VADATA, LLC., EXCEPTION TO STATEWIDE PLANNING GOALS 3 & 14
COMPREHENSIVE PLAN TEXT AMENDMENT #T-17-072,
COMPREHENSIVE PLAN MAP AMENDMENT, #P-119-17,
ZONING MAP AMENDMENT #Z-311-17
MAP #4N 28 30, TAX LOT #100, ACCOUNT #118231
APRIL 13, 2017, BOARD OF COMMISSIONERS HEARING
PACKET CONTENT LIST

Umatilla County

Department of Land Use Planning

DIRECTOR
TAMRA
MABBOTT

LAND USE
PLANNING,
ZONING AND
PERMITTING

CODE
ENFORCEMENT

SOLID WASTE
COMMITTEE

SMOKE
MANAGEMENT

GIS AND
MAPPING

RURAL
ADDRESSING

LIAISON,
NATURAL
RESOURCES &
ENVIRONMENT

MEMO

TO: Umatilla County Board of Commissioners
FROM: Brandon Seitz, Assistant Planner BS
DATE: April 5, 2017

RE: Vadata, Inc., Rezone and Plan Amendment

The applicant, Vadata, Inc., is proposing to rezone Tax Lot 1100 (≈120 acres) from Exclusive Farm Use to Light Industrial with a Limited Use Overlay. The applicant intends to develop the property with an industrial use (data centers with ancillary office, warehouse and utility substation). The application consists of three land use request: (1) Comprehensive Plan Text Amendment for an exception to Statewide Planning Goals 3 (Agriculture) and 14 (Urbanization), (2) Comprehensive Plan Map Amendment, and (3) Zoning Map Amendment.

The property is generally located northeast of the I-82/I-84 interchange. The property is located between Westland Road and Cottonwood Bend Road approximately a half mile north of the Westland Road exit off I-84.

Goal 3 Exception
The application includes findings that justify an exception to Statewide Planning Goal 3 (Agriculture). In sum, the parcel is comprised of Class VII soils and does not have water rights. Class VII soils are considered unsuitable for the production of farm crops. In addition, adjoining and nearby lands are developed and committed to non-farm uses. Therefore, the parcel has limited potential for resource use.

Goal 14 Exception
An analysis of the proposed exception to Statewide Planning Goal 14 (Urbanization) is more complex and many factors will need to be considered for a Goal 14 exception. The application must include findings that justify why the urban-scale development is appropriate outside of a city and urban growth boundary. Justification of the Goal 14 exception for the property is based upon the applicant's site selection requirements. The applicant requires a parcel of sufficient size (100+ acres) with

access to high-voltage transmission, water for cooling and options for disposal of non-contact cooling waste water. In addition, the applicant has geographic requirements to suite their development needs. As discussed in the Applicant's submitted materials and at the Planning Commission's hearing the applicant requires new sites to be geographically separated to achieve redundancy and risk aversion in the event of a catastrophic failure. However, the sites still need to be located in close enough proximity that they can be interconnected by high speed data lines. These requirements significantly limit the geographic region available for new sites.

Limited Use Overlay Zone

The application request includes applying the Limited Use Overlay Zone (LU). The LU Overlay is applied to allow a specific development. The LU Overlay is not designed to allow future, speculative development with unknown impacts, for example impacts to the surrounding transportation systems. This is important since other state and local agencies must evaluate the impact to the transportation system based on real data for a specific project. The LU Overlay would limit the use of the parcel to the uses (data centers with ancillary office, warehouse and utility substation) justified by the exception.

Traffic and Transportation

The Traffic Impact Analysis concludes that the proposed use would not significantly affect the existing or planned transportation facilities. The study concludes that the proposed development is estimated to generate 86 net new trips (45 inbound, 41 outbound) during the weekday AM peak hour, and 86 net new trips (18 inbound, 68 outbound) during the weekday PM peak hour.

UMATILLA COUNTY BOARD OF COMMISSIONERS
DRAFT FINDINGS AND CONCLUSIONS
EXCEPTION TO STATEWIDE PLANNING GOALS 3 & 14
COMPREHENSIVE PLAN TEXT AMENDMENT #T-17-072,
COMPREHENSIVE PLAN MAP AMENDMENT, #P-119-17,
ZONING MAP AMENDMENT #Z-311-17
MAP #4N 28 30, TAX LOT #1100, ACCOUNT #118231

1. APPLICANT: Vadata, Inc., c/o Perkins Coie LLP, 1120 NW Couch Street, 10th Floor, Portland, OR 97209.

2. OWNERS: Liberated L&E, LLC, 2229 E Avenue Q, Palmdale, CA 93550.

3. REQUEST: The applicant is proposing to rezone Tax Lot 1100, approximately 120 acres, from Exclusive Farm Use (EFU) to Light Industrial (LI) with a Limited Use Overlay (LU). The applicant intends to develop the property with an industrial use (data centers with ancillary office, warehouse and utility substation). The application consist of three land use applications.

1. **Comprehensive Plan Text Amendment #T-17-072;** Amendment to the Umatilla County Comprehensive Plan to adopt a reasons exception to Statewide Planning Goals 3 (Agriculture) and 14 (Urbanization) on approximately 120 acres of property.
2. **Comprehensive Plan Map Amendment #P-119-17;** Amendment to the Umatilla County Comprehensive Plan Map designation from North/South Agriculture to Industrial.
3. **Zoning Map Amendment #Z-311-17;** Amendment to the Zoning Map designation from EFU to LI/LU.

4. LOCATION: The property is located northeast of the I-82 and I-84 interchange between Westland Road and Cottonwood Bend Road.

5. SITUS: The property has not been assigned an address.

6. ACREAGE: The property is 120.99 acres according to the County Assessor's records.

7. PERMITS: Two Property Line Adjustments have been approved for the subject parcel (#LD-4N-934-11 & #LD-4N-994-16). No other land use permits have been issued for the property.

8. COMP PLAN: The property is designated North/South County Agriculture Region by the County Comprehensive Plan.

9. ZONING: The property is zoned EFU, 160 acre minimum parcel size.

10. ACCESS: The property has direct access to Cottonwood Bend Road.

11. ROAD TYPE: Cottonwood Bend Road is a gravel County maintained road (#1327).

12. EASEMENTS: The property has a 50 foot access easement and an easement along the Westland irrigation canal. The property has no other known easements.

13. LAND USE: The property is currently used for seasonal livestock grazing.

14. ADJACENT USE: The property is abutted to the North, East and South by lands zoned EFU. West of the property are lands zoned industrial and developed with a variety of transportation related industrial uses. South of the property is a Goal 5 significant aggregate site and I-84. North of the EFU zoned lands are lands zoned and developed with industrial uses.

15. SOIL TYPES: High value soils are defined in the Umatilla County Development Code (UCDC) Section 152.003 as Land Capability Class I and II. The property does not have water rights and is comprised of non-high value soils.

Soil Name, Unit Number, Description	Land Capability Class	
	Dry	Irrigated
76B: Quincy loamy fine sand, gravelly substratum, 0-5% slopes.	7e	4e
Soil Survey of Umatilla County Area, 1989, NRCS. The suffix on the Land Capability Class designations are defined as "e" – erosion prone, "c" – climate limitations, "s" soil limitations and "w" – water (*Survey*, page. 172).		

16. BUILDINGS: There are no buildings on the property.

17. UTILITIES: The property is within Umatilla Electric's service territory.

18. WATER/SEWER: The property has not been developed with an onsite well or septic system.

19. FIRE SERVICE: The property is served by Umatilla County Fire District #1.

20. IRRIGATION: The property is within the Westland Irrigation District.

21. FLOODPLAIN: The property is not located in a floodplain.

22. NOTICES SENT: Notice was sent to the Department of Land Conservation and Development (DLCD) on February 16, 2017. Notice was mailed to neighboring land owners and affected agencies on March 3, 2017. Notice was printed in the March 11, 2017 publication of the East Oregonian.

23. HEARING DATE: A Public Hearing is scheduled before the Umatilla County Planning Commission on **March 23, 2017 at 6:30 PM** at the Justice Center Media Room, 4700 NW Pioneer Place, Pendleton. A subsequent Public Hearing before the Umatilla County Board of Commissioners is scheduled for **Thursday, April 13, 2017 at 9:30 AM** in Room 130 of the Umatilla County Courthouse, 216 SE Fourth Street, Pendleton.

24. AGENCIES: Department of Transportation Region 5-Highways Division, DLCD, Department of Environmental Quality, Department of Water Resources, City of Hermiston, City of Umatilla, Umatilla County Assessors, Umatilla County Public Works, Umatilla County Environmental Health, Umatilla County Fire District #1, Columbia Development Authority and Westland Irrigation District.

25. COMMENTS: A letter was submitted by Jon Jinings, Community Services Specialist with DLCD, on March 8, 2017. A copy of the letter is attached (Exhibit L). Comment was also receive over the phone by staff from Glenn Chowning a local farmer who farmed the subject property in the 1980's. Glenn Chowning stated "it is a difficult piece to farm, very rocky, level ground, soil is fine. I had alfalfa when I farmed it in the 1980's. The piece used to have a number of tree rows with a lot of junk and roots. It is a farmable piece of ground if it had water. It is in the Westland Irrigation District but they won't let any water go." When asked if he would consider farming the land again with water he said "no, I would not try to farm it again." Glenn Chowning is a retired farmer who came to Hermiston in the 1980's where he specialized in taking ownership of distressed farming operations. Some of those were financially distressed and others were less productive due to farming circumstances. Mr. Chowning still owns interest in several farms in the region and consults about those operations.

UMATILLA COUNTY CODE – AMENDMENTS, APPLICABLE STATE STATUES AND ADMINISTRATIVE RULES – GOAL 2 PROCESS FOR EXCEPTION TO GOALS 3 AND 14

Umatilla County Development Code – Amendments:

Umatilla County Development Code (UCDC), Amendments, Sections 152.750 through 152.755 provides information on initiating an amendment, processing an amendment, and imposing conditions on amendments. Additionally, UCDC Section 152.751 requires compliance with provisions of the County Comprehensive Plan and the Transportation Planning Rule, Oregon Administrative Rules (OAR) 660, Division 12, and the Umatilla County Transportation Plan (TSP), subject to *Traffic Impact Analysis in UCDC Section 152.019.*

OREGON REVISED STATUES

197.732 Goal exceptions; criteria; rules; review.

(2) A local government may adopt an exception to a goal if:

(a) The land subject to the exception is physically developed to the extent that it is no longer available for uses allowed by the applicable goal;

Applicant Response: The property is not physically developed to the extent that it is no longer available for uses allowed by the applicable goal. Applicant is not requesting an exception under this provision.

Umatilla County Findings: The applicant is not requesting and exception under this provision. This criterion is not applicable.

(b) The land subject to the exception is irrevocably committed as described by Land Conservation and Development Commission rule to uses not allowed by the applicable goal because existing adjacent uses and other relevant factors make uses allowed by the applicable goal impracticable; or

Applicant Response: The property is not irrevocably committed as described by Land Conservation and Development Commission rule to uses not allowed by the applicable goal because existing adjacent uses and other relevant factors make uses allowed by the applicable goal impracticable. Applicant is not requesting an exception under this provision.

Umatilla County Findings: The applicant is not requesting an exception under this provision. This criterion is not applicable.

(c) The following standards are met:

(A) Reasons justify why the state policy embodied in the applicable goals should not apply;

Applicant Response: The County should find that the Applications satisfy this subsection for the reasons set forth in response to OAR 660-004-0020(2)(a), which reasons are incorporated herein by reference.

