRES SMALLEST LOT (43)

ZONING = RURAL LANDS 1

WATER SUPPLY = SUMMIT VIEW WATER WORKS

SEWAGE DISPOSAL = INDIVIDUAL SEPTIC SYSTEMS



DAVID P. BAALIMAN
STATE OF WASHINGTON
PRELIMINARY
REGISTERED PROFESSIONAL LAND SURVEYOR
CERTIFICATE NO. 41028

150 75 0 150 300 450
SCALE IN FEET

SHEET 1 OF 1

ROGERS SURVEYING INC., P.S.
1455 COLUMBIA PARK TRAIL
RICHLAND, WA. 99352
PHONE (509) 783-4141
FAX: (509) 783-8994
www.rogerssurveying.com

11-24-21 DRN BY: DPB/ALM 05520-HR-PH2.DWG

Community Development Department
Prosser Office: 620 Market Street, 1st Floor
Kennewick Office: 102206 East Wiser Parkway
www.co.benton.wa.us

Planning Division
(509) 786-5612
P.O. Box 910, Prosser, WA 99350
planning.department@co.benton.wa.us

PCM 1.11

Notice of Application - Optional DNS Process

Benton County has received a preliminary plat application and environmental checklist for the following project:

Date of permit application: **April 15, 2022**
Date of determination of completeness: **April 27, 2022**
Date of Notice of Application: **April 27, 2022**
Comment due date: **14 days from publication of this notice**
Date of Notice of Application Publication: **May 4, 2022**

Agency Contact: Michelle Cooke, Benton County Planning Manager
michelle.cooke@co.benton.wa.us (509) 786-5612

Agency File Number(s): SUB 2022-001 and EA 2022-013

Project Description: The preliminary plat of Harvest Ridge Phase 2 for a subdivision of 120.90 acres into 101 lots with an average lot size of 1.05 acres.

Project Location: The site is located east of Interstate 82 and north of Reata Road on approximately the west half of the north half of Lot 1 of the plat of the Ridge at Reata West Phase 1, in Section 5, Township 8 North, Range 28 East, W.M. in Kennewick, WA on parcel number 1-0588-402-0000-052.

Project Applicant: Geoff Clark, PO Box 1307, Gig Harbor, WA 98335.

SEPA Environmental Review: The Benton County Planning Division has reviewed the proposed project for probable adverse environmental impacts and expects to issue a Determination of Non-Significance (DNS) or Mitigated Determination of Non-Significance (MDNS). The proposal may include mitigation measures under applicable codes, and the project review process may incorporate or require mitigation measures regardless of whether an EIS is prepared. The optional DNS process in WAC 197-11-355 is being used. This may be your only opportunity to comment on the environmental impacts of the proposed project.

Agencies, tribes, and the public are encouraged to review and comment on the proposed project and its probable environmental impacts. Comments must be submitted 14 days from date of publication to the Benton County Planning Division, P.O. Box 910, Prosser, WA 99350. Any information submitted to Benton County is subject to the public records disclosure law for the State of Washington (RCW Chapter 42.17) and all other applicable law that may require the release of the documents to the public.

Preliminary Development Regulations and Existing Environmental Documents: To evaluate the impacts of the proposed project, the following may be used for mitigation, consistency, and the development of findings and conclusions:

Benton County Code, including BCC Title 15 CAO, BCC Title 6.35 SEPA, Comprehensive Plan, BCC Title 9-Subdivision Regulations, BCC Title 11-Zoning Regulations, Department of Ecology, and the SEPA Environmental Checklist, dated April 15, 2022.

Other required agency evaluations, approvals, permits, and mitigation as necessary.

Required Permits:
Benton County Building Division Grading Permit and other forms, reports, or approvals as necessary.

Required Studies:
Unknown at this time.

This project does require an open record hearing before the Planning Commission and a closed record hearing before the Board of County Commissioners. A copy of the subsequent threshold determination and any other information concerning this action may be obtained by contacting the Benton County Planning Division at P.O. Box 910, Prosser, WA, or (509) 786-5612.

Dated at Prosser, Washington on this 27th day of April 2022.

Michelle Cooke, Planning Manager
Community Development Department

RECEIVED
APR 26 2022
Benton Co. Planning Dept.

A. Background

1. Name of proposed project, if applicable: Cottonwood Creek Phase 4

2. Name of applicant: Badger Properties II: Jerritt Wiser

3. Address and phone number of applicant and contact person:
Coldwell Banker, 8836 Gage Blvd, Suite 101b, Kennewick WA 99336
509-539-6396

4. Date checklist prepared: March 2022

5. Agency requesting checklist: Benton County

6. Proposed timing or schedule (including phasing, if applicable):
Development will occure as soon as approval is granted, in the summer of 2022

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.
No

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.
This SEPA checklist is the only environmental information prepared directly related to this proposal.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.
No

10. List any government approvals or permits that will be needed for your proposal, if known.
Subdivision, SEPA. Civil Plan and Grading permit, USACE Permit for Culvert

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)
The applicant proposes to subdivide this ±25.58 acre site into 13 detached single-family lots.
The average lot size proposed to be +/- 74,923 sq-ft

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

The site is located between railroad and Cottonwood Creek Blvd, north-east of Kash Loop.
It is located in the South 1/2 of Section 11, Township 08N, R 28E of the Willamette Meridian
in Benton County, Washington.

B. Environmental Elements

1. Earth

a. General description of the site:

(circle one): Flat, (rolling), hilly, steep slopes, mountainous, other The site is generally rolling

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

The steepest slope is approximately 13%

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

NCRS Soil: Hezel loamy find sand. Benton County GIS: Warden-Shano-Esquatzel,
Soil will not be removed from the project.

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

There are no surface indications or history of unstable soils in the immediate vicinity.

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

Portions of the site wil be graded to create roadways, utility easements, stormwater facitities, and house foundations and yards.
Approximately 5,000 CY of cut and fill are proposed total. Fill will be from on-site excavation to balance the earthwork.

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

Yes, as with any project that involves earthwork or clearing, erosion could occur during construction. However, appropriate erosion and sedimentation control measures will be implemented during all construction activities.

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

After the homes are built, approximately 19% of the site will be impervious

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

A county approved erosion control plan will be implemented prior to and during all construction acitivites. Likely erosion control

measures will include silt fencing, a gravel construction entrance, and site dewatering, if needed

2. Air

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

During construction, emissions from construction equipment and vehicles will be generated. After completion, emissions from resident automobiles can be anticipated.

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

Automoblie emissions from nearby streets and neigborhoods could affect this site but are not anticipated to have a substantial impact.

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

All construction equipment/vehicle will meet applicable state emission standards. Dust abatement measures will be in place during all construction activities.

3. Water

a. Surface Water:

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

The Badger drain routes through the middle of the project. This is a seasonal drain that recieves rainwater runoff in the winter during large rain events and irrigation return flows in the summer. The Badger drain discharges to the Amon Wasteway.

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

The road will be build across the Badger drain with a culvert. Future development will be located at least 50 ft away from the described waters.

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

Approximately 2050 CY of fill will be placed to support culvert in Badger Drain area

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

the culvert will be installed during dry season and no diversions or withdrawals are anticipated

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

No.

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

No.

b. Ground Water:

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

Yes, the water system that supplies the development, BC Water Co., uses well water as the water source. Water with drawals for the project will be about 253 gallons per lot for domestic water, or about 3,289 gal/day for the 13 lots Irrigation water will also be supply the lots from a well irrigation source. No water will be dischaged to groundwater.

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

Domestic sewer will be discharged into the ground through single lot single family septic drainfields. Each system would infiltrate the domestic water use, or about 250 gallons per lot per day. There will be 13 septic tanks and 13 drainfields serving the proposed 13 homes. Expected number of occupants is 36 persons total in 13 homes

c. Water runoff (including stormwater):

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

Stormwater runoff will be from roads, driveways, roofs, and patios. Stormwater from this project is proposed to be infiltrated on-site.

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

No. Standard erosion control measures will be in place during construction and will prevent waste materials from leaving the site.

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

The existing site runoff was completely discharging into Badger drain. New development will collect runoff from the impervious surface and infiltrate it on site. Adjacent areas to drain will be kept at the same discharge path

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

Installation of detention and infiltration pond, conveyance systems, installation of infiltration trench, and overflow system to Badger Drain.

4. PLANTS

a. Check the types of vegetation found on the site:

____deciduous tree: alder, maple, aspen, other
____evergreen tree: fir, cedar, pine, other
X shrubs
X grass
X pasture
____crop or grain
____ Orchards, vineyards or other permanent crops.
____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
____water plants: water lily, eelgrass, milfoil, other
____other types of vegetation

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

All existing vegetation will be cleared in preparation for development.

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

Ferruginous hawk

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

Street trees will be planted and landscaping will be planted on individual lots by the homeowners.

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

Russian olive

5. ANIMALS

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

Townsend's Ground Squirrel - townsendii

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

None known

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

The entire region is part of the Pacific Flyway.