(B) Areas that do not require a new exception cannot reasonably accommodate the use;

Applicant Response: The County should find that the Applications satisfy this subsection for the reasons set forth in response to OAR 660-004-0020(2)(b), which reasons are incorporated herein by reference.

(C) The long term environmental, economic, social and energy consequences resulting from the use at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site; and

Applicant Response: The County should find that the Applications satisfy this subsection for the reasons set forth in response to OAR 660-004-0020(2)(c), which reasons are incorporated herein by reference.

(D) The proposed uses are compatible with other adjacent uses or will be so rendered through measures designed to reduce adverse impacts.

Applicant Response: The County should find that the Applications satisfy this subsection for the reasons set forth in response to OAR 660-004-0020(2)(d), which reasons are incorporated herein by reference.

Umatilla County Findings: The standards listed above are addressed by response in detail to OAR 660-004-0020(2) below.

(4) A local government approving or denying a proposed exception shall set forth findings of fact and a statement of reasons that demonstrate that the standards of subsection (2) of this section have or have not been met.
Applicant Response: The County should adopt findings of fact and a statement of reasons that demonstrate that the standards of this subsection (2) have been met. If the County does so, its decision will satisfy this criterion.

Umatilla County Findings: The Umatilla County Board of Commissioners will adopt findings of fact and a statement of reasons that demonstrate the standards of subsection (2) have or have not been met.

(5) Each notice of a public hearing on a proposed exception shall specifically note that a goal exception is proposed and shall summarize the issues in an understandable manner.
Applicant Response: In its notices of public hearing for the Applications, the County should specifically note that exceptions to Goals 3 and 14 are proposed and should summarize the issues pertaining to these exceptions in an understandable manner. If the County does so, its decision will satisfy this criterion.

Umatilla County Findings: A public notice specifically noting that an exception to Statewide Planning Goals 3 and 14 is proposed and summarizing the issues in an understandable manner was mailed to affected land owners and agencies on March 3, 2017. In addition, a public notice was printed in the March 11, 2017 publication of the East Oregonian.

OREGON ADMINISTRATIVE RULES

OAR 660-004-0020
Goal 2, Part II(c), Exception Requirements

(1) If a jurisdiction determines there are reasons consistent with OAR 660-004-0022 to use resource lands for uses not allowed by the applicable Goal or to allow public facilities or services not allowed by the applicable Goal, the justification shall be set forth in the comprehensive plan as an exception. As provided in OAR 660-004-0000(1), rules in other divisions may also apply.
Applicant Response: As explained below, there are reasons consistent with OAR 660-004-0022 to use the Property for uses not allowed by Goals 3 and 14. Therefore, the County should adopt an exception to these two Goals. Upon doing so, the County should incorporate the findings set forth in this narrative within the UCCP to memorialize the justification for the exceptions.

Umatilla County Findings: The applicant is proposing a reasons exception for uses not allowed (data centers with ancillary warehouse, administrative office and utility substation) by Statewide Planning Goals 3 and 14. Justification for the exception would be set forth in the comprehensive plan (Comprehensive Plan Text Amendment #T-17-072) as an exception if approved.

(2) The four standards in Goal 2 Part II(c) required to be addressed when taking an exception to a goal are described in subsections (a) through (d) of this section, including general requirements applicable to each of the factors:

(a) "Reasons justify why the state policy embodied in the applicable goals should not apply." The exception shall set forth the facts and assumptions used as the basis for determining that a state policy embodied in a goal should not apply to specific properties or situations, including the amount of land for the use being planned and why the use requires a location on resource land;

Applicant Response: Three reasons justify why the state policy embodied in Goals 3 and 14 should not apply to the Property.

First, it is unnecessary to protect the Property for farming and ranching activities and rural uses because the Property is not a productive farm operation. As explained above, the Property is comprised of Class VII soils in a non-irrigated condition, and the Property does not have water rights. As a result, the Property is not high-value farmland, and it has not been productive for farm uses. Historically, the Property has not been utilized for growing crops, although it has been used to a limited extent for livestock grazing. Applicant will submit additional testimony before the public hearing in this matter detailing the lack of productivity of the Property as a farm operation.

Second, the Property is well-situated for development of urban light industrial uses. For example, the Property is located within approximately a half-mile of interchanges for two different federal interstate highways (I-82 and I-84). *See* aerial photo provided in [applicant's] Exhibit 2. Further, the Property has access to a rail line in close proximity to the north. *Id.* Finally, the Property is surrounded in three different directions (north, south, and west) by properties that are developed with urban industrial uses on exception lands adopted by the County. *See* Map 18-76 of the UCCP in [applicant's] Exhibit 6. One of these exception areas is immediately adjacent to the Property. *Id.* Businesses that have developed in these exception areas include significant industrial production and distribution facilities such as ConAgra Foods, Americold Logistics, United Parcel Service, Hermiston Generating Station, and FedEx Freight.

Third, development of the Property consistent with the Applications will generate significant economic benefits to the County and its residents, including new jobs and ad valorem tax revenues. These benefits will offset the de minimis loss of unproductive farmland. Applicant will submit additional testimony before the public hearing in this matter detailing the economic benefits of the development and the comparatively lower benefits of retaining the Property in farm production.

Umatilla County Findings: The property is comprised of Class VII soils and does not have water rights. See soils data submitted by applicant from National Resources Conservation Service and Oregon Water Resources Department, respectively (Exhibits A & K). Class VII soils are generally considered unsuitable for cultivation and the property has not been utilized for growing crops. The owner of the property has also submitted a letter dated March 13, 2017 (Exhibit J), stating that the property has not yielded significant economic returns as a farm and is not conducive to operating a financially

viable farming enterprise. Mr. Chowning's testimony supports this conclusion.

The property is located a half-mile away from the I-82/I-84 intersection and has access to rail in close proximity to the north. In addition, the property is in the vicinity of lands developed with industrial uses on exception lands adopted by the County. North of the property are lands zoned and developed with industrial uses including Hermiston Generating Station and ConAgra Foods. West of the property is also zoned industrial and is primarily developed with trucking/transportation related industries including United Parcel Service and FedEx Freight. South of the property is land designated as a Goal 5 significant aggregate resources with an active mining and processing operations. South of I-84 are exception lands developed with transportation related industrial and commercial uses. However, the lands adjoining the subject parcel are zoned EFU to the North, South and East. (Note: Perennial Wind Chaser Station has been approved by the Oregon Department of Energy Facilities Siting Council for construction and operation of up to four natural gas-fired turbines producing up to 415 megawatts on approximately 20 acres [Tax Lot 1200] Northwest of the subject parcel.)

In a letter dated February 27, 2017 (Exhibit D), Jim Footh, the applicant's Real Estate Development Manager, that explains the benefits to the region of developing this site as proposed by the applicant. According to Mr. Footh, each building the applicant develops drives 40 direct jobs at an average salary of $68,000 per year and approximately 50-75 vendor positions. The applicant's Conceptual Development Plan identifies a larger footprint than at its other regional sites, which will lead to a corresponding increase in the number of employees at this site. These project benefits more than offset the loss of the land as an agricultural site, where it has been generally unproductive.

To meet the applicant's land selection process a site must be 100+ acres with access to high-voltage transmission lines, water for cooling and discharge of non-contact waste water. The proposed location is the only location in the area that offers a parcel of sufficient size in close proximity to the necessary power and water resources. The proposed site is also in close proximity (0.2 miles) to the Hermiston Generation substation. The Regional Water System (RWS) provides water to the Hermiston Generation power plant and has additional capacity to serve the parcel. The site also offers multiple options for waste water discharge including working with Hermiston Generation and Lamb West to utilize existing infrastructure or utilize the Westland Irrigation Canal and/or aquifer recharge projects.

(b) "Areas that do not require a new exception cannot reasonably accommodate the use". The exception must meet the following requirements:

(A) The exception shall indicate on a map or otherwise describe the location of possible alternative areas considered for the use that do not require a new exception. The area for which the exception is taken shall be identified;

(B) To show why the particular site is justified, it is necessary to discuss why other areas that do not require a new exception cannot reasonably accommodate the proposed use. Economic factors may be considered along with other relevant factors in

determining that the use cannot reasonably be accommodated in other areas. Under this test the following questions shall be addressed:

(i) Can the proposed use be reasonably accommodated on nonresource land that would not require an exception, including increasing the density of uses on nonresource land? If not, why not?

(ii) Can the proposed use be reasonably accommodated on resource land that is already irrevocably committed to nonresource uses not allowed by the applicable Goal, including resource land in existing unincorporated communities, or by increasing the density of uses on committed lands? If not, why not?

(iii) Can the proposed use be reasonably accommodated inside an urban growth boundary? If not, why not?

(iv) Can the proposed use be reasonably accommodated without the provision of a proposed public facility or service? If not, why not?

(C) The "alternative areas" standard in paragraph B may be met by a broad review of similar types of areas rather than a review of specific alternative sites. Initially, a local government adopting an exception need assess only whether those similar types of areas in the vicinity could not reasonably accommodate the proposed use. Site specific comparisons are not required of a local government taking an exception unless another party to the local proceeding describes specific sites that can more reasonably accommodate the proposed use. A detailed evaluation of specific alternative sites is thus not required unless such sites are specifically described, with facts to support the assertion that the sites are more reasonable, by another party during the local exceptions proceeding.

Applicant Response: The area for which the exception is taken is identified in [applicant's] Exhibit 1. The proposed use cannot be reasonably accommodated on any of the areas identified in this rule that do not require a new exception because none of these alternative areas are of sufficient size, shape, and topography and have access to the utility lines needed to power the data center. Applicant examined a number of sites that do not require an exception and determined that the site that most closely meets the needs identified for the proposed uses is the Property. Applicant will submit additional testimony in response to this rule before the initial public hearing in this matter. This testimony will further describe site selection criteria, alternative areas, and why Applicant did not select any of the alternative areas. Applicant also incorporates its response to OAR 660-014-0040(3)(a) in response to this rule. The County should find that the proposed exceptions satisfy this rule.

Umatilla County Findings: As addressed in the applicant's letter dated February 27, 2017, other sites in the vicinity, including those within cities, urban growth boundaries, and existing exception lands, that are large enough to accommodate the proposed use are either built out or do not have access to the required utilities without a significant and very costly extension of existing utility facilities. The proposed site is the only site in the vicinity that offers access to power (approximately 0.2 miles) and water (approximately 1500 feet) in close proximity that is of a sufficient size (100+ acres) to accommodate the proposed data centers and accessory structures. In addition the site offers a variety of waste water discharge options unique to the site and generally not available on lands that do not require an exception. Finally, as

explained by Mr. Footh, the applicant's Real Estate Development Manager in a letter dated February 27, 2017, the applicant's existing data center sites are inadequate to reasonably accommodate the proposed use because they are already at capacity. Although applicant is considering developing an additional data center campus within an existing urban growth boundary in the region, that site is inadequate to reasonably accommodate the proposed use because, as explained in Mr. Footh's March 14, 2017 letter (Exhibit H), it is a necessary and essential element of the applicant's business to develop multiple smaller-scale campuses in order to create redundancy in the applicant's system. That redundancy cannot be adequately created by developing a single, super-sized data center campus. Because there are no alternative non-resource sites that can reasonably accommodate the proposed data center campus, areas that do not require a new exception cannot reasonably accommodate the use.

(c) "The long-term environmental, economic, social and energy consequences resulting from the use at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site." The exception shall describe: the characteristics of each alternative area considered by the jurisdiction in which an exception might be taken, the typical advantages and disadvantages of using the area for a use not allowed by the Goal, and the typical positive and negative consequences resulting from the use at the proposed site with measures designed to reduce adverse impacts. A detailed evaluation of specific alternative sites is not required unless such sites are specifically described with facts to support the assertion that the sites have significantly fewer adverse impacts during the local exceptions proceeding. The exception shall include the reasons why the consequences of the use at the chosen site are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site. Such reasons shall include but are not limited to a description of: the facts used to determine which resource land is least productive, the ability to sustain resource uses near the proposed use, and the long-term economic impact on the general area caused by irreversible removal of the land from the resource base. Other possible impacts to be addressed include the effects of the proposed use on the water table, on the costs of improving roads and on the costs to special service districts;

Applicant Response: The long-term environmental, economic, social and energy consequences resulting from the proposed urban light industrial uses on the Property are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the Property. In fact, these consequences are all positive because developing the site will create jobs and raise ad valorem tax revenue, which will benefit the County and its citizens. Further, developing the proposed uses on the Property will be more compatible on the Property than most other locations requiring an exception because, unlike other locations, the Property is adjacent and near to existing industrial uses in three different directions. Applicant also incorporates its response to OAR 660-014-0040(3)(b) in response to this rule. The County should find that the proposed exceptions satisfy this rule.

Umatilla County Findings: The proposed site does not have water rights and is comprised of Class VII soils which are generally considered unsuitable for the production

of farm crops. In addition, the site is located in an area developed with industrial uses to the North, West and South. The lands adjacent to the proposed site zoned EFU are also comprised of Class VII soils and historically have not be used for the cultivation of crops. The proposed development would generate a significant economic benefit to the County including the addition of new jobs and increased tax revenues. These benefits offset the loss of unproductive farmland.

The proposed data centers generate relatively low impacts in terms of noise, dust, smoke, odor and storm water runoff. The impacts generated by the facility would have minimal effect on the agricultural uses in the vicinity. In addition the proposed site offers unique advantages over other areas that would also require a goal exception due to the proposed site's close proximity to the necessary utilities and to multiple options for discharge of waste water.

(d) "The proposed uses are compatible with other adjacent uses or will be so rendered through measures designed to reduce adverse impacts." The exception shall describe how the proposed use will be rendered compatible with adjacent land uses. The exception shall demonstrate that the proposed use is situated in such a manner as to be compatible with surrounding natural resources and resource management or production practices. "Compatible" is not intended as an absolute term meaning no interference or adverse impacts of any type with adjacent uses.

Applicant Response: For four reasons, the proposed light industrial uses are compatible with other adjacent uses. First, the proposed uses, which are limited to those identified on the Conceptual Development Plan, will not generate adverse impacts on surrounding properties, such as noise, odor, dust, vibration, blasting, vapor, or bright lights. Second, as illustrated on the Conceptual Development Plan, the proposed uses will be set back from adjacent properties and will be screened by a fence. Third, as explained above and illustrated by the aerial photograph and UCCP Map 18-76, there are many surrounding industrial uses that operate at an urban scale. The proposed light industrial uses of the Property will be compatible with these existing industrial operations. Fourth, in adopting exceptions for other industrial uses in the surrounding corridor, the County noted the general compatibility of light industrial and farm uses, particularly in this location: "* * * [L]ight industrial uses typically are not incompatible with agricultural practices." UCCP 18-361. *See also* UCCP 18-362 ("* * * [M]any of the existing uses [in the Westland Road area] are urban in their nature or scale. Those uses have not proven to be incompatible with nearby farming operations or farm practices."). Applicant also incorporates its response to OAR 660-014-0040(3)(c) in response to this rule. For all of these reasons, the County should find that the proposed exception satisfies this rule.

Umatilla County Findings: The proposed uses would be compatible with other uses in the vicinity. The proposed data centers would not generate significant impacts such as noise, odor, dust, vibrations, blasting, vapor or lighting issues. The proposed uses would have less adverse impacts to nearby farming operations than the existing industrial uses and mining activities in the area. The exiting industrial uses and mining activities generate impacts greater than the impacts anticipated by the proposed data centers. The existing farm uses in the area have proven to be compatible with the existing light industrial uses. In addition, the County will apply a Limited Use overlay, addressed in

detail below, which would limited the use of the property to the proposed data centers and accessory structures and not allow other uses permitted in a LI zone. If the property is not developed with the proposed uses the land would revert back to EFU.

OAR 660-004-0022
Reasons Necessary to Justify an Exception Under Goal 2, Part II(c)
An exception under Goal 2, Part II(c) may be taken for any use not allowed by the applicable goal(s) or for a use authorized by a statewide planning goal that cannot comply with the approval standards for that type of use. The types of reasons that may or may not be used to justify certain types of uses not allowed on resource lands are set forth in the following sections of this rule. Reasons that may allow an exception to Goal 11 to provide sewer service to rural lands are described in OAR 660-011-0060. Reasons that may allow transportation facilities and improvements that do not meet the requirements of OAR 660-012-0065 are provided in OAR 660-012-0070. Reasons that rural lands are irrevocably committed to urban levels of development are provided in OAR 660-014-0030. Reasons that may justify the establishment of new urban development on undeveloped rural land are provided in OAR 660-014-0040.

Applicant Response: The Applications propose uses that are not allowed by Goals 3 and 14; therefore, the County should take exceptions to these Goals to allow these uses. Applicant addresses the reasons that justify these exceptions in response to (3) below and in response to OAR 660-014-0040.

(3) Rural Industrial Development: For the siting of industrial development on resource land outside an urban growth boundary, appropriate reasons and facts may include, but are not limited to, the following:
(a) The use is significantly dependent upon a unique resource located on agricultural or forest land. Examples of such resources and resource sites include geothermal wells, mineral or aggregate deposits, water reservoirs, natural features, or river or ocean ports;
(b) The use cannot be located inside an urban growth boundary due to impacts that are hazardous or incompatible in densely populated areas; or
(c) The use would have a significant comparative advantage due to its location (e.g., near existing industrial activity, an energy facility, or products available from other rural activities), which would benefit the county economy and cause only minimal loss of productive resource lands. Reasons for such a decision should include a discussion of the lost resource productivity and values in relation to the county's gain from the industrial use, and the specific transportation and resource advantages that support the decision.
Applicant Response: The reasons provided in this rule are illustrative and not exclusive. The reasons that justify why the policies in Goals 3 and 14 should not apply to the Property are set forth in response to OAR 660-004-0020(2)(a). These reasons are incorporated herein by reference. Based upon these reasons, the County should find that the Applications satisfy this rule.

Umatilla County Findings: As addressed above the proposed uses would be located on Class VII soils with no water rights. The proposed location has significant advantage due to its close proximity to available utilities, primarily water and power. The proposed location is the only location considered that offers a combination of size (100+ acres),

power (0.2 miles to Hermiston Generation substation), water (1500 feet to RWS) and multiple options for discharge of non-contact waste water. Development of the proposed data centers and accessory structures would result in a significant economic benefit to the County, including new jobs and increase tax revenues, when compared to the loss of unproductive farmland.

OAR 660-014-0040
Establishment of New Urban Development on Undeveloped Rural Lands

(1) As used in this rule, "undeveloped rural land" includes all land outside of acknowledged urban growth boundaries except for rural areas committed to urban development. This definition includes all resource and nonresource lands outside of urban growth boundaries. It also includes those lands subject to built and committed exceptions to Goals 3 or 4 but not developed at urban density or committed to urban level development.
Applicant Response: The Property is comprised of land outside of acknowledged urban growth boundaries, and it is not committed to urban development. Therefore, the Property is "undeveloped rural land" for purposes of this rule.

Umatilla County Findings: The property is located outside of an acknowledged Urban Growth Boundary and is not developed. Therefore, the property is considered undeveloped rural lands.

(2) A county can justify an exception to Goal 14 to allow establishment of new urban development on undeveloped rural land. Reasons that can justify why the policies in Goals 3, 4, 11 and 14 should not apply can include but are not limited to findings that an urban population and urban levels of facilities and services are necessary to support an economic activity that is dependent upon an adjacent or nearby natural resource.
Applicant Response: The reasons provided in this rule are illustrative and not exclusive. The reasons that justify why the policies in Goals 3 and 14 should not apply to the Property are set forth in response to OAR 660-004-0020(2)(a). These reasons are incorporated herein by reference. Based upon these reasons, the County should find that the Applications satisfy this rule.

Umatilla County Findings: As addressed above the proposed location is the only location that offers a combination of size (100+ acres), power (0.2 miles to Hermiston Generation substation), water (1500 feet to RWS) and multiple options for discharge of non-contact cooling water.

(3) To approve an exception under section (2) of this rule, a county must also show:
(a) That Goal 2, Part II(c)(1) and (c)(2) are met by showing that the proposed urban development cannot be reasonably accommodated in or through expansion of existing urban growth boundaries or by intensification of development in existing rural communities;
Applicant Response: The proposed development cannot be reasonably accommodated in or through expansion of existing urban growth boundaries or by intensification of development in existing rural communities for the reasons set forth in response to OAR 660-004-0020(2)(b). These reasons are incorporated herein by reference. Based upon

these reasons, the County should find that the Applications satisfy this rule.

Umatilla County Findings: The proposed location is unique in offering a parcel of sufficient size in close proximity to the utilities necessary to operate the proposed data centers. See applicant's response and County findings addressing OAR 660-004-0020(2)(b).

(b) That Goal 2, Part II(c)(3) is met by showing that the long-term environmental, economic, social, and energy consequences resulting from urban development at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located on other undeveloped rural lands, considering:

(A) Whether the amount of land included within the boundaries of the proposed urban development is appropriate; and

Applicant Response: As illustrated on the Conceptual Development Plan, the amount of land included within the boundaries of the proposed urban development is appropriate. The County should find that the Applications satisfy this rule.

Umatilla County Findings: As shown on the applicant's Conceptual Development Plan (Exhibit A) the amount of land will accommodate the proposed data centers and accessory structures.

(B) Whether urban development is limited by the air, water, energy and land resources at or available to the proposed site, and whether urban development at the proposed site will adversely affect the air, water, energy and land resources of the surrounding area.

Applicant Response: The proposed development is appropriately sized to be served by the air, water, energy, and land resources at or available to the Property. Urban development at the Property will not adversely affect the air, water, energy and land resources of the surrounding area for the reasons explained in response to OAR 660-004-0020(2)(d). The County should find that the Applications satisfy this rule.

Umatilla County Findings: As addressed above, the proposed uses would not generate significant impacts such as noise, odor, dust, vibrations, blasting, vapor or lighting issues. The property would utilize the resources available in proximity to the proposed site. The site is suitable for the proposed uses in part due to its proximity to the available utility and water resources. See applicant's response and County findings addressing OAR 660-004-0020(2)(d).

(c) That Goal 2, Part II(c)(4) is met by showing that the proposed urban uses are compatible with adjacent uses or will be so rendered through measures designed to reduce adverse impacts considering:

(A) Whether urban development at the proposed site detracts from the ability of existing cities and service districts to provide services; and

Applicant Response: Urban development of the Property consistent with the Applications will not detract from the ability of existing cities and service districts to provide services because the Property will not utilize urban services from any of the nearby cities. Further, although the Property will draw water from the Regional

Water System, there is adequate capacity to serve the Property and existing users of the system. Applicant will submit additional testimony in response to this rule before the initial public hearing for this matter. The County should find that the Application satisfies this rule.