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

New professional landscaping will occur on the proposed lots and will preserve wildlife that has adapted to the developed environment.

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

None known.

6. Energy and Natural Resources

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

Electricity will be used for power and either electricity or natural gas

will be used for heating

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

No.

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

No special conservation features are proposed.

7. Environmental Health

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

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

None known.

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

None known.

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

Construction vehicle diesel fuel will be stored in the vehicle gas tanks.

4) Describe special emergency services that might be required.

No special emergency services are anticipated, other then those normally associated with residential development of this type and scale.

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

None proposed as no hazards are anticipated.

B. NOISE

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

Noise from nearby streets and residences may affect this site.

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

In the short-term, normal construction noise will be generated during daylight hours. In the long-term, normal residential neighborhood noise will be generated, such as vehicle noise.

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

None proposed. Noise control will be governed by the application stipulations of the Benton County Municipal Code. Work during approved construction hours.

8. LAND AND SHORELINE USE

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

The site is currently unoccupied and have no use. School is located to the north-west, railroad to the east and single home residents to the west

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

N/A

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

No.

c. Describe any structures on the site.

The site is vacant of any structures.

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

No. No structures exist.

e. What is the current zoning classification of the site?

RL-1

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

Rural Transition

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

Not applicable.

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

No. The project is not in a county classified geological hazard area, wellhead protection zone, 100-year flood zone, or other mapping layer on Benton County GIS.

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

Assuming 2.7 people per household, the project will provide housing for 36 people, 2.7*13=35.1

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

No people will be displaced.

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

None needed as no people will be displaced.

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

This project will comply with the zoning ordinance and applicable zoning standards.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

None are proposed.

9. Housing

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

13 middle-income housing units will be provided.

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

No units will be eliminated.

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

None proposed.

10. Aesthetics

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

The future homes will be governed by the development standards within the zoning code, whcih sets a maximum height of 35 ft.

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

No views will be altered or obstructed.

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

The project will meet the height and landscape requirements of the Benton County Municipal Code.

11. Light and Glare

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

Residential lighting and resident vehicle headlights will be produced after dark.

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

No.

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

Lights from adjacent residence and streets will be visable but are not expected to be detrimental to the project.

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

No street lights are proposed.

12. Recreation

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

Cottonwood Elementary School is located directly west of the site

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

No.

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

None proposed.

13. Historic and cultural preservation

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

No.

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

No.

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

County GIS data reviewed.

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

If any archaeological artifacts are discovered during site development,

the appropriate agencies will be notified.

14. TRANSPORTATION

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

Cottonwood Creek Blvd provide access to the site

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

No.

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

Each home will have at least 2-car garage, with room to park 2 or more vehicles in the driveway, so there will be total of at least 52 parking spaces provided. No parking spaces eliminated.

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

Road A, a public road will provide access to the lots within subdivision

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

No.

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

ITE Manual, 9th Edition was used to estimate trips at: 10 trips per single family home, one trip per home in peak pm hour. Therefore 130 daily trips 13 peak hour pm trips.

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

No.

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

Construction of on-site roads to serve the neighborhood.

15. PUBLIC SERVICES

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

Yes. The completed project will require all of the public services listed above.

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

All required impact fees will be paid. New residents will pay taxes that will help fund many of the above listed services.

16. Utilities

a. Circle utilities currently available at the site:
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other water, refuse service, telephone, irrigation, septic system

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

Water: Badger Water, Power: Benton PUD; Telephone: Frontier; Sewer: on site; Gas: CNG

C. Signature

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

Signature: Clayne Wiser

Name of signee Clayne Wiser

Position and Agency/Organization member

Date Submitted:

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

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

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

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

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

Proposed measures to avoid or reduce such increases are:

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

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

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

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

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

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

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

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

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

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

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

Applicant Information:
Badger Properties II
Jerritt Wiser
506-539-6396

Project Information:
Name: Cottonwood Creek Phase 4
Location: South of I-82, East of Badger Road
Description: Lot 34, Cottonwood Creek Phase 4, Quarter SW of Section 11, T08N, R28E, WM, Benton County, Washington

ESA LISTED SALMONIDS CHECKLIST

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

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

1. Are ESA listed salmonids currently present in the watershed in which your project will be?
YES X NO____
Please Describe.

This project is in the Columbia River water shed.

2. Has there ever been an ESA listed salmonid stock present in this watershed?
YES X NO____
Please Describe.

This project is in the Columbia River watershed, which has listed ESA salmonid stock in it.

If you answered "yes" to either of the above questions, you should complete the remainder of this checklist.

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

A1. Name of watershed Upper Mid-Columbia

A2. Name of nearest waterbody Amon Wasteway

A3. What is the distance from this project to the nearest body of water? 1900 ft

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

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

Open space

A5. Is the project above a:

Natural permanent barrier (waterfall)	YES_____	NO_x_____
Natural temporary barrier (beaver pond)	YES_____	NO_x_____
Man-made barrier (culvert, dam)	YES_x_____	NO_____
Other (explain)	Culvert and dam near Gage Blvd.	

A6 If yes, are there any resident salmonid populations above the blockage?

YES____ NO_x_____ Don't Know _____

A 2009 Study (Suitabilty of Amon Wasteway for Salmonid Production, January 2009) determined that Amon wasteway is unlikely to provide suitable salmonid habitat.

A7. What percentage of the project will be impervious surface (including pavement & roof area)?

Approximately 19 % of the developed site will be impervious.

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

B1. Does the project require the withdrawal of

a. Surface water? Yes_____ No_x_____

Amount _____

Name of surface water body_____

b. Ground water? Yes_x_____ No_____

Amount 3,289 gal/day domestic; Apprx. 166 acre-ft/yr irr.

From Where Existing wells located in the vicinity

Depth of well 980 ft (domestic), 250 ft irr.

B2. Will any water be rerouted? YES_____ NO_x_____

If yes, will this require a channel change?

B3. Will there be retention ponds? YES_x_____ NO_____

If yes, will this be an infiltration pond or a surface discharge to either a municipal storm water system or a surface water body?

Infiltration pond with overflow to natural low point. No discharge to a surface water body is proposed.

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

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

Yes, approximately 2050 linear feet of new road will be constructed

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

Driveway culverts and two 6' culverts

B6. Will topography changes affect the duration/direction of runoff flows?
Yes_____ No_x_

If yes describe the changes.

In general, the existing runoff flows from the west , through the project, toward the west and into the Badger Drain. The flow direction and approximat flow duration will be maintained in the developed condition.

B7. Will the project involve any reduction of the floodway or floodplain by filling or other partial blockage of flows? Yes_____ No_x_

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

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

C1. Do you know of any problems with water quality in any of the streams within this watershed? YES_X_ NO____

If yes please describe.
There are fertilizers and pesticides in some of the tributary streams and rivers that flow into the Columbia River.

C2. Will your project either reduce or increase shade along or over a waterbody?
YES____ NO_X_ Removal of shading vegetation or the building of structures such as docks or floats often result in a change in shade.

C3. Will the project increase nutrient loading or have the potential to increase nutrient loading or contaminants (fertilizers, other waste discharges, or runoff) to the waterbody?
YES____ NO_X___

The site is currently unoccupied, in the future it will be residential lawns; fertilizers use is expected to be about the same as existing. In the developed condition, infiltration facilities are proposed to reduce runoff from the project.

C4. Will turbidity be increased because of construction of the project or during operation of the project? In-water or near water work will often increase turbidity. YES____ NO_X_

Culverts across the Badger drain will be constructed in the dry to minimize turbidity

C5. Will your project require long term maintenance, i.e., bridge cleaning, highway salting, chemical sprays for vegetation management, clearing of parking lots?
YES____ NO_X___
Please Describe.

Vegetation: The following questions are designed to determine if the project will affect riparian vegetation, thereby, adversely impacting salmon.

D1. Will the project involve the removal of any vegetation from the stream banks?
YES_x___ NO_____

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

Some vegetation, russian olive, and other dead trees will removed for culvert instllation. Approximately 800 sq-ft of vegetation will be removed.

D2. If any vegetation is removed, do you plan to re-plant? YES____ NO_X___
If yes, what types of plants will you use?

The site is currently unoccupied, after development it will have residential lawns, shrubs, and trees.

FOR OFFICIAL USE ONLY:
Critical Area Review Completed by _____ on _____
Application approved for processing by _____ on _____
Zoning and Comp Plan Designation_____

PCM 1.13

CITY OF RICHLAND
PUBLIC WORKS DEPARTMENT
625 Swift Boulevard, MS-26
Richland, WA 99352
Telephone (509) 942-7500
Fax (509) 942-7468
CI.RICHLAND.WA.US · 509-942-7390

5/25/2022

Michelle Cooke
Assistant Planning Manager, Benton County
620 Market Street
Prosser, WA

RE: SUB 2022-001 Agency Review Packet dated 4/28/2022 – Harvest Ridge Phase 2 Preliminary Plat

The City of Richland Public Works Department has reviewed the updated traffic impact analysis (TIA) for Badger Mountain South (BMS) subarea dated February 16, 2022 and the replacement pages that followed. The TIA for the Badger Mountain South subarea includes the Harvest Ridge development in its overall trip generation and distribution calculation. The mitigation proposed within the Harvest Ridge TIA (dated March 1, 2022) for offsite intersections is a roundabout or signal at Leslie/Reata intersection and cul-de-sac of Arena Road at Dallas Road.

The Dallas/Arena intersection lies within the City of West Richland, so the City of Richland will not comment on the mitigation or proportional share other than it is the desire of West Richland to cul-de-sac Arena Road to avoid intersection failures at Dallas Road and Kennedy Road. Arena Road is a desirable cut-through, but signal or roundabout mitigation would introduce undesired coordination issues the Dallas/Bombing Range/Kennedy intersection and the Kennedy/Keene Intersection.

The Leslie/Reata intersection lies within City of Richland. Mitigation proposed in both the Badger Mountain South TIA and the Harvest Ridge TIA is proposed as a roundabout or signal. As expressed in the Badger Mountain South TIA comments, the City's recommended mitigation is a roundabout with lane configurations requiring modification from the TIA proposed roundabout design. The City concurs with the pro-rata share of 1.6% for the Harvest Ridge development. The City expects the developer to work with the City to produce a mitigation agreement that will establish their share of the cost this improvement.

We agree with pedestrian connectivity that is proposed through the 20' walking trail easements adjacent to Lots 12, 13, 20, and 21. The developer should provide an

adequate connection to the sidewalk at the road stubs on the south side of the West Village Phase 5 and 6 plats and not terminate the walking trail at the roadway.

Thank you for the opportunity to review the preliminary plat for Harvest Ridge Phase 2.

Sincerely,

Carlo D'Alessandro, PE
Transportation and Development Manager

Cc: John Deskins, Traffic Engineer
Jason Reathaford, Engineering Tech 4
Pete Rogalsky, Public Works Director

RECEIVED
MAR 28 2022
Benton Co. Planning Division

PUBLIC HEALTH
Prevent • Promote • Protect
BENTON-FRANKLIN HEALTH DISTRICT

March 22, 2022

Geoff Clark
Candy Mountain LLC
P.O. Box 1307
Gig Harbor, WA 99335

RE: Preliminary Review of Harvest Ridge Phase 2 & 3 Parcel # 1-0588-402-0000-001, Benton County.

Dear Mr. Clark:
This department completed a preliminary plat review on November 24th, 2021, of the above referenced plat proposal. This department has reviewed the above referenced plat in accordance with our current land development policies and requirements for new subdivisions.

This plat is 172.36 acres that will be divided into three (3) phases, Phase 1 consists of 42 lots ranging from 1 acre to 1.81 acres, phase 2 consists of 54 lots ranging from 1 acre to 1.42 acres, and Phase 3 consists of 47 lots ranging from 1 acre to 1.21 acres. Our findings are listed below:

1. The proposed land use is for single family dwellings.
2. Soils encountered throughout the proposed plat area are Type 5 (silt loam).
3. Slopes are variable throughout the plat.
4. Proposed domestic water supply is Badger Mountain Irrigation District.

Findings indicate the above referenced plat generally meets our requirements for plats utilizing onsite sewage disposal systems and an off-site public water supply, provided:

1. The extension to the Badger Mountain Irrigation District must be developed and approved in accordance with WAC 246-290.
2. All lots shall have a minimum of a ½ acre in size and contain a minimum of 20,000 square feet of usable land area.
3. All wells, irrigation lines, canals, and surface waters within 150ft of the plat are shown on the plat map.
4. Prior to final approval, a long plat final review fee (Code 54.37 for $200) must be submitted to this office for the final walk-through review of the plat for compliance with Benton-Franklin Health Department Rules and Regulations No. 2, and WAC 246-272A, and issue appropriate comments to the Benton County Planning Department.

5. Prior to the issuance of any onsite sewage disposal permits, additional test holes may be required to verify acceptable area for initial and replacement sewage disposal system and design criteria such as trench depth on each lot.

6. It is recommended that some provision be made to facilitate future connection to a municipal sewer utility at such time as said utility becomes available.

7. The following statement is placed on the plat:
   "This plat appears to have suitable conditions for the use of on-site sewage disposal systems. However, because of the nature of the testing methods used, we have no way of determining whether each lot can comply with Benton-Franklin Board of Health Rules and Regulation at the time of permit issuance. Further be advised this department's approval of any lot within this plat for the use of on-site sewage disposal systems may be contingent upon that lot passing additional soil inspections, percolation tests, and/or other requirements at a later date."

This recommendation is based on present known site conditions and does not guarantee the granting of an on-site sewage disposal permit. Our approval of any lot within this plat may be contingent upon that lot passing additional soil inspections/percolation tests, and/or other requirements at a later date. Should adverse site conditions be revealed at a later date, the Health Department reserves the right to impose restrictions or deny the issuance of any on-site sewage disposal permit.

Your application will be held in an active state until March 22, 2023, at which time the submittal will be deemed null and void should this proposal not be developed by that time.

If you have any questions, please contact me at the Health Department at (509) 460-4335.

Sincerely,

Rebecca Warrington
Environmental Health Specialist I

CC: Rogers Surveying Inc.; Benton County Planning Department

Washington State Department of Transportation

South Central Region
2809 Rudkin Road
Union Gap, WA 98903-1648
509-577-1600 / FAX: 509-577-1603
TTY: 1-800-833-6388
www.wsdot.wa.gov

May 18, 2022

Benton County Community Development Department
620 Market Street
Prosser, WA 99350

Attn: Michelle Cooke, Assistant Planning Manager

RE: SUB 2022-001 – Harvest Ridge Phase 2
I-82 milepost 105 Lt vicinity

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

- The subject property is adjacent to Interstate 82 (I-82), a fully controlled limited access facility with a posted speed limit of 70 miles per hour. WSDOT has acquired all access rights to I-82. Direct access to the interstate is prohibited.
- I-82 is an existing facility and the applicant is proposing a more noise-sensitive land use. The proponent and future residents should be aware this is an area with existing traffic noise. They should also expect traffic noise to continue to grow into the future. Further, as an essential public facility, I-82 may need to be expanded to accommodate future traffic growth. It is the developer's responsibility to dampen or deflect any traffic noise for this development.
- This residential subdivision adjacent to I-82 increase the likelihood of safety concerns with children and pets. For the safety and security of I-82, the proponent is required to construct a minimum six foot tall fence on their property along the interstate right-of-way. The existing WSDOT fence typically lies one foot inside our boundary and must not be altered or moved without prior WSDOT approval.
- Stormwater and surface runoff generated by this project must be retained and treated on site. Any discharge into I-82 right-of-way will require an approved WSDOT Utility Permit.
- Any proposed lighting must be directed down towards the site and away from I-82.

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

Paul Gonseth, P.E.
Region Planning Engineer

PG: jjp

cc: SR 82, File #2022_015

Donna Hutchinson

From: Tina Glines <glinest@bentonpud.org>
Sent: Wednesday, May 18, 2022 12:13 PM
To: Donna Hutchinson
Subject: [EXTERNAL] RE: [E] Agency Review for the Preliminary Plat of Harvest Ridge Phase 2

EXTERNAL EMAIL WARNING!!!: This email originated from outside of Benton County. DO NOT click links or open attachments unless you recognize the sender and know the content is safe.

Benton PUD will need to coordinate with the City of Richland with a request to utilize a portion of their 55' easement along I-82. We will also require a 10' utility easement along the property line between lots 28 & 29.