Umatilla County Findings: The proposed uses would not detract for the ability of cites or service districts to provide services. As indicated by the applicant the proposed uses will not utilize urban services from the Cities of Hermiston or Umatilla. The Regional Water System has capacity to serve the proposed uses and existing users, according to the Regional Water System's system engineer in a letter dated February 28, 2017. In addition the applicant has submitted letters of support from the Cities of Hermiston and Umatilla (Exhibits E & F), the two closest cities to the site.

(B) Whether the potential for continued resource management of land at present levels surrounding and nearby the site proposed for urban development is assured.
Applicant Response: The potential for continued resource management of land at present levels surrounding and nearby the Property is assured for three reasons. First, development of the Property will not require any new or expanded roadways or extension of any additional public services. Second, as illustrated on the Conceptual Development Plan, Applicant will accommodate all stormwater from the development on the Property. Third, Applicant also incorporates its response to OAR 660-004-0020(2)(d). The County should find that the Application satisfies this rule.

Umatilla County Findings: As addressed in detail above the proposed uses would allow for the continued resource management of surrounding lands at the present levels. The proposed uses would have minimal impacts to surrounding farm uses as it would not generate impacts such as noise, odor, dust, vibrations, blasting, vapor or lighting issues. See applicant's response and County findings addressing OAR 660-004-0020(2)(d).

(d) That an appropriate level of public facilities and services are likely to be provided in a timely and efficient manner; and
Applicant Response: The Property will only be served by limited public facilities and services (police, fire, water and roads). Applicant will be required to extend Regional Water System lines to the Property, but the extension is only approximately 1,500 feet long. For the reasons set forth in this narrative in response to the specific policies pertaining to these services in UCCP Chapter 14, an appropriate level of public facilities and services is likely to be provided in a timely and efficient manner to serve the Property. The County should find that the Applications satisfy this rule.

Umatilla County Findings: The parcel would be served by limited public facilities. The applicant has a Letter of Intent from the RWS to provide water to the proposed data centers, and the system engineer of RWS has opined in a letter dated February 28, 2017 (Exhibit I), that the RWS has adequate capacity to serve the subject development and existing users, subject to applicant's completion of agreed upgrades funded by the applicant. The applicant has submitted a preliminary plan to connect to an existing

County right-of-way. Currently the right-of-way is not improved to County standards and not maintained by the County. The 40 foot right-of-way is reserved for the realignment of NW Livestock Road. Therefore, a condition of approval is imposed requiring the applicant to coordinate with the County Public Works Director and all improvements within the County right-of-way shall meet County standards.

(e) That establishment of an urban growth boundary for a newly incorporated city or establishment of new urban development on undeveloped rural land is coordinated with comprehensive plans of affected jurisdictions and consistent with plans that control the area proposed for new urban development.
Applicant Response: For the reasons explained in Section III.B [see below] of this narrative, Applicant has coordinated the Applications with the County. Further, the Applications are consistent with the UCCP, which controls the Property. Therefore, the County should find that the Applications are consistent with this rule.

[Section III.B] Umatilla County Comprehensive Plan.
Chapter 6. AGRICULTURE
Policy 1: Umatilla County will protect, with Exclusive Farm Use zoning pursuant to ORS 215, lands meeting the definition of farmland in this plan and designated as Agricultural on the Comprehensive Plan Map.
Applicant Response: The County should find that the Applications are consistent with this policy for three reasons. First, this policy does not preclude the County from changing the Property's Exclusive Farm Use zoning to another designation. Second, other UCCP policies identified below support a change in the map designations of the Property, meaning on balance, the County should find that the Applications are consistent with the UCCP. Third, as explained below, state law permits the County to approve an exception to allow non-farm uses on farmland, and the Applications meet the criteria for an exception.

Chapter 10. NATURAL HAZARDS
Policy 1: The County will endeavor, through appropriate regulations and cooperation with applicable government agencies, to protect life and property from natural hazards and disasters found to exist in Umatilla County.
Applicant Response: The Property is [not] located in any inventoried hazard areas. The County should find that this policy is not applicable to the Applications.

Chapter 12. ECONOMY OF THE COUNTY
Policy 3: To encourage industrial diversification, modify from pre-designated industrial areas as appropriate.
Applicant Response: Approval of the Applications will expand the County's pre-designated industrial areas and encourage industrial diversification. The County should find that the Applications are consistent with this policy.

Policy 10: Encourage industry and manufacturing diversification while preserving the more productive agricultural lands.
Applicant Response: The Applications are consistent with this policy for two reasons. First, approval of the Applications will not lead to a loss of productive agricultural lands. The Property's soils are classified as Class VII (non-irrigated) and no water rights. As a result, the

Property has not been utilized for growing crops and has only been used on a limited basis for livestock grazing. Second, approval of the Applications will encourage industrial diversification because it will facilitate a new light industrial development. The County should find that the Applications are consistent with this policy.

Chapter 14. PUBLIC FACILITIES AND SERVICES

Policy 1: The county will control land development in a timely, orderly, and efficient manner by requiring that public facilities and services be consistent with established levels of rural needs consistent with the level of service requirements listed on pages J-27 and J-28 of the Technical Report. Those needs are identified as follows:

a. Fire protection shall be provided consistent with Policies 8, 9, 10.

Applicant Response: The County should find that the Applications are consistent with this sub-policy for the reasons set forth in response to Policies, 8, 9, and 10 below.

b. Police protection shall be provided consistent with Policy 7.

Applicant Response: The County should find that the Applications are consistent with this sub-policy for the reasons set forth in response to Policy 7 below.

c. Surface Water Drainage – Roadside drainage shall be maintained and plans for drainage shall be required in multiple use areas.

Applicant Response: The Property is not located in a multiple use area. Therefore, the County should find that this sub-policy is not applicable to the Applications.

d. Roads shall be maintained or improved to standards adopted by the County Road Department which are consistent with nationally accepted standards that correlate traffic to desired road conditions.

Applicant Response: The Property will have direct access to Westland Road, which is improved to County road standards. The County should find that the Applications are consistent with this sub-policy.

Policy 6: The County will seek comments from affected public facilities and services providers for all discretionary land use actions including all types of land divisions, conditional uses, variances, zoning map amendments, and comprehensive plan map amendments.

Applicant Response: The Applications are discretionary land use actions. Therefore, the County should seek comments on the Applications from affected service providers. Upon doing so, the County should find that it has processed the Applications consistent with this policy.

Policy 7: Allocate annual funding to maintain at least the state average of .34 officers per 1000 people.

Applicant Response: The County should find that it is maintaining an adequate number of officers in its Sheriff's Department.

Policy 8: The County will encourage the formation or expansion of rural fire districts in areas designated for non-resource use.

Applicant Response: The Property is located in and served by the Umatilla County Fire District #1. The County should find that the Applications are consistent with this policy.

Policy 9: Require adequate water supplies for firefighting as part of significant new developments in rural areas in coordination with the appropriate rural fire district.
Applicant Response: The Umatilla County Fire District #1 will receive notice of the Applications and can provide comments on its capacity to serve the Property.

Policy 10: The County will provide assistance to rural fire districts in their attempts to locate satellite fire stations closer to rural development.
Applicant Response: The Umatilla County Fire District #1 will receive notice of the Applications and can provide comments on its capacity to serve the Property.

Chapter 15. TRANSPORTATION
Policy 25A: Examine interchanges and other potential commercial and industrial locations for appropriateness of development taking into consideration access, sewer and water availability and environmental conditions.
Applicant Response: When the County adopted the UCCP and map, Interstate Highway 82 had not yet been built, and the interchange of Interstate Highways 82 and 84 did not yet exist. Now that it does exist, and it is located in close proximity to the Property, it is appropriate for the County to designate the Property for development. The Property will have access to a public street (Westland Road) that meets applicable spacing standards, a private well and septic serve the Property, and there are no inventoried environmental resources on the Property. Therefore, the County should find that the Applications are consistent with this policy.

Policy 25B: Identify and evaluate factors limiting development in this area.
Applicant Response: The factor limiting development of the Property is its EFU zoning. The County should find that approval of the Applications will remove this limitation.

Chapter 17. URBANIZATION
Policy 5: Where practical, and to conserve the agricultural base, lands committed to urbanization should be those of lesser agricultural potential compatible with continuing production of neighboring farm lands.
Applicant Response: The Applications are consistent with this policy for two reasons. First, the Property is of lesser agricultural potential because it is comprised of Class VII (non-irrigated) soils with no water rights. It has not been utilized to grow crops, and it has only been used on a limited basis for livestock grazing. Second, as explained in response to the exception criteria of OAR Chapter 660 below, urbanization of the Property consistent with the Applications will be compatible with the continuing production of neighboring farm lands. The County should find that the Applications are consistent with this policy.

Umatilla County Findings: As addressed above the application is consistent with the Umatilla County Comprehensive Plan. The proposed rezone and exception to Statewide Planning Goals 3 and 14 would allow the proposed urban development (data centers and accessory structures) on the subject property consistent with the Comprehensive Plan.

Umatilla County Development Code
152.019 TRAFFIC IMPACT STUDY.

(B) *Applicability:* A Traffic Impact Analysis shall be required to be submitted to the County with a land use application, when one or more of the following actions apply:

(1) A change in plan amendment designation; or

Applicant Response: The Applications propose a change in the UCCP map designation for the Property. Therefore, a Traffic Impact Analysis is required. Applicant has submitted to the County an analysis that is prepared in accordance with this section.

Umatilla County Findings: The application is for a change to the Comprehensive Plan designation from North/South Agricultural to Industrial. A Traffic Impact Analysis (TIA) is required. The approval criteria are addressed in Section (D) below.

(D) *Approval Criteria:* When a Traffic Impact Analysis is required; approval of the proposal requires satisfaction of the following criteria:

(1) Traffic Impact Analysis was prepared by an Oregon Registered Professional Engineer qualified to perform traffic engineering analysis;

Applicant Response: Diego Arguea, P.E. of KAI prepared the TIA. Mr. Arguea is an Oregon registered professional transportation engineer and is qualified to perform traffic engineering analysis. The County should find that the TIA satisfies this requirement.

Umatilla County Findings: The TIA (Exhibit C) was prepared by an Oregon Registered Professional Engineer qualified to perform traffic engineering analysis.

(2) If the proposed action shall cause a significant effect pursuant to the Transportation Planning Rule, or other traffic hazard or negative impact to a transportation facility, the Traffic Impact Analysis shall include mitigation measures that meet the County's Level-of-Service and/or Volume/Capacity standards and are satisfactory to the County Engineer, and ODOT when applicable; and

Applicant Response: As explained in the TIA, approval of the Applications will not cause a significant effect pursuant to the TPR or other traffic hazard or negative impact to a transportation facility. Therefore, no mitigation measures are required. The County should find that the TIA satisfies this requirement.

Umatilla County Findings: As addressed in the TIA the uses allowed, data centers and accessory structures, would be limited by applying the LU Overlay to the subject property. By limiting the uses allowed, the proposed amendments and development of the proposed data centers with ancillary office, warehouse and utility substation would not significantly affect existing or planned transportation facilities.

(3) The proposed site design and traffic and circulation design and facilities, for all transportation modes, including any mitigation measures, are designed to:

(a) Have the least negative impact on all applicable transportation facilities;

(b) Accommodate and encourage non-motor vehicular modes of transportation to the extent practicable;

(c) Make the most efficient use of land and public facilities as practicable;

(d) Provide the most direct, safe and convenient routes practicable between on-site destinations, and between on-site and off-site destinations; and
(e) Otherwise comply with applicable requirements of the Umatilla County Code.
Applicant Response: The proposed site design identifies the proposed site access point via a new driveway that crosses the existing channel along the south of the subject property to the Triple M Truck & Equipment store driveway. *See* Conceptual Site Plan included with Applications. That access point meets applicable spacing standards. Further, the design incorporates an efficient and safe on-site circulation system. *Id.* The County should find that the TIA satisfies this requirement.

Umatilla County Findings: The proposed access point is onto an existing County right-of-way not a private driveway. The right-of-way is not improved to County standards and not maintained by the County. The 40 foot right-of-way is reserved for the future realignment of NW Livestock Road.

LIMITED USE OVERLAY ZONE
152.531 APPLICABILITY
The LU Overlay Zone is an overlay zone which may be applied, where appropriate, to plan amendments/zone changes affected by either a "physically developed" exception under ORS 197.732(1)(a), an "irrevocably committed" exception under ORS 197.732(1)(b), or a "reasons" exception under ORS 197.732(1)(c).
Applicant Response: The Applications request a "reasons" exception to Goals 3 and 14 under ORS 197.732(1)(c). The scope of, and justification for, that exception is limited to specific uses. As a result, it is appropriate to apply the LU Overlay zone to the Property to limit the uses consistent with the exception.

Umatilla County Findings: The application is for a reasons exception to Statewide Planning Goals 3 and 14 under ORS 197.732(1)(c). The LU Overlay is appropriate to limit the uses allowed to those specified in the exception.

152.533 PERMITTED USES.
The LU Overlay Zone, when adopted, shall carry out the requirement of Oregon Administrative Rules 660-04-018 that where a goal exception is taken, permitted uses shall be limited to those uses justified by the exception statement.
Umatilla County Findings: As required by this standard and OAR 660-04-18(4)(a) the permitted uses will be limited to the uses justified by the exception (data centers with ancillary warehouse, administrative office and utility substation). A change in type or intensity of uses would require an amendment to the LU Overlay and a new reasons exception.

152.534 USE LIMITATIONS.
The following limitations shall apply to the underlying zone when the LU Overlay Zone is applied:
(A) In all cases, the hearings body shall establish that:
(1) The uses and general activities subject to the rezoning are required to be limited to those uses and general activities justified in the goal exception taken.
Applicant Response: As explained above, Applicant has justified an exception to Goals 3 and 14 to allow development of light industrial uses, including data centers, with ancillary

warehouse, administrative office, and utility substation. The approximate location, size, and layout of these uses is identified in the Conceptual Development Plan in [applicant's] Exhibit 5. Therefore, the uses and activities allowed by the LU Overlay zone for the Property should be limited accordingly.

Umatilla County Findings: The applicant's reasons exception to Goals 3 and 14 is dependent upon limiting the uses to those justified in the exception. Therefore, the uses allow shall be limited to those uses (data center with ancillary warehouse, administrative office and utility substation) justified by the exception.

(2) A review of all zones in the most current version of this chapter demonstrates that no existing zone adequately limits the uses and general activities.
Applicant Response: No existing zone adequately limits the uses and general activities. Although the Heavy Industrial and Light Industrial zoning districts would each allow the same uses and activities as those proposed by Applicant, these zoning districts do not adequately limit the uses on the Property for two reasons. First, they do not limit the size of the proposed uses and activities. In fact, Applicant could develop much larger uses on the Property under either the Heavy Industrial or Light Industrial zoning districts without the LU Overlay zone. Second, in the absence of the LU Overlay zone, both the Heavy Industrial and Light Industrial zoning districts would allow Applicant to develop many additional uses that could have more substantial and more adverse effects on surrounding agricultural uses. Therefore, the County should find that no existing zone adequately limits the uses and general activities on the Property, and the LU Overlay zone is necessary.

Umatilla County Findings: There are no existing zoning designation that would adequately limit the uses to those proposed by the applicant. Therefore, the LU Overlay is necessary to limit the uses to those justified by the exception.

(3) The requirements and standards of this section shall apply in addition to those specified in this chapter for the underlying zone and any other applicable overlay zones.
Applicant Response: Applicant acknowledges the requirements of this subsection.

Umatilla County Findings: The standards of this section shall apply in addition to those of the underlying zone. No other overlay zones apply to the subject parcel.

152.535 ADOPTION.
The ordinance adopting the underlying zone and the LU Overlay Zone shall set forth those specific uses and general activities which will be permitted or conditional uses. The description of the permitted and conditional uses may be qualified as necessary to achieve the purpose of the LU Overlay Zone.
Applicant Response: As explained above, Applicant is proposing to develop light industrial uses, including data centers, with ancillary warehouse, administrative office, and utility substation on the Property. The approximate location, size, and layout of these uses is identified in the Conceptual Development Plan in [applicant's] Exhibit 5. The ordinance adopting the zone change should the specific uses accordingly.

Umatilla County Findings: If approved the ordinance adopting the underlying zone (Light Industrial) and the LU Overlay would set forth those specific uses (data center with ancillary warehouse, administrative office and utility substation) justified by the exception. The proposed uses would be processed as a use allowed with a Zoning Permit in Section 152.302(B)(19) "Wholesale business, storage building or warehouse" under the LI zoning.

152.536 SITE PLAN REQUIREMENTS; APPROVAL.
(A) In addition to limiting the uses in the underlying zone where the LU Overlay Zone is applied, the county may also require approval of the location of buildings, access, parking, screening and other site planning considerations in order to assure the compatibility of the permitted uses within the area.
(B) The process for reviewing the site plan shall be described at the time of the LU Overlay Zone application. Site plan requirements may be added by specific reference in the LU adopting ordinance. Specifications and standards of the underlying zone remain in effect unless specifically altered by the site plan approval. Separate site plan approval shall not be required for any uses subject to a conditional use permit.
Applicant Response: The Applications include a Conceptual Development Plan in [applicant's] Exhibit 5 that identifies the approximate location, size, and layout of the proposed uses for the Property, including access and stormwater.

Umatilla County Findings: The applicant has submitted a Conceptual Development Plan. However, limiting the location of building and other site planning considerations is not necessary to assure compatibility with other permitted uses in the area. Therefore, the applicant will be required to submit a final site plan and complete a Design Review application prior to issuance of a Zoning Permit.

OPTIONS FOR PLANNING COMMISSION MOTIONS

A. Motion to Recommend Denial Based on Evidence in the Record

I, Commissioner _____, make a motion to recommend denial of the Vadata, exception to Statewide Planning Goals 3 and 14 (Text Amendment #T-17-072), amendment to the Comprehensive Plan Map (Comprehensive Plan Map Amendment #P-119-17) and amendment to the Zoning Map (Zone Map Amendment #Z-311-17) to the Board of County Commissioners, based on the foregoing Findings of Fact and Conclusions of Law.

B. Motion to Recommend Approval with Adoption of Findings or with Additional Findings

I, Commissioner _____, make a motion to recommend approval of the Vadata, exception to Statewide Planning Goals 3 and 14 (Text Amendment #T-17-072), amendment to the Comprehensive Plan Map (Comprehensive Plan Map Amendment #P-119-17) and amendment to the Zoning Map (Zone Map Amendment #Z-311-17) to the Board of County Commissioners, based on the foregoing Findings of Fact and Conclusions of Law.

BOARD OF COMMISSIONERS DECISION OPTIONS

A. Denial

Based upon the foregoing Findings of Fact and Conclusions of Law, where it has not been demonstrated the request is not in compliance with the County Comprehensive Plan and the State Administrative Rules for an exception to Goals 3 and 14, the applicant's request is denied.

B. Approval

Based upon the foregoing Findings of Fact and Conclusions of Law, where it has been demonstrated the request is in compliance with the County Comprehensive Plan and the State Administrative Rules for an exception to Goals 3 and 14, the applicant's request is approved.

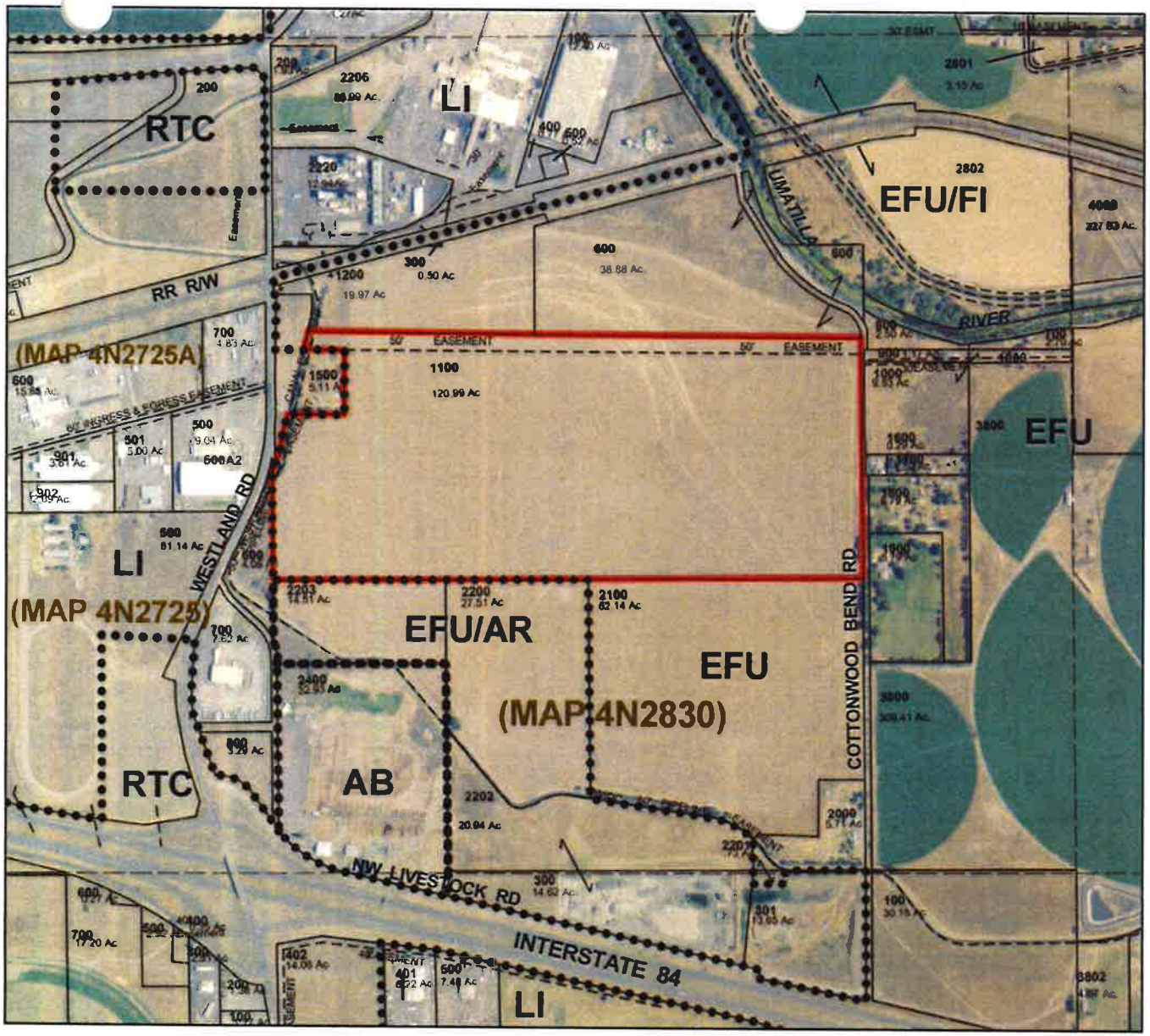
DATED this _____ day of _____, 20_____.