Thank you,

Tina Glines
Distribution Design Technician
(509) 582-1241

From: Donna Hutchinson <Donna.Hutchinson@co.benton.wa.us>
Sent: Thursday, April 28, 2022 3:52 PM
To: Fire District #1-Billie <billie@bentonone.org>; Fire District #1-Staff <staff@bentonone.org>; School District # 17-Ryan Jones <Ryan.Jones@ksd.org>; Benton Clean Air - Noah Lee <noah.lee@bentoncleanair.org>; john.lyle@bentoncleanair.org; Benton Clean Air-Priddy <robin.priddy@bentoncleanair.org>; Benton Clean Air-Tyler Thompson <tyler.thompson@bentoncleanair.org>; Benton-Franklin Dist. Health Dept. <rickd@bfhd.wa.gov>; Dept. of Transportation (scplanning@wsdot.wa.gov) <scplanning@wsdot.wa.gov>; City of Richland-Mike Stevens (mstevens@ci.richland.wa.us) <mstevens@ci.richland.wa.us>; Cascade Natural Gas (Walter.Nelson@cngc.com) <Walter.Nelson@cngc.com>; Natural Resources Conservation Service <ray.gekosky@wa.usda.gov>; US Postal Service (ina.n.beutler@usps.gov) <ina.n.beutler@usps.gov>; US Postal Service - Address Management System <Tina.C.Fisher@usps.gov>; WA Dept of Health - Kelly Cooper - WA Dept of Health - Kelly Cooper (SEPA.reviewteam@doh.wa.gov) <SEPA.reviewteam@doh.wa.gov>; Cristina Woods <Cristina.Woods@co.benton.wa.us>; Ben Franklin Transit - B. Windler <bwindler@bft.org>; Ben Franklin Transit K. McMullen <KmcMullen@bft.org>; Ben Franklin Transit - Bill Barlow (bbarlow@bft.org) <bbarlow@bft.org>; Southeast Communication Center (k.lettrick@bces.wa.gov) <k.lettrick@bces.wa.gov>; Badger Mountain Irrig. District (bmidmanager@badgermountainirrigation.com) <bmidmanager@badgermountainirrigation.com>; mike.j.maughn@gmail.com; Clark Posey <Clark.Posey@co.benton.wa.us>; Mosquito Control (admin@mosquitocontrol.org) <admin@mosquitocontrol.org>; GIS <GIS@co.benton.wa.us>; Kirk Rathbun <k2rathbun@gmail.com>; ASSESSOR <Assessor@co.benton.wa.us>; PARKS <PARKS@co.benton.wa.us>; Kathy Mann <Kathy.Mann@co.benton.wa.us>; Chad Brooks <brooksc@bentonpud.org>; Mike Irving <irvingm@bentonpud.org>; Shanna Everson <eversons@bentonpud.org>; Tina Glines <glinest@bentonpud.org>
Subject: [E] Agency Review for the Preliminary Plat of Harvest Ridge Phase 2

[EXTERNAL EMAIL]

The Planning Division has prepared an Agency Review Packet for the preliminary plat of Harvest Ridge Phase 2. Attached is the packet for your review and comment by **May 18, 2022.** If you have any questions please contact our office.

Donna Hutchinson
Office Assistant IV
Community Development Dept.
Planning Division
PO Box 910 Prosser WA 99350
(509) 786-5612

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Prosser: We are now located within the Road Department/Public Works Office on the first floor of the Benton County Courthouse at 620 Market St, Prosser WA 99350. **Kennewick:** The County has opened a new Public Services Office at 102206 E Wiser Parkway, Kennewick, which houses the Planning, Building and Road Departments.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Central Region Office
1250 West Alder St., Union Gap, WA 98903-0009 • 509-575-2490

May 17, 2022

Donna Hutchinson
Benton County Planning
PO Box 910
Prosser, WA 99350

Re: SEPA Register 202202055, EA 2022-013, SUB 2022-001

Dear Donna Hutchinson:

Thank you for the opportunity to comment during the Optional Determination of Non Significance process for the Harvest Ridge Phase 2 development, proposed by Geoff Clark. We have reviewed the documents and have the following comments.

WATER QUALITY

Project with Potential to Discharge Off-Site
If the 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.

WATER RESOURCES

Dust Control from a Well

If the applicant plans to use water for dust suppression at your project site, be sure that they have a legal right. In Washington State, prospective water users must obtain authorization from the Department of Ecology before diverting surface water or withdrawing ground water, with one exception. Ground water withdrawals of up to 5,000 gallons per day used for single or group domestic supply, up to 5,000 gallons per day used for industrial purposes, stock watering, and for the irrigation of up to one-half acre of non-commercial lawn and garden are exempt from the permitting process. Water use under the RCW 90.44.050 exemption establishes a water right that is subject to the same privileges, restrictions, laws and regulations as a water right permit or certificate obtained directly from Ecology.

Temporary permits may be obtainable in a short time-period. The concern of Water Resources is for existing water rights. In some instances water may need to be obtained from a different area and hauled in or from an existing water right holder.

If you have any questions or would like to respond to these Water Resources comments, please contact **Christopher Kossik** at (509) 454-7872 or email at christopher.kossik@ecy.wa.gov .

Sincerely,

Gwen Clear

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

Donna Hutchinson

From: Rebecca Warrington <rebeccaw@bfhd.wa.gov>
Sent: Tuesday, May 17, 2022 4:31 PM
To: Donna Hutchinson
Subject: [EXTERNAL] RE: Agency Review for the Preliminary Plat of Harvest Ridge Phase 2

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Good afternoon Donna,

This plat generally meets our requirements for lots with single family homes that utilize septic systems and wells.

Thank you,

Rebecca Warrington
Environmental Health Specialist
Land Use, Sewage and Water Section

Benton-Franklin Health District
7102 W. Okanogan Place
Kennewick, WA 99336
p: 509.460.4335
www.bfhd.wa.gov rebeccaw@bfhd.wa.gov

Follow us on

NEW! I would appreciate your feedback on my service today. Please complete a eulh#vxuyh|#
Thank you!

From: Rick Dawson <Rickd@bfhd.wa.gov>
Sent: Monday, May 9, 2022 8:42 AM
To: Rebecca Warrington <rebeccaw@bfhd.wa.gov>; Justin Gerber <justing@bfhd.wa.gov>
Subject: FW: Agency Review for the Preliminary Plat of Harvest Ridge Phase 2

James R.(Rick) Dawson
Sr. Manager – Surveillance & Investigation

Benton-Franklin Health District
7102 W. Okanogan Place,
Kennewick, WA 99336
p: 509.460.4313
f: 509.585.1537
Pronouns; he/him
www.bfhd.wa.gov rickd@bfhd.wa.gov

Follow us on

NEW! I would appreciate your feedback on my service today. Please complete a eulh#vxuyh|#
Thank you!

From: Donna Hutchinson <Donna.Hutchinson@co.benton.wa.us>
Sent: Thursday, April 28, 2022 3:52 PM
To: Fire District #1-Billie <billie@bentonone.org>; Fire District #1-Staff <staff@bentonone.org>; School District # 17-Ryan Jones <Ryan.Jones@ksd.org>; Benton Clean Air - Noah Lee <noah.lee@bentoncleanair.org>; john.lyle@bentoncleanair.org; Benton Clean Air-Priddy <robin.priddy@bentoncleanair.org>; Benton Clean Air-Tyler Thompson <tyler.thompson@bentoncleanair.org>; Rick Dawson <Rickd@bfhd.wa.gov>; Dept. of Transportation (scplanning@wsdot.wa.gov) <scplanning@wsdot.wa.gov>; City of Richland-Mike Stevens (mstevens@ci.richland.wa.us) <mstevens@ci.richland.wa.us>; Cascade Natural Gas (Walter.Nelson@cngc.com) <Walter.Nelson@cngc.com>; Natural Resources Conservation Service <ray.gekosky@wa.usda.gov>; US Postal Service (ina.n.beutler@usps.gov) <ina.n.beutler@usps.gov>; US Postal Service - Address Management System <Tina.C.Fisher@usps.gov>; WA Dept of Health - Kelly Cooper - WA Dept of Health - Kelly Cooper (SEPA.reviewteam@doh.wa.gov) <SEPA.reviewteam@doh.wa.gov>; Cristina Woods <Cristina.Woods@co.benton.wa.us>; Ben Franklin Transit - B. Windler <bwindler@bft.org>; Ben Franklin Transit K. McMullen <KmcMullen@bft.org>; Ben Franklin Transit - Bill Barlow (bbarlow@bft.org) <bbarlow@bft.org>; Southeast Communication Center (k.lettrick@bces.wa.gov) <k.lettrick@bces.wa.gov>; Badger Mountain Irrig. District (bmidmanager@badgermountainirrigation.com) <bmidmanager@badgermountainirrigation.com>; mike.j.maughn@gmail.com; Clark Posey <Clark.Posey@co.benton.wa.us>; Mosquito Control (admin@mosquitocontrol.org) <admin@mosquitocontrol.org>; GIS <GIS@co.benton.wa.us>; Kirk Rathbun <k2rathbun@gmail.com>; ASSESSOR <Assessor@co.benton.wa.us>; PARKS <PARKS@co.benton.wa.us>; Kathy Mann <Kathy.Mann@co.benton.wa.us>; Benton PUD-Chad Brooks <Brooksc@bentonpud.org>; Benton PUD-Mike Irving <irvingm@bentonpud.org>; Benton PUD-Shanna Everson <eversons@bentonpud.org>; Benton PUD-tina Glines (glinest@bentonpud.org) <glinest@bentonpud.org>
Subject: Agency Review for the Preliminary Plat of Harvest Ridge Phase 2

The Planning Division has prepared an Agency Review Packet for the preliminary plat of Harvest Ridge Phase 2. Attached is the packet for your review and comment by **May 18, 2022.** If you have any questions please contact our office.

Donna Hutchinson
Office Assistant IV
Community Development Dept.
Planning Division
PO Box 910 Prosser WA 99350
(509) 786-5612

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Prosser: We are now located within the Road Department/Public Works Office on the first floor of the Benton County Courthouse at 620 Market St, Prosser WA 99350. **Kennewick:** The County has opened a new Public Services Office at 102206 E Wiser Parkway, Kennewick, which houses the Planning, Building and Road Departments.