UMATILLA COUNTY BOARD OF COMMISSIONERS

_____
W. Lawrence Givens, *Commissioner*

_____
William J. Elfering, *Commissioner*

_____
George L. Murdock, *Commissioner*



PROPERTY OWNERS WITHIN 750'
NOTICE OF SUBJECT PARCEL

MAP & TAX LOT	OWNER
4N27250000500	PETRO STOPPING CENTERS LP TRAVELCENTERS OF AMERICA
4N27250000600	MEDELEZ TRUCKING LLC
4N27250000700	MEDELEZ TRUCKING LLC
4N2725A000200	FLYING J INC C/O PILOT TRAVEL CENTERS LLC #600
4N2725A000500	FARMLAND RESERVE INC REX BURGENER & WARREN PETERSON
4N2725A000501	FARMLAND RESERVE INC REX BURGENER & WARREN PETERSON
4N2725A000600	BT PROPERTY LLC
4N2725A000700	BOUNDS ROGER S
4N28300000300	CONAGRA FOODS, LAMB WESTON INC KARIMA TOMASINO
4N28300000600	LIBERATED L & E LLC
4N28300000700	DRIFTWOOD MEACHAM LLC BURNAM NORMA (AGT)
4N28300000800	CRAFT RICK A
4N28300000900	CRAFT THOMAS D
4N28300001000	DRIFTWOOD MEACHAM LLC BURNAM NORMA (AGT)
4N28300001100	LIBERATED L & E LLC
4N28300001200	LIBERATED L & E LLC
4N28300001500	HERMISTON GENERATING CO & PACIFICORP
4N28300001600	STRAND MARY E & PAUL J
4N28300001700	CORIA EVA P C/O TAMMY ANGEL ORNELAS
4N28300001800	BELL MERRY SUSAN
4N28300001900	BUCKALLEW CREGG A & M MARY
4N28300002100	LIBERATED L & E LLC
4N28300002200	JTJ ENTERPRISES LLC
4N28300002203	JTJ ENTERPRISES LLC
4N28300002400	J & A COELHO LLC
4N28C00002206	CONAGRA FOODS LAMB WESTON INC C/O KARIMA TOMASINO
4N28C00002220	HERMISTON GENERATING CO & PACIFICORP
4N28C00002802	BRITT SIDNEY & RANDY RAE
4N28C00003800	SNAKCORP INC C/O SHEARERS FOODS INC

PLAN AMENDMENT #P-119-17, TEXT AMENDMENT #T-17-072
& ZONE MAP AMENDMENT #Z-311-17
VADATA, APPLICANT / LIBERATED L & E LLC, PROPERTY OWNER
MAP 4N2830, TAX LOT 1100

2016 AERIAL PHOTO

SUBJECT PARCEL

N
W E
S

0 300 600 900
Feet

DATE: 2/15/17

MAP DISCLAIMER: No warranty is made by Umatilla County as to the accuracy, reliability or completeness of this data. Parcel data should be used for reference purposes only. Not intended for legal use. Created by Julie Alford, Umatilla County Planning Department 2/15/17

DRAFT MINUTES
UMATILLA COUNTY PLANNING COMMISSION
Meeting of Thursday, March 23, 2017
6:30 p.m., Umatilla County Justice Center, Media Room
Pendleton, Oregon

** **

COMMISSIONERS PRESENT:	Randy Randall, Chair, Gary Rhinhart, Vice Chair, Suni Danforth, Don Marlatt, Don Wysocki, Clive Kaiser, Cecil Thorne, Tami Green
ABSENT:	Tammie Williams
STAFF:	Tamra Mabbott, Brandon Seitz, Bob Waldher, Tierney Dutcher

** **

NEW HEARING

COMPREHENSIVE PLAN TEXT AMENDMENT, #T-17-072, ZONE MAP AMENDMENT, #Z-311-17 & COMPREHENSIVE PLAN MAP AMENDMENT, #P-119-17, VADATA, INC., APPLICANT, LIBERATED L & E, LLC, OWNER. The applicant requests a rezone of approximately 120 acres of Exclusive Farm Use Zone land to Light Industrial with a Limited Use Overlay. The property is described as Township 4N, Range 28E, Section 30; Tax Lot #1100. The applicant's request includes the following land use actions: 1) Amendment of the Comprehensive Plan Text and approval of an exception to Statewide Planning Goals 3 (Agriculture) and 14 (Urbanization); 2) Amendment of the County Comprehensive Plan Map from North-South Agriculture to Industrial; 3) Amendment of the County Zoning Map from Exclusive Farm Use to Light Industrial with a Limited Use Overlay.

The criteria of approval are found in Oregon Revised Statute (ORS) 197.732 and Oregon Administrative Rules (OAR) Chapter 660, Divisions 4 and 14, the County Transportation System Plan and UCDC Sections 152.019 and 152.750 through 152.755.

STAFF REPORT

Brandon Seitz, Assistant Planner, stated that the applicant is proposing to rezone tax lot #1100 which is approximately 120 acres (ac.) from Exclusive Farm Use (EFU) to Light Industrial (LI) with a Limited Use (LU) Overlay Zone. The application consists of 3 separate land use applications. First is a Comprehensive Plan Text Amendment to adopt a reasons exception to Statewide Planning Goal 3, Agricultural Lands and Goal 14, Urbanization. The Second application is for a Comprehensive Plan Map Amendment which would be an amendment to the Umatilla County Comprehensive Plan Map designation changing it from North/South Agricultural to Industrial. The third application is a Zone Map Amendment which would change the zoning designation from EFU to LI with a LU Overlay. The LU Overlay is intended to comply with the OARs requiring the County to limit the uses of the subject property to those justified in the exception. The applicant is proposing to develop the property for an industrial use including data centers, office, warehouse and utility substation. If the application were

approved by the PC the use of the property would be limited to those uses. Any change in the use or intensity of the use would require approval of an application to amend the LU Overlay.

Mr. Seitz distributed 2 additional exhibits to the PC and Planning Staff. The first exhibit was a letter dated March 22, 2017 from Mark Morgan, Assistant City Manager, City of Hermiston. Mr. Morgan's letter adds more detail to a letter originally submitted from the City with more information about water usage and the regional water system. The second exhibit was a string of emails between Kittelson & Associates, who conducted the Traffic Impact Analysis for the applicant, and Jeff Wise, Traffic Study Engineer for ODOT. A summary of the email chain concludes that ODOT feels the site access point is far enough away from the interchange and they do not have any concerns about traffic issues with the proposed development.

Commissioner Marlatt asked about water rights connected to the property. Mr. Seitz verified that there is no current water right on the property.

APPLICANT TESTIMONY

Seth King, Land Use Attorney, Perkins Coie, 1120 NW Couch Street, 10th Floor, Portland, OR 97209. Mr. King stated that he is representing the applicant; VADATA, Inc. Mr. King referenced the original application and 2 follow-up submittals which have been entered into the record. He noted that the applicant concurs with the staff report and recommendation and requests that the PC adopt a motion recommending that the Board of County Commissioners (BCC) approve the applications presented.

Mr. King stated that the uses on the property will be limited consistent with the development plan that has been included in the record. That would consist of 4 data center buildings, a logistics warehouse, an administrative office and a future electric substation. He points out that it is considerably less than the options of uses they would be able to develop under the LI, and they are developing at a much lower density than they could under the LI Zone. The record includes a Traffic Impact Analysis which concludes that all the studied intersections will operate at acceptable levels consistent with the mobility targets and level of service standards both at morning peak and evening peak hours in 2018 which is the anticipated construction date, then again in 2031. They concluded that there would not be a significant affect under Oregon's Transportation Planning Rule (TPR) or UCDC to any existing or planned transportation facilities as long as the trips on the site were capped consistent with the number of trips that the proposed development plan is anticipated to generate. There are no transportation operations or safety based mitigation measures that were recommended with this particular use.

Mr. King stated that the use of water at the site will be served by regional water services. He referenced a letter in the record from the Regional Water Services Engineer dated February 28, 2017, stating there is adequate capacity in the regional water system to serve the subject property as well as existing users. He also mentioned a letter in the record from Mark Morgan, City of Hermiston, indicating that the development and use will not have an adverse impact on the City's water supply. In fact, there will be benefits from drawing from the regional water system because it will diversify the customer base and as a large user, will help stabilize rates as fixed cost will be spread out over more units of production.

Mr. King stated that the applicant is requesting a Reasons Exception to Statewide Planning Goals 3 and 14. The first standard that needs to be addressed under the exception criteria is that reasons justify why the state goal should not apply. There are 3 reasons the applicant believes the State policy in Goals 3 and 14 should not apply. First, the site is not a productive farm site. The site is not characterized by high value soils for agricultural production and there is no current water right on the site. Testimony from the current owner indicated they are not using it to grow crops. They have limited grazing activities on the property associated with the auction yard located across from the property. Mr. King pointed out that the Department of Land Conservation and Development (DLCD) submitted a letter indicating no concerns with the Goal 3 Exception. He referenced testimony in the Staff Report from an individual who farmed the land in the past. The previous farmer indicated the site was rocky and difficult to farm and he would not choose to farm again at that location.

Mr. King stated that the second reason the applicant believes the use justifies the exception is because the site is well situated for industrial uses. It is near the interchange of the 2 interstates and there are existing exception areas in 3 directions. He stated there are significant urban level industrial uses at the location.

Mr. King stated that the third reason the applicant would use to justify the exception is that the site will generate significant economic benefits, including new jobs and tax revenue. The applicant believes the benefits offset the loss of agricultural land, which is not currently used for agricultural purposes and has shown to not be a productive farm site over time.

Mr. King stated that the standard requires that they consider alternatives and find that areas that do not require a new exception cannot accommodate the use. He referenced 2 letters in the record from Mr. Footh outlining the applicant's site selection criteria as well as the evaluation process they went through. In order to accommodate their data centers the site must be at least 100 ac. in size. It must also be located as close as possible to unique infrastructure needs like high-voltage (115 kilovolt (kV) or higher) transmission power lines. The site needs a high flow of water to help cool the buildings and must allow for reuse of the significant water discharge generated by the site. He stated that Mr. Footh supervised the site selection and evaluation process and concluded that this is the only site in the county that would meet these unique standards of the project. The applicants other data centers in the county are at capacity at this time and they have a need for smaller scale data center campuses. They are currently considering developing another data center campus that would be located inside the UGB. There was a question as to whether the applicant could site both campuses together, and the answer is no. The applicant has a need for the smaller scale campuses that are separate from each other to create redundancy and risk aversion into the network. If one site goes down, the others can remain in operation.

APPLICANT TESTIMONY

Diego Arguea, Kittleson & Associates, 610 SW Alder Suite #700, Portland, OR &
Jim Footh, Real Estate Development Manager, VADATA, Inc., 210 Terry Avenue N, Seattle, WA.
Commissioner Rhinhart stated that, for the project they require 120 ac. of industrial land, 115 kV power

line, 400 gallons (gal.) of water per minute for cooling, a way to dispose of heated water, highway access, and flat usable land. He asked for information on what other locations have been considered by the applicant. Mr. Footh stated that they looked throughout the greater Hermiston-Umatilla area. Their facilities use a great deal of power so proximity to the high voltage power is their primary concern. The subject property is directly adjacent to the Hermiston Generating Plant which has 230 kV power lines directly to it. The applicant would need to extend the power lines approx. 1,500 feet (ft.) to serve the property.

Mr. Footh stated that they had considered an industrial property on Feedville Road, but the site did not have adequate power. The applicant would have been required to build power poles for approx. 2 miles to serve the site. Additionally, they would have needed to extend water to the site. The subject property met the criteria much better than any others in the area. Commissioner Rhinhart stated that, with land use issues like changing the zoning of a property, the PC does not consider cost in their decision making process. He stated that Pendleton has 525 ac. of sellable flat land up by the airport. Mr. Footh stated that the Pendleton location is geographically too far away from the existing data centers. There is 1 campus in Umatilla County and 2 campuses in Boardman. The data center campuses must be clustered together because they are connected by fiber and the Pendleton location is too far for the signal connectivity.

Commissioner Rhinhart stated that he is concerned about making an exception on farm ground when there is available land in Pendleton. He believes when the farmland is turned into industrial land it devalues the industrial ground. Mr. King stated that development of this site with industrial uses does not necessarily work against development of the industrial land in Pendleton because industrial users have a variety of different needs.

Commissioner Wysocki asked for the applicant to summarize their water needs including details about where the wastewater water will end up and whether it will be distributed back to agriculture. Mr. Footh stated that there are 2 wastewater streams, sanitary sewer and process water. Commissioner Wysocki clarified that his question is about the process water. Mr. Footh stated that they are looking at several solutions for water reuse. He stated that they have a scheduled meeting with the Department of Environmental Quality (DEQ) to discuss multiple possible options. Their intention is to use the process water for agricultural purposes. The water is used for its cooling capacity only. There is no contact and therefore no contamination in the process.

OPPONENT TESTIMONY

Dan Burnam, 78001 Cottonwood Bend Road, Hermiston, OR. Mr. Burnam is a neighbor of the subject property. He stated that the land was farmed approx. 5-7 years ago. Mr. Burnam expressed frustration that he has been told there are no water rights on his property. He was also told there are no water rights on the larger piece of land but he has seen a well located in the corner. He does not agree with this proposed Goal Exception. He believes that just because someone sold the water-right doesn't mean the classification should be changed. If the BCC allows this he would like a buffer between the data center campus and the residences located on the east side of the lot. He stated that the subject property is located in a Critical Groundwater Area which prohibits him from digging an irrigation well, and he

doesn't think it's fair that a large company is able to come in and put in a well. Commissioner Rhinhart clarified that the applicant will put an exempt industrial well which only allows for 5,000 gal. per day, not irrigation water. Mr. Burnam asked if that will affect his well. Chair Randall stated that DEQ or Water Resources will govern that decision.

Mr. Burnam asked when the soils on the property were last mapped. Commissioner Wysocki stated that the map they were using showed it was mapped in 1988. He said the soil type is Quincy loamy fine sand and often those soils are farmed productively when they have water. Mr. Burnam said this land can have water and can be farmland so he believes it should not be turned into industrial land. He is concerned about the location of the buildings on the property and their proximity to the residential lots. Chair Randall stated that the application is online and it includes detailed drawings on what the applicant plans to do. Mr. Burnham asked if they will be using Cottonwood Bend Road as an entrance and Chair Randall stated that the applicant testified that the entrance would be from the north side and he may benefit from the pavement on the road. Mr. Burnham said he will not benefit. He wants to build a house and the County has told him he cannot so he feels the land is going to waste. Commissioner Danforth asked what would be an acceptable buffer for him. Mr. Burnham stated that he does not know what would be acceptable because he just found out about this project and is quite upset. Mr. Seitz stated that there is a buffer in the LI Zone to residences and they would be required to adhere to the same standard. Commissioner Danforth stated that the PC does its best to take into consideration the protection of adjacent property owners.

OPPONENT TESTIMONY

Mary Buckallew, 77867 Cottonwood Bend Road, Hermiston, OR 97838. Ms. Buckallew stated that she lives on the lot on Cottonwood Bend Road on the bottom corner, to the east. The County just contacted her about this project and she was very concerned. She stated that she appreciated the questions asked of the applicant by the PC because she had many of the same questions. Her house is located approx. 200 ft. off of Cottonwood Bend Road. She stated that she is concerned that they will build on the border of the land. She acknowledged that she has not yet reviewed the application online and plans to do so. She stated that Mr. Burnam covered many of the issues she is worried about. She is concerned about the increased traffic and how it may change her family's lifestyle. Commissioner Rhinhart asked how much traffic she currently sees on her street during the day. Ms. Buckallew said they see a car, at most, every 30 minutes. She stated that 2 years ago when the state was doing work on the interchange, they routed traffic through her driveway. At least 1 vehicle passed every minute causing thick dust and being outside was unbearable. Her property is downwind from the subject property which makes her extra worried about the dust.

APPLICANT REBUTTAL

Mr. King stated that the proposed plan is included with the application. The plan will come back through the Planning Department for a Design Review and some details will be worked out at that stage. It will be subject to the standard LI buffer requirement and the closest buildings will be located approx. 100 ft. off of Cottonwood Bend Road. Additionally, the buildings that are planned to be located on that side

will be the warehouse, not data center buildings The data center buildings will be located further back on the property.

Mr. King stated that the primary access is anticipated to be on the west side connecting to the new road. The Cottonwood Bend Road access will be reserved for alternate emergency and construction use. Commissioner Danforth asked how tall the warehouse building will be. Mr. Footh stated that it will be 30 ft. Mr. King stated that they will address those issues at the Design Review stage. He stated that there is no current water right on the property. He believes that, the testimony arguing that one could attain a new water right and then farm the property, is speculative. The decision made by the PC should be based on facts and circumstances that are in place today.

Chair Randall closed the hearing for deliberation.

Commissioner Wysocki stated that this is the second hearing the PC has had on changing farmland to other uses. He is concerned that we continue to remove farmland because there is no way to create more. He would like to be able to ask for mitigation when applicants make these requests because the only way to get more food is to get more food per ac. Therefore, money should go into agriculture research or other efforts to help to increase production. Commissioner Rhinhart stated that the State of Oregon loses an average of 150,000 ac. of farm and forest land yearly to industrial changes.

Commissioner Kaiser made a motion to recommend approval of the VADATA Exception to Statewide Planning Goals 3 &14, Comprehensive Plan Text Amendment #T-17-072, Zone Map Amendment #Z-311-17 and Comprehensive Plan Map Amendment #P-119-17 to the BCC based on the foregoing findings of fact and conclusions of law. The motion was seconded by Commissioner Danforth. Motion passed with a vote of 7:1.

BEFORE THE PLANNING COMMISSION AND BOARD OF COMMISSIONERS

OF UMATILLA COUNTY, OREGON

In the Matter of a Requests for: (1) Comprehensive Plan Map Amendment from North/South Agriculture to Industrial; (2) Zoning Map Amendment from Exclusive Farm Use to Light Industrial with Limited Use Overlay; and (3) Reasons Exceptions to Statewide Planning Goals 3 and 14, all on Approximately 120 Acres of Real Property Generally Located Northeast of the Interstate Highway 82/Interstate Highway 84 Interchange between Westland Road and Cottonwood Bend Road.	**NARRATIVE IN SUPPORT OF THE APPLICATIONS FILED BY VADATA, INC.**

I. Introduction and Description of Request.

Vadata, Inc., a Delaware corporation ("Applicant" or "Vadata"), submits these applications ("Applications") requesting that Umatilla County ("County") approve applications to: (1) amend the Comprehensive Plan Map designation from North/South Agriculture to Industrial; (2) amend the Zoning Map designation from Exclusive Farm Use to Light Industrial with Limited Use Overlay; and (3) adopt reasons exceptions to Statewide Planning Goals 3 and 14, all on approximately 120 acres of real property generally located northeast of the Interstate Highway 82/Interstate Highway 84 interchange between Westland Road and Cottonwood Bend Road ("Property"). Applicant intends to develop the Property with light industrial uses and ancillary office, warehouse, and utility substation uses identified on a specific site plan.

This narrative explains how the Applications satisfy the approval criteria of the Umatilla County Development Code ("UCDC"), the Umatilla County Comprehensive Plan ("UCCP"), the Statewide Planning Goals ("Goals"), the Oregon Revised Statutes ("ORS"), and the Oregon Administrative Rules ("OAR"). Because the Application satisfies these approval criteria, the County should approve the Applications.

II. Description of Subject Property and Surrounding Area.

The Property is approximately 120 acres in size and is identified as Tax Lot 1100, Section 30, Township 4 North, Range 28 East, Willamette Meridian. A vicinity map that identifies the Property is attached as Exhibit 1. An aerial photo of the Property and the surrounding area is attached as Exhibit 2. The Property is subject to the County's planning and zoning jurisdiction because it is located in unincorporated Umatilla County, and it is not inside an urban growth boundary. The County Comprehensive Plan Map designation for the Property is North/South Agriculture. The County Zoning Map Designation for the Property is Exclusive Farm Use ("EFU"). The Property is unimproved and utilized for livestock grazing. The Property is comprised of Class VII soils (non-irrigated). *See* Natural Resources Conservation Service soils report in Exhibit 3. The Property does not have any water rights.

Surrounding properties are also unincorporated and zoned EFU, EFU with Aggregate Resource Overlay, and Light Industrial. Immediately surrounding uses include livestock grazing and rural residential uses; however, there are several more intensive uses nearby, including the Hermiston Generating Station, ConAgra Foods, Americold Logistics to the north, and the FedEx Freight distribution center to the west.

III. Applicable County Approval Criteria.

A. Umatilla County Development Code.

AMENDMENTS

§ 152.750 AUTHORIZATION TO INITIATE AMENDMENTS.

(A) An amendment to the text of this chapter or to a zoning map may be initiated by the County Board of Commissioners, the County Planning Commission, or by application of a property owner. The request by a property owner for an amendment shall be accomplished by filing an application with the Planning Director, using forms prescribed pursuant to § 152.767.

RESPONSE: The owner of the Property is L & E Liberated, LLC. *See* Bargain and Sale Deed in Exhibit 4. L & E Liberated, LLC has signed the official County "Land Use Request" application form to initiate the Applications. The County should find that the Applications satisfy this criterion.

§ 152.751 COMPLIANCE WITH COMPREHENSIVE PLAN.

An amendment to the text of this chapter or to a zoning map shall comply with the provisions of the County Comprehensive Plan Text and Comprehensive Land Use Map. Proposed amendments shall also comply with the applicable provisions of the Oregon Transportation Planning Rule, Oregon Administrative Rule (OAR) 660, Division 12 and the Umatilla County Transportation Plan, and are subject to the requirements of §152.019, Traffic Impact Analysis. Any deviation from this section shall be preceded by an amendment to the Comprehensive Plan Text or to the Comprehensive Land Use Map. However, if the existing use of the property is allowed outright in the requested zone, compliance with the Comprehensive Plan is not necessary.

RESPONSE: The Applications comply with applicable provisions of the UCCP for the reasons explained in Section II.B of this narrative, which reasons are incorporated in response to this criterion by reference. Applicant will submit to the County a Transportation Impact Analysis ("TIA"), which complies with UCDC §152.019 and explains how the Applications will comply with the TPR. There are no deviations from this section. Upon submittal of the TIA, the County should find that the Applications satisfy this criterion.

§ 152.752 PUBLIC HEARINGS ON AMENDMENTS.

The Planning Commission shall conduct a public hearing on the proposed amendment according to the procedures of § 152.771 of this chapter at its earliest practicable meeting after it is proposed. The decision of the Planning Commission shall be final unless appealed, except in the case where the amendment is to the text of this chapter, then the Planning Commission shall forward its recommendation to the Board of Commissioners for final action. The Board shall hold a public hearing in accordance with § 152.771 of this chapter within 60 days from receipt of the Planning Commission's recommendation. Appeal shall be to the County Board of Commissioners who shall Umatilla County Development Code, Revision Date: April 13, 2016, Page 424 of 442 hold a public hearing on any appeal, pursuant to § 152.771. Appeal shall be heard on a de novo basis.