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BENTON CLEAN AIR AGENCY

May 17, 2022

Re: SUB 2022-001

Donna Hutchinson
Office Assistant IV
PO Box 910
Prosser, WA 99350

Applicant/Proponent:
Attn: Geoff Clark
P.O. Box 1307
Gig Harbor, WA 98335

Dear Ms. Hutchinson:

It has come to our attention that you are reviewing a proposal for the above named applicant in which a parcel or parcels will be disturbed for development. Because these activities may cause possible fugitive dust emissions, we would like to take this opportunity to provide information to ensure that the applicant takes reasonable steps to control the dust from his/her project.

The Benton Clean Air Agency (BCAA) requires the applicant submit a Proof of Contact: Soil Destabilization Notification for this project prior to any excavation/construction taking place. This will insure that the proponent has the ability and resources to control fugitive dust emissions that may be created as a result of construction activities. This will also inform them of the regulations and requirements of the BCAA. Additionally, a written dust control plan must be developed and maintained for all soil destabilization projects, and must be readily available upon request by the BCAA. Part of this plan is submitting the name of at least one person for the project so that the BCAA has a point of contact should we receive any dust complaints from the project. The Soil Destabilization Notification form can be found and submitted on our website, www.bentoncleanair.org.

Thank you for the opportunity to comment on this proposal. If you have any questions, or would like further information on this subject, please contact us at (509) 783-1304.

Sincerely,

Noah Lee

Noah Lee
Inspector

Donna Hutchinson

From: BMID Manager <bmidmanager@badgermountainirrigation.com>
Sent: Tuesday, May 17, 2022 1:39 PM
To: Donna Hutchinson
Subject: [EXTERNAL] RE: Agency Review for the Preliminary Plat of Harvest Ridge Phase 2

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Donna,

One note would be the construction plans will need to be approved by the Washington State Department of Health before we can approve it to move forward once we are satisfied with the plan. This is due to our Water System Plan being in the process of approval. Just want everyone to be clear on that from our side of things.

Other than that BMID does not have any other comments.

Thanks

Colby Getchell
District Manager
bmidmanager@badgermountainirrigation.com
Badger Mountain Irrigation District
87525 E. Reata Rd.
Kennewick, WA 99338
509-531-2938 (Cell)
509-628-0777 (Office)
509-628-0112 (Fax)

When the well is dry,
we will know the
worth of water.
-Benjamin Franklin

From: Donna Hutchinson
Sent: Tuesday, May 17, 2022 1:10 PM
To: Fire District #1-Billie ; Fire District #1-Staff; School District # 17-Ryan Jones; Benton Clean Air - Noah Lee; john.lyle@bentoncleanair.org; Benton Clean Air-Priddy; Benton Clean Air-Tyler Thompson; Benton-Franklin Dist. Health Dept.; Dept. of Transportation (scplanning@wsdot.wa.gov); City of Richland-Mike Stevens (mstevens@ci.richland.wa.us); Cascade Natural Gas (Walter.Nelson@cngc.com); Natural Resources Conservation Service; US Postal Service (ina.n.beutler@usps.gov); US Postal Service - Address Management System; WA Dept of Health - Kelly Cooper - WA Dept of Health - Kelly Cooper (SEPA.reviewteam@doh.wa.gov); Ben Franklin Transit - B. Windler; Ben Franklin Transit K. McMullen; Ben Franklin Transit - Bill Barlow (bbarlow@bft.org); Southeast Communication Center (k.lettrick@bces.wa.gov); BMID Manager; mike.j.maughn@gmail.com; Clark Posey; Mosquito Control (admin@mosquitocontrol.org); GIS; Kirk Rathbun; ASSESSOR; PARKS; Kathy Mann; Benton PUD-Chad Brooks; Benton PUD-Mike Irving; Benton PUD-Shanna Everson; Benton PUD-tina Glines (glinest@bentonpud.org); Dept. of Archaeology and Historic Preservation - SEPA Review (sepa@dahp.wa.gov)
Cc: cdalessandro@ci.richland.wa.us; WA Dept of Transportation - Paul Gonseth; Dept. of Transportation-Jacob Prilucik; JReathaford@ci.richland.wa.us; jdeskins@ci.richland.wa.us; PRogalsky@ci.richland.wa.us
Subject: RE: Agency Review for the Preliminary Plat of Harvest Ridge Phase 2

BENTON COUNTY WA

PUBLIC WORKS DEPARTMENT

TO: PLANNING DEPARTMENT

FROM: CRISTINA WOODS

DATE:5/11/2022

SUBJECT: PRELIMINARY PLAT – SUB 2022-001 HARVEST RIDGE PHASE 2

Please add the following as conditions of final approval for the above reference plat:

1. The developer shall provide a complete set of engineered construction drawings for review and approval by the County and associated utilities. The drawings shall contain all appropriate information listed on the attached Minimum Plan Requirements. Grading plan will include grading to shape any drainage easements to route and fully contain all runoff based upon the 100-year storm within the easement limits. All plans and associated reports shall be prepared by a Professional Engineer licensed to practice in the State of Washington

2. All construction shall be in accordance with the most current WSDOT Standard Specifications for Road, Bridge and Municipal Construction, applicable Benton County Standard Plans and the requirements of the County Engineer

3. All roads within this plat shall have a paved width of 24 feet with a minimum 2-foot gravel shoulder. Roadways shall be designed for a minimum 25 mile per hour design speed

4. The pavement return radius at all intersections shall be a minimum of 35 feet

5. All stormwater from the roadways shall be contained on the plat and shall utilize surface infiltration (ditches, swales, ponds) for detention. The developer shall have an infiltration test performed at each proposed detention area. Tests shall be done with an infiltrometer using the falling head or constant head method. Other methods of infiltration rate determination shall be approved by the County.

6. The developer shall provide a complete stormwater runoff report developed in accordance with the Stormwater Management Manual for Eastern Washington accosting for all impervious and pervious surfaces draining to the roadside ditches. Design storm shall be a Modified SCS Type IA with a 25-year return frequency.

7. All signage including but not limited to stop signs, speed limit signs and street name signs shall be installed by the developer in accordance with Benton County Standard Plans

8. All new power, telephone, cable TV and irrigation shall be installed outside of the County right of way in the appropriate easements. Domestic water piping may be installed within the County right of way in accordance with a valid franchise agreement

9. Survey monuments, with cases and covers per Benton County Standard R-14B, shall be placed at all road intersections, points of curvature, points of tangency, centers of cul-de-sacs, section corners and quarter corners. All monuments shall be set by a Professional Land Surveyor licensed to practice in the state of Washington

10. The 6' sidewalk easement shall be paved with cement concrete to match phase 1

11. Provide cross walks for the sidewalk at every road crossing

12. Mitigate the pathway/sidewalk crossing over the County ditch

13. Approval of final plat is contingent on the construction of the City Road A in the BMS-South Orchard subdivision, and access to E Reata Road

14. Lots 22 and 21 shall have a joint access. This access shall be paved as a condition of plat approval using Benton County Standard R-4 (urban local access cross section)

15. The joint access on lot 21 & 22 shall be perpendicular to Harvest Ridge

Add the following notes to the face of the final plat

1. Benton County is not responsible for the maintenance or upkeep of any stormwater retention facility or drainage easements. All such maintenance and upkeep are the responsibility of the underlying property owner.

2. Road approaches shall not be permitted directly across roadway tee intersections

3. Prior to the construction of any driveway or the issuance of any building permit for any lot within this subdivision the property owner shall obtain a Road Approach Permit from the Benton County Public Works Department and install the required temporary construction access

4. No trees, shrubs, weeds, fencing or other obstructions more than 24 inches in height are permitted within Benton County right of way

5. Property owners that install grass, curbing, rock mulch or other landscaping within the County right of way do so at their own risk. The County will not repair or replace damaged landscaping due to construction or maintenance operations

6. Property owners with sidewalk abutting their property shall be responsible for the maintenance of said sidewalk

7. Lots 24, 33, 50, 60, 75, 90, 98, 105, 106, 113, 114, 121, 122, 129,130, 133, 135, 141 and 143 shall not have direct access to Harvest Ridge Loop

Community Development
Building Division
102206 E. Wiser Parkway
Kennewick, WA 99338

Fire Marshal
Clark A. Posey
(509) 735-3500
Clark.Posey@co.benton.wa.us

May 2, 2022

PCM 1.22

Fire Marshal Comments for Harvest Ridge Subdivision:

RE: Plat Review of Harvest Ridge (SUB 2022-001) 143 total lots.

3.18.030 PROCEDURE FOR COMPLIANCE. The following shall be required for all subdivisions, short plat subdivisions, Manufactured Home/FAS parks, recreational vehicle parks, and commercial and industrial areas not exempt under the provisions of BCC 3.18.025:

(a) Subdivisions:

(1) Prior to preliminary plat approval, the applicant shall submit to the Benton County Fire Marshal a letter from the water purveyor addressing its willingness and ability to satisfy the requirements of this chapter.

(2) Prior to final plat approval, the following shall be required:

(i) Water system plans and specifications which comply with these regulations must be designed and stamped by a registered, professional engineer licensed in the State of Washington. Said plans shall be signed by the purveyor and shall be filed with the Benton County Fire Marshal and the Department of Health.

(ii) Water system plans shall be approved in writing by the Benton County Fire Marshal.

(iii) The approved water system shall be installed prior to final plat approval, or a statement shall be placed on the plat indicating no building or Manufactured Home/FAS installation permit will be issued until the water system is installed, operating and approved.

(iv) Two (2) copies of the "as built" drawings filed with the Benton County Fire Marshal.

(3) When the distribution system is installed, said installation must be under the direction of a registered, professional engineer licensed in the State of Washington who shall certify the construction of the system is in accordance with the approved design.

(4) Written approval from the Benton County Fire Marshal that the system is operating to specifications shall be submitted.

3.18.035 WATER SYSTEM REQUIREMENTS--WATER MAINS. (a) New or replaced water mains shall be a minimum of eight (8) inches in diameter for dead ends and six (6) inches in diameter for circulating mains (grid or loop systems), provided that for dead-end cul-de-sacs a six (6) inch diameter main need only extend to the last required fire hydrant if the distance is three hundred (300) feet or less, otherwise, an eight (8) inch diameter main is required to the last required hydrant. Normal domestic lines may be installed thereafter to the remaining residences. Hydrant leads less than fifty (50) feet may be six (6) inches in diameter. A dead-end main which extends across a street only for the purpose of serving a hydrant shall be of a size capable of providing the required fire flow, but it shall not be less than six (6) inches in diameter.

All mains shall have hydrants and/or tees and valves installed to conform with this regulation.

(b) The water system shall be capable of delivering the required fire flow at a minimum hydrant pressure of 20 psi while maintaining normal system peak instantaneous demands. Higher minimum flows may be required by the Benton County Fire Marshal for multiple family residences and/or non-residential uses.

(c) Water mains shall conform to current A.W.W.A. specifications.

3.18.036 WATER SYSTEM REQUIREMENTS--FIRE HYDRANTS--GENERAL STANDARDS. Fire hydrants shall meet the following standards.

(a) Fire hydrants shall conform to current A.W.W.A. Specifications for traffic model fire hydrants and shall have one hundred fifty (150) psi working pressure and three hundred (300) pounds hydrostatic test, 1 - 5 1/4" main valve opening, 1 - 4 " NST pumper port that is fitted, when required by the respective Fire District, with a Storz adapter that complies with the Fire District requirements, two (2) - 2 " NST hose port, and one (1)- " pentagon operating nut - open left. Compression type opens against pressure main valve and will remain closed should the hydrant be broken off by a traffic accident. Hydrant shoe or inlet may be flanged, AC pipe or mechanical joint. Hydrant to be furnished with two (2) drain ports to insure rapid and complete drainage of hydrant barrel to eliminate all danger to damage by freezing.

(b) There shall be an auxiliary gate valve installed to permit the repair and replacement of the hydrants without disruption of water service. Gate valves shall be in conformance with the latest specifications of A.W.W.A. and be iron body, bronze mounted with two (2) inch square operating nuts that open left. End styles shall be flanged, mechanical joint or ring-tite. Valve boxes shall be sliding type with pick type lids.

(c) Hydrants shall stand plumb and be set to the finished grade. The bottom of the lowest outlet of the hydrant shall be no less than twenty-four (24) inches above the grade. There shall be thirty-six (36) inches of clear area about the hydrant for operation of a hydrant wrench on the outlets and on the control valve. The pumper port shall face the street. Where the street cannot be clearly defined or recognized, the port shall face the most likely route of approach and the location of the fire truck while pumping, as determined by the Benton County Fire Marshal.

(d) Hydrants shall not be obstructed by any structure or vegetation, or have any visibility impaired for fifty (50) feet in the direction of vehicular approach to the hydrant.

(e) Hydrants are to be always accessible by fire department pumpers trucks and equipment.

(f) Fire hydrants subject to vehicle damage (i.e., those located in parking lots) shall be adequately protected.

(g) All hydrants shall be subject to testing and inspection by the Benton County Fire Marshal, subject to reasonable notice and scheduling with the purveyor.

3.18.037 WATER SYSTEM REQUIREMENTS--FIRE HYDRANTS--LOCATION AND SPACING.

(a) Location of hydrants shall be determined by the Benton County Fire Marshal.

(b) The location of all water mains, fire hydrants, and valves to be installed shall be properly and accurately marked on identifiable plans or drawings. Two (2) copies of all plans or drawings shall be furnished to the Benton County Fire Marshal.

(c) Fire hydrant spacing. The table below specifies the maximum permissible spacing between hydrants:

Type of Development	Hydrant Spacing**
Subdivisions, short plat subdivisions – limited to one (1) family dwellings	600 feet
Multiple family dwellings – Eight (8) or less units per acre	600 feet
Manufactured Home/FAS parks and recreational vehicle parks	600 feet
Multiple family dwellings – Nine (9) or more units per acre, commercial, industrial, hospitals, schools	300 feet

**Spacing shall be measured along the pathway which a fire department would have to route a fire hose. This pathway shall be as determined by the Benton County Fire Marshal.

3.18.038 WATER SYSTEM REQUIREMENTS--FIRE HYDRANTS-- MAINTENANCE.

(a) The Fire Marshal may, after notifying purveyor, test hydrants for flow capability.

(b) Purveyor will maintain working parts of hydrants above ground, including keeping brush and other physical obstructions from blocking access to, or operation of, hydrants.

(c) The Fire Marshal may check operation of hydrants and notify purveyor of any malfunction or leaking which will require correction.

(d) Purveyor will notify the Fire Marshal of any hydrant installation. Said notification will state whether or not all hydrants have the minimum fire flow.

(e) Purveyor will respond as expeditiously as possible when notified of a malfunction of a hydrant and will affect repair in a workmanlike manner.

3.18.039 WATER SYSTEM REQUIREMENTS--MINIMUM FIRE FLOW REQUIREMENTS.

(a) The minimum fire flow requirements for single family residences shall be five hundred (500) gallons per minute for 30 minutes at 20 psi residual pressure at all hydrants.

(b) The minimum fire flow for duplexes, multiple family residences, commercial, industrial, schools, hospitals, etc. will be determined by the Benton County Fire Marshal or designee. The Fire Marshal or designee may refer to NFPA 1142 Standard on Water Supplies for Suburban and Rural Fire Fighting and other pertinent information in making such determination.

3.18.040 PURVEYOR REQUIREMENTS.

All purveyors shall continuously supply water at or above the minimum flow requirements specified herein; provided that the purveyor need not comply with these requirements in the event of vandalism, acts of God, loss of power and temporary shutdown for repairs and/or replacement. The Benton County Fire Marshal shall be notified by the purveyor at least twenty-four (24) hours prior to any shutdown for repairs and/or replacement.

3.18.036 WATER SYSTEM REQUIREMENTS--FIRE HYDRANTS--GENERAL STANDARDS. **Fire hydrants shall meet the following standards.**

(a) Fire hydrants shall conform to current A.W.W.A. Specifications for traffic model fire hydrants, 150 psi working pressure, 300 pounds hydrostatic test, 1 - 5 1/4" main valve opening, 1 - 4 2" NST pumper port that is fitted, when required by the respective Fire District, with a Storz adapter that complies with the Fire District requirements, two (2) - 2 2" NST hose port, and one (1)- 2" pentagon operating nut - open left. Compression type opens against pressure main valve and will remain closed should the hydrant be broken off by a traffic accident. Hydrant shoe or inlet may be flanged, AC pipe or mechanical joint. Hydrant to be furnished with two (2) drain ports to insure rapid and complete drainage of hydrant barrel to eliminate all danger to damage by freezing. The requirements of the Benton County Planning Dept. and the Benton County Engineer shall be met before final approval and recording of the plat.

(b) There shall be an auxiliary gate valve installed to permit the repair and replacement of the hydrants without disruption of water service. Gate valves shall be in conformance with the latest specifications of A.W.W.A. and be iron body, bronze mounted with two (2) inch square operating nuts that open left. End styles shall be flanged, mechanical joint or ring-tite. Valve boxes shall be sliding type with pick type lids.

(c) Hydrants shall stand plumb and be set to the finished grade. The bottom of the lowest outlet of the hydrant shall be no less than twenty-four (24) inches above the grade. There shall be thirty-six (36) inches of clear area about the hydrant for operation of a hydrant wrench on the outlets and on the control valve. The pumper port shall face the street. Where the street cannot be clearly defined or recognized, the port shall face the most likely route of approach and the location of the fire truck while pumping, as determined by the Benton County Fire Marshal.

(d) Hydrants shall not be obstructed by any structure or vegetation, or have a visibility impaired for a distance of fifty (50) feet in the direction of vehicular approach to the hydrant.

(e) Hydrants are to be accessible for fire department pumpers.

(f) Fire hydrants subject to vehicle damage (i.e., those located in parking lots) shall be adequately protected.

(g) All hydrants shall be subject to testing and inspection by the Benton County Fire Marshal, subject to reasonable notice and scheduling with the purveyor.

When laying out the hydrant system additional consideration should be given to the placement of the hydrants so to not limit the ability of homeowner's construction or placement of their driveways (singular or horseshoe style). The 600 feet separation may be adjusted less than the 600 feet, but no more than the 600 feet maximum distance.

Clark A. Posey,
Benton County Fire Marshal

Just a reminder that comments are due soon on this application. So if you haven't already commented please do so as soon as possible. Thank You.

If you have any questions please contact our office.

Donna Hutchinson
Office Assistant IV
Community Development Dept.
Planning Division
PO Box 910 Prosser WA 99350
(509) 786-5612

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Donna Hutchinson

From: GIS
Sent: Friday, April 29, 2022 8:58 AM
To: Donna Hutchinson
Cc: Michelle Cooke; Cristina Woods
Subject: RE: Agency Review for the Preliminary Plat of Harvest Ridge Phase 2

Good Morning Donna,

It seems a road was missed.

Market St cannot be used. It is already in use in the both Benton and Franklin County and BCES has required we do not repeat names across both counties. I noted this in the first review in July last year but I guess I should have still mentioned it when the Maize St and Ct issue came up. They will need to provide 3 different names GIS can review before we are able to approve it.

Hops St and Hops Ct were used to replace Maize St and Ct. If planning and roads is ok with the names repeating right next to each other, I won't go further on this issue as we do not have a set policy in place yet.

Thank you!

Very Respectfully,
Caleb Kaufmann, GIS Tech II
Benton County Information Technology
Office: 509-786-5485

From: Donna Hutchinson <Donna.Hutchinson@co.benton.wa.us>
Sent: Thursday, April 28, 2022 3:52 PM
To: Fire District #1-Billie <billie@bentonone.org>; Fire District #1-Staff <staff@bentonone.org>; School District # 17-Ryan Jones <Ryan.Jones@ksd.org>; Benton Clean Air - Noah Lee <noah.lee@bentoncleanair.org>; john.lyle@bentoncleanair.org; Benton Clean Air-Priddy <robin.priddy@bentoncleanair.org>; Benton Clean Air-Tyler Thompson <tyler.thompson@bentoncleanair.org>; Benton-Franklin Dist. Health Dept. <rickd@bfhd.wa.gov>; Dept. of Transportation (scplanning@wsdot.wa.gov) <scplanning@wsdot.wa.gov>; City of Richland-Mike Stevens (mstevens@ci.richland.wa.us) <mstevens@ci.richland.wa.us>; Cascade Natural Gas (Walter.Nelson@cngc.com) <Walter.Nelson@cngc.com>; Natural Resources Conservation Service <ray.gekosky@wa.usda.gov>; US Postal Service (ina.n.beutler@usps.gov) <ina.n.beutler@usps.gov>; US Postal Service - Address Management System <Tina.C.Fisher@usps.gov>; WA Dept of Health - Kelly Cooper - WA Dept of Health - Kelly Cooper (SEPA.reviewteam@doh.wa.gov) <SEPA.reviewteam@doh.wa.gov>; Cristina Woods <Cristina.Woods@co.benton.wa.us>; Ben Franklin Transit - B. Windler <bwindler@bft.org>; Ben Franklin Transit K. McMullen <KmcMullen@bft.org>; Ben Franklin Transit - Bill Barlow (bbarlow@bft.org) <bbarlow@bft.org>; Southeast Communication Center (k.lettrick@bces.wa.gov) <k.lettrick@bces.wa.gov>; Badger Mountain Irrig. District (bmidmanager@badgermountainirrigation.com) <bmidmanager@badgermountainirrigation.com>; mike.j.maughn@gmail.com; Clark Posey <Clark.Posey@co.benton.wa.us>; Mosquito Control (admin@mosquitocontrol.org) <admin@mosquitocontrol.org>; GIS <GIS@co.benton.wa.us>; Kirk Rathbun <k2rathbun@gmail.com>; ASSESSOR <Assessor@co.benton.wa.us>; PARKS <PARKS@co.benton.wa.us>; Kathy Mann <Kathy.Mann@co.benton.wa.us>; Benton PUD-Chad Brooks <Brooksc@bentonpud.org>; Benton PUD-Mike Irving <irvingm@bentonpud.org>; Benton PUD-Shanna Everson <eversons@bentonpud.org>; Benton PUD-tina Glines (glinest@bentonpud.org) <glinest@bentonpud.org>
Subject: Agency Review for the Preliminary Plat of Harvest Ridge Phase 2

The Planning Division has prepared an Agency Review Packet for the preliminary plat of Harvest Ridge Phase 2. Attached is the packet for your review and comment by **May 18, 2022.** If you have any questions please contact our office.

Donna Hutchinson
Office Assistant IV
Community Development Dept.
Planning Division
PO Box 910 Prosser WA 99350
(509) 786-5612

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Donna Hutchinson

From: Cristina Woods
Sent: Wednesday, May 11, 2022 2:28 PM
To: Donna Hutchinson
Subject: RE: EA 2022-013/SUB 2022-001 Notice of Application for Harvest Ridge Phase 2
Attachments: Pre Plat Comments Harvest Ridge phase 2.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Good afternoon

Public Works has no comments for EA 2022-013.

Please see attached PW comments for SUB 2022-001

Thank you

Cristina Woods, MS • *Engineering Associate II*
Benton County Public Works
102206 Wiser Parkway , Kennewick WA, 99338
cristina.woods@co.benton.wa.us
(509) 786-5611

From: Donna Hutchinson <Donna.Hutchinson@co.benton.wa.us>
Sent: Thursday, April 28, 2022 10:38 AM
To: Benton Clean Air - Noah Lee <noah.lee@bentoncleanair.org>; john.lyle@bentoncleanair.org; Benton Clean Air-Priddy <robin.priddy@bentoncleanair.org>; Benton Clean Air-Rodger <rob.rodger@bentoncleanair.org>; Benton Clean Air-Tyler Thompson <tyler.thompson@bentoncleanair.org>; Benton-Franklin Dist. Health Dept. <rickd@bfhd.wa.gov>; Brad O'Brien <Brad.Obrien@co.benton.wa.us>; Clark Posey <Clark.Posey@co.benton.wa.us>; Elizabeth Koerner <Elizabeth.Koerner@co.benton.wa.us>; Michelle Johnson <Michelle.Johnson@co.benton.wa.us>; Troy Taylor <Troy.Taylor@co.benton.wa.us>; Bureau of Land Management - Kevin Devitt District Manager (BLM_OR_SP_Mail@blm.gov) <BLM_OR_SP_Mail@blm.gov>; City of Richland Electrical Engineering Manager <wcollop@ci.richland.wa.us>; City of Richland-Kerwin Jensen (kjensen@ci.richland.wa.us) <kjensen@ci.richland.wa.us>; City of Richland-Mike Stevens (mstevens@ci.richland.wa.us) <mstevens@ci.richland.wa.us>; Dept. of Archaeology and Historic Preservation - SEPA Review (sepa@dahp.wa.gov) <sepa@dahp.wa.gov>; sydney.hanson@dahp.wa.gov; Dept. of Fish and Wildlife-Mark Teske <Mark.Teske@dfw.wa.gov>; Dept. of Fish and Wildlife, Eric Bartrand <bartrelb@dfw.wa.gov>; Dept. of Fish and Wildlife, Michael W. Ritter <rittemwr@dfw.wa.gov>; Dept. of Fish and Wildlife-SEPA Review <R3planning@dfw.wa.gov>; Dept. of Natural Resources (sepacenter@dnr.wa.gov) <sepacenter@dnr.wa.gov>; Dept. of Natural Resources <dnrmisepacenter@dnr.wa.gov>; Dept. of Transportation (scplanning@wsdot.wa.gov) <scplanning@wsdot.wa.gov>; Fire District #1-Billie <billie@bentonone.org>; Fire District #1-Staff <staff@bentonone.org>; alex@futurewise.org; Futurewise <tim@futurewise.org>; Kirk Rathbun <k2rathbun@gmail.com>; Badger Mountain Irrig. District (bmidmanager@badgermountainirrigation.com) <bmidmanager@badgermountainirrigation.com>; Cristina Woods <Cristina.Woods@co.benton.wa.us>; School District # 17-Ryan Jones <Ryan.Jones@ksd.org>; Tom Price-Environmental Review Inc. (envreview@gmail.com)

<envreview@gmail.com>; WA Dept of Health - Kelly Cooper - WA Dept of Health - Kelly Cooper (SEPA.reviewteam@doh.wa.gov) <SEPA.reviewteam@doh.wa.gov>; Yakama Indian Nation SEPA Review <enviroreview@yakama.com>; Jessica_Lally@Yakama.com; Yakima Indian Nation-John Marvin <john_marvin@yakama.com>; City of West Richland -Aaron Lambert <alambert@westrichland.org>; Confederated Tribes of the Umatilla Indian Reservation - Ashley M. Morton (AshleyMorton@ctuir.org) <AshleyMorton@ctuir.org>; Umatilla Indian Nation <EricQuaempts@ctuir.org>; Bureau of Reclamation - C. Garner (cgarner@usbr.gov) <cgarner@usbr.gov>; Bureau of Reclamation - L Hendrix - Bureau of Reclamation (lhendrix@usbr.gov) <lhendrix@usbr.gov>; Bureau of Reclamation -McKinley (cmckinley@usbr.gov) <cmckinley@usbr.gov>
Subject: EA 2022-013/SUB 2022-001 Notice of Application for Harvest Ridge Phase 2

The Benton County Planning Department has prepared the a Notice of Application in accordance with the State Environmental Policy Act regulation. This NOA is being circulated for review by all agencies with jurisdiction. We are circulating it for comments on the **environmental impacts** of this action. Due to the size of the document we are including a link to the NOA Packet for your review. EA 2022-013 - SUB 2022-001 NOA PKT 4-28-22.pdf

We appreciate your review of the proposal and return of comments no later than **May 18, 2022**. This proposal will not be acted upon before that time. If you have any questions please contact our office at 509-786-5612.

Donna Hutchinson
Office Assistant IV
Community Development Dept.
Planning Division
PO Box 910 Prosser WA 99350
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Donna Hutchinson

From: Cristina Woods
Sent: Tuesday, May 17, 2022 1:47 PM
To: Planning Department
Cc: Donna Hutchinson
Subject: RE: EA 2022-013 Harvest Ridge Phase 2

Good afternoon

Sorry I talked with Michelle and Greg about this and forgot to send a response since we do not have any comments. We will not be asking for the traffic impact fees on phase 2.

Thank you

Cristina Woods, MS • *Engineering Associate II*
Benton County Public Works
102206 Wiser Parkway , Kennewick WA, 99338
cristina.woods@co.benton.wa.us
(509) 786-5611

From: Planning Department <Planning.Department@co.benton.wa.us>
Sent: Tuesday, May 17, 2022 1:31 PM
To: Benton Clean Air - Noah Lee <noah.lee@bentoncleanair.org>; john.lyle@bentoncleanair.org; Benton Clean Air-Priddy <robin.priddy@bentoncleanair.org>; Benton Clean Air-Rodger <rob.rodger@bentoncleanair.org>; Benton Clean Air-Tyler Thompson <tyler.thompson@bentoncleanair.org>; Benton-Franklin Dist. Health Dept. <rickd@bfhd.wa.gov>; Brad O'Brien <Brad.Obrien@co.benton.wa.us>; Clark Posey <Clark.Posey@co.benton.wa.us>; Elizabeth Koerner <Elizabeth.Koerner@co.benton.wa.us>; Michelle Johnson <Michelle.Johnson@co.benton.wa.us>; Troy Taylor <Troy.Taylor@co.benton.wa.us>; Bureau of Land Management - Kevin Devitt District Manager (BLM_OR_SP_Mail@blm.gov) <BLM_OR_SP_Mail@blm.gov>; City of Richland Electrical Engineering Manager <wcollop@ci.richland.wa.us>; City of Richland-Kerwin Jensen (kjensen@ci.richland.wa.us) <kjensen@ci.richland.wa.us>; City of Richland-Mike Stevens (mstevens@ci.richland.wa.us) <mstevens@ci.richland.wa.us>; Dept. of Archaeology and Historic Preservation - SEPA Review (sepa@dahp.wa.gov) <sepa@dahp.wa.gov>; sydney.hanson@dahp.wa.gov; Dept. of Fish and Wildlife-Mark Teske <Mark.Teske@dfw.wa.gov>; Dept. of Fish and Wildlife, Eric Bartrand <bartrelb@dfw.wa.gov>; Dept. of Fish and Wildlife, Michael W. Ritter <rittemwr@dfw.wa.gov>; Dept. of Fish and Wildlife-SEPA Review <R3planning@dfw.wa.gov>; Dept. of Natural Resources (sepacenter@dnr.wa.gov) <sepacenter@dnr.wa.gov>; Dept. of Natural Resources <dnrmisepacenter@dnr.wa.gov>; Dept. of Transportation (scplanning@wsdot.wa.gov) <scplanning@wsdot.wa.gov>; Fire District #1-Billie <billie@bentonone.org>; Fire District #1-Staff <staff@bentonone.org>; alex@futurewise.org; Futurewise <tim@futurewise.org>; Kirk Rathbun <k2rathbun@gmail.com>; Badger Mountain Irrig. District (bmidmanager@badgermountainirrigation.com) <bmidmanager@badgermountainirrigation.com>; Cristina Woods <Cristina.Woods@co.benton.wa.us>; School District # 17-Ryan Jones <Ryan.Jones@ksd.org>; Tom Price-Environmental Review Inc. (envreview@gmail.com) <envreview@gmail.com>; WA Dept of Health - Kelly Cooper - WA Dept of Health - Kelly Cooper (SEPA.reviewteam@doh.wa.gov) <SEPA.reviewteam@doh.wa.gov>; Yakama Indian Nation SEPA Review <enviroreview@yakama.com>; Jessica_Lally@Yakama.com; Yakima Indian Nation-John Marvin <john_marvin@yakama.com>; City of West Richland -Aaron Lambert <alambert@westrichland.org>; Confederated

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Cc: Michelle Cooke <Michelle.Cooke@co.benton.wa.us>
Subject: RE: EA 2022-013/SUB 2022-001 Notice of Application for Harvest Ridge Phase 2

Just a reminder that any comments that your agency may have on this SEPA need to be into our office as soon as possible. If you have any questions please do not hesitate to contact our office. If you have already sent in your comments, thank you.

Donna Hutchinson
Office Assistant IV
Community Development Dept.
Planning Division
PO Box 910 Prosser WA 99350
(509) 786-5612

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To: Benton Clean Air - Noah Lee <noah.lee@bentoncleanair.org>; Benton Clean Air-John Lyle (john.lyle@bentoncleanair.org) <john.lyle@bentoncleanair.org>; Benton Clean Air-Priddy <robin.priddy@bentoncleanair.org>; Benton Clean Air-Rodger <rob.rodger@bentoncleanair.org>; Benton Clean Air-Tyler Thompson <tyler.thompson@bentoncleanair.org>; Benton-Franklin Dist. Health Dept. <rickd@bfhd.wa.gov>; Brad O'Brien <Brad.Obrien@co.benton.wa.us>; Clark Posey <Clark.Posey@co.benton.wa.us>; Elizabeth Koerner <Elizabeth.Koerner@co.benton.wa.us>; Michelle Johnson <Michelle.Johnson@co.benton.wa.us>; Troy Taylor <Troy.Taylor@co.benton.wa.us>; Bureau of Land Management - Kevin Devitt District Manager (BLM_OR_SP_Mail@blm.gov) <BLM_OR_SP_Mail@blm.gov>; City of Richland Electrical Engineering Manager <wcollop@ci.richland.wa.us>; City of Richland-Kerwin Jensen (kjensen@ci.richland.wa.us) <kjensen@ci.richland.wa.us>; City of Richland-Mike Stevens (mstevens@ci.richland.wa.us) <mstevens@ci.richland.wa.us>; Dept. of Archaeology and Historic Preservation - SEPA Review (sepa@dahp.wa.gov) <sepa@dahp.wa.gov>; sydney.hanson@dahp.wa.gov; Dept. of Fish and Wildlife-Mark Teske <Mark.Teske@dfw.wa.gov>; Dept. of Fish and Wildlife, Eric Bartrand <bartrelb@dfw.wa.gov>; Dept. of Fish and Wildlife, Michael W. Ritter <rittemwr@dfw.wa.gov>; Dept. of Fish and Wildlife-SEPA Review <R3planning@dfw.wa.gov>; Dept. of Natural Resources (sepacenter@dnr.wa.gov) <sepacenter@dnr.wa.gov>; Dept. of Natural Resources <dnrmisepacenter@dnr.wa.gov>; Dept. of Transportation (scplanning@wsdot.wa.gov) <scplanning@wsdot.wa.gov>; Fire District #1-Billie <billie@bentonone.org>; Fire District #1-Staff <staff@bentonone.org>; alex@futurewise.org; Futurewise <tim@futurewise.org>; Kirk Rathbun <k2rathbun@gmail.com>; Badger Mountain Irrig. District (bmidmanager@badgermountainirrigation.com) <bmidmanager@badgermountainirrigation.com>; Road Dept. - Cristina Woods (Cristina.Woods@co.benton.wa.us) <Cristina.Woods@co.benton.wa.us>; School District # 17-Ryan Jones <Ryan.Jones@ksd.org>; Tom Price-Environmental Review Inc. (envreview@gmail.com) <envreview@gmail.com>; WA Dept of Health - Kelly Cooper - WA Dept of Health -

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