RESPONSE: Applicant acknowledges the procedural requirements of this section.

§ 152.753 CONDITIONS TO AMENDMENTS.

(A) The Planning Commission may adopt or reject an amendment, or any portion thereof, as set forth in the request, or may impose conditions to the amendment or portions thereof.

(B) (1) Conditions to amendments shall be completed within the time limitations set forth by the county, or if no such time limit is set, within a reasonable time.

(2) Such conditions shall directly benefit the property described in the amendment and shall be imposed only if the county finds them necessary to prevent circumstances which may be adverse to public health, safety and welfare.

(3) Such conditions shall be reasonably conceived to fulfill public needs emanating from the proposed land use as set forth in the petition in the following respects:

(a) Protection of the public from potentially deleterious effects of the proposed use; or

(b) Fulfillment of the need for public service demands created by the proposed use.

(4) Changes or alterations of conditions shall be proposed in the manner set forth in §§ 152.750 through 152.777 of this chapter, for amendments.

(5) Such conditions shall be set forth in a contract executed between the county acting by and through the Board of County Commissioners, and the property owner and any contract purchaser. No amendments with conditions shall be effective until such properly executed contract is filed with County Records, and proof of filing be submitted to the Planning Office. Such contract shall be properly signed and executed within 45 days after Commission actions on the amendment with conditions; provided, however, that the Commission may grant reasonable extensions in cases of practical difficulty. Such extensions shall not restrict the power of the county to rezone with or without conditions. In return for the granting of the petition for amendment, the property owner, contract purchasers and their heirs, successors and assigns shall perform those conditions set forth therein for the benefit of the public health, safety and welfare. Said contract shall be enforceable against the signing parties, their heirs, successors and assigns by the county by appropriate action in law or suit in equity.

(6) Failure to fulfill any conditions to amendments within the time limitations may be grounds for amendments to the zoning map (changes in zone) upon initiation by the proper parties pursuant to the procedure set forth in §§ 152.750 through 152.777 of this chapter.

(7) The County may require a bond in a form acceptable to the county or a cash deposit from the property owner or contract purchaser in such an amount as will assure compliance with the conditions imposed pursuant to this section. Such bond

shall be posted at the same time the contract containing the conditions to the amendment is filed with County Records.

(8) Improvements to adjacent roads. The county may require improvements to Umatilla County Development Code, Revision Date: April 13, 2016, Page 425 of 442 county or public roads, or recorded easements, abutting any parcel of land as a condition of granting an amendment to the zoning map for that parcel (change in zone), where such improvements are necessary for public safety, pursuant to requirements of this chapter.

RESPONSE: Applicant acknowledges that the County may impose conditions on its approval of the Applications. Applicant contends that conditions are not required to assure compliance with applicable approval criteria, other than a condition requiring development substantially in accordance with the Conceptual Development Plan in order to ensure compliance with the LU Overlay zone.

LI, LIGHT INDUSTRIAL ZONE

§ 152.301 PURPOSE. The LI Light Industrial Zone is designed to provide areas for industrial use that are less intensive than heavy industrial uses, and are less offensive to adjacent land uses, and are compatible with certain commercial uses. It is designed to help the county expand and diversify its economic base. The LI Zone is appropriate for areas near major transportation facilities which are generally suited for industry and include highways, railroads, and waterways.

RESPONSE: The Applications request that the County rezone the Property to Light Industrial to allow for less intensive industrial uses that will expand and diversify the County's economic base. The LI Zone is appropriate for the Property because it is located near major transportation facilities, including Interstate Highway 82, Interstate Highway 84, and railroad lines. The County should find that the Applications are consistent with the purpose of the LI Zone.

§ 152.301 USES PERMITTED.

*** * * ***

(B) Uses permitted with a zoning permit. In an LI Zone, the following uses and their accessory uses are permitted upon the issuance of a zoning permit pursuant to §152.025 and subject to the requirements of §§152.304 through 152.306 of this chapter:

* * * *

(19) Wholesale business, storage building or warehouse;

RESPONSE: As explained in more detail below, Applicant has submitted a Conceptual Development Plan for the Property with the Applications. *See* Exhibit 5. Applicant intends to develop the Property consistent with that development plan. The development plan proposes development of four data centers and ancillary warehouse and office uses. These uses are permitted as a "[w]holesale business, storage building or warehouse" in the LI zone. Therefore, the County should find that the uses identified on the Conceptual Development Plan are allowed in the LI Zone.

LU, LIMITED USE OVERLAY ZONE

§ 152.530 PURPOSE. The purpose of the LU Overlay Zone is to limit the list of permitted uses and general activities allowed in the underlying zone when a plan amendment and zone change rezones a parcel to that underlying zone through the taking of an exception to a statewide land use planning goal under ORS 197.732.

RESPONSE: Applicant is requesting that the County apply the LU Overlay zone to limit the list of uses allowed in the LI zone in conjunction with requesting an exception to Goals 3 and 14. The County should find that Applicant's requested application of the LU Overlay zone is consistent with this purpose statement.

§ 152.531 APPLICABILITY. The LU Overlay Zone is an overlay zone which may be applied, where appropriate, to plan amendments/zone changes affected by either a "physically developed" exception under ORS 197.732(1)(a), an "irrevocably committed" exception under ORS 197.732(1)(b), or a "reasons" exception under ORS 197.732(1)(c).

RESPONSE: The Applications request a "reasons" exception to Goals 3 and 14 under ORS 197.732(1)(c). The scope of, and justification for, that exception is limited to specific uses. As a result, it is appropriate to apply the LU Overlay zone to the Property to limit the uses consistent with the exception.

§ 152.532 PROCEDURES. The LU Overlay Zone shall be applied through the plan amendment and rezoning process at the time the underlying plan and/or zone designation is being changed.

RESPONSE: The Applications request a plan amendment and rezone. Therefore, it is appropriate to apply the LU Overlay zone to the Property in conjunction with the Applications.

§ 152.533 PERMITTED USES. The LU Overlay Zone, when adopted, shall carry out the requirement of Oregon Administrative Rules 660-04-018 that where a goal exception is taken, permitted uses shall be limited to those uses justified by the exception statement.

RESPONSE: As explained below, Applicant has justified an exception to Goals 3 and 14 to allow development of light industrial uses, including data centers, with ancillary warehouse, administrative office, and utility substation. Consistent with OAR Chapter 660, Division 04, the permitted uses under the LU Overlay zone should be limited to these uses. If the LU Overlay zone is so limited for the Property, the County should find that the Applications satisfy this standard.

§ 152.534 USE LIMITATIONS. The following limitations shall apply to the underlying zone when the LU Overlay Zone is applied:

(A) In all cases, the hearings body shall establish that:

(1) The uses and general activities subject to the rezoning are required to be limited to those uses and general activities justified in the goal exception taken.

RESPONSE: As explained below, Applicant has justified an exception to Goals 3 and 14 to allow development of light industrial uses, including data centers, with ancillary warehouse, administrative office, and utility substation. The approximate location, size, and layout of these uses is identified in the Conceptual Development Plan in Exhibit 5. Therefore, the uses and activities allowed by the LU Overlay zone for the Property should be limited accordingly.

(2) A review of all zones in the most current version of this chapter demonstrates that no existing zone adequately limits the uses and general activities.

RESPONSE: No existing zone adequately limits the uses and general activities. Although the Heavy Industrial and Light Industrial zoning districts would each allow the same uses and activities as those proposed by Applicant, these zoning districts do not adequately limit the uses on the Property for two reasons. First, they do not limit the size of the proposed uses and activities. In fact, Applicant could develop much larger uses on the Property under either the Heavy Industrial or Light Industrial zoning districts without the LU Overlay zone. Second, in the absence of the LU Overlay zone, both the Heavy Industrial and Light Industrial zoning districts would allow Applicant to develop many additional uses that could have more substantial and more adverse effects on surrounding agricultural uses. Therefore, the County should find that no existing zone

adequately limits the uses and general activities on the Property, and the LU Overlay zone is necessary.

(3) The requirements and standards of this section shall apply in addition to those specified in this chapter for the underlying zone and any other applicable overlay zones.

RESPONSE: Applicant acknowledges the requirements of this subsection.

(B) The requirements and standards of this section shall apply in addition to those specified in this chapter for the underlying zone and any other applicable overlay zone.

RESPONSE: Applicant acknowledges the requirements of this subsection.

§ 152.535 ADOPTION. The ordinance adopting the underlying zone and the LU Overlay Zone shall set forth those specific uses and general activities which will be permitted or conditional uses. The description of the permitted and conditional uses may be qualified as necessary to achieve the purpose of the LU Overlay Zone.

RESPONSE: As explained above, Applicant is proposing to develop light industrial uses, including data centers, with ancillary warehouse, administrative office, and utility substation on the Property. The approximate location, size, and layout of these uses is identified in the Conceptual Development Plan in Exhibit 5. The ordinance adopting the zone change should the specific uses accordingly.

§ 152.536 SITE PLAN REQUIREMENTS; APPROVAL.

(A) In addition to limiting the uses in the underlying zone where the LU Overlay Zone is applied, the county may also require approval of the location of buildings, access, parking, screening and other site planning considerations in order to assure the compatibility of the permitted uses within the area.

(B) The process for reviewing the site plan shall be described at the time of the LU Overlay Zone application. Site plan requirements may be added by specific reference in the LU adopting ordinance. Specifications and standards of the underlying zone remain in effect unless specifically altered by the site plan approval. Separate site plan approval shall not be required for any uses subject to a conditional use permit.

RESPONSE: The Applications include a Conceptual Development Plan in Exhibit 5 that identifies the approximate location, size, and layout of the proposed uses for the

Property, including access and stormwater. The County should approve this site plan with the rezone.

TRAFFIC IMPACT STUDY

§ 152.019 TRAFFIC IMPACT STUDY.

(A) Purpose: The purpose of this section of the code is to implement Section 660- 012-0045 (2) (e) of the State Transportation Planning Rule that requires the County to adopt a process to apply conditions to specified land use proposals in order to minimize adverse impacts to and protect transportation facilities. This section establishes the standards for when a proposal must be reviewed for potential traffic impacts; when a Traffic Impact Analysis must be submitted with an application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; what must be in a Traffic Impact Analysis; and who is qualified to prepare the analysis.

RESPONSE: Applicant acknowledges the purpose of this section.

(B) Applicability: A Traffic Impact Analysis shall be required to be submitted to the County with a land use application, when one or more of the following actions apply:

(1) A change in plan amendment designation; or

RESPONSE: The Applications propose a change in the UCCP map designation for the Property. Therefore, a TIA is required. Applicant will submit a TIA prepared in accordance with this section. Applicant will submit additional findings responsive to UCDC § 152.019 in conjunction with the TIA.

* * * *

B. Umatilla County Comprehensive Plan.

Chapter 6. AGRICULTURE

Policy 1: Umatilla County will protect, with Exclusive Farm Use zoning pursuant to ORS 215, lands meeting the definition of farmland in this plan and designated as Agricultural on the Comprehensive Plan Map.

RESPONSE: The County should find that the Applications are consistent with this policy for three reasons. First, this policy does not preclude the County from changing the Property's Exclusive Farm Use zoning to another designation. Second, other UCCP

policies identified below support a change in the map designations of the Property, meaning on balance, the County should find that the Applications are consistent with the UCCP. Third, as explained below, state law permits the County to approve an exception to allow non-farm uses on farmland, and the Applications meet the criteria for an exception.

Chapter 10. NATURAL HAZARDS

Policy 1: The County will endeavor, through appropriate regulations and cooperation with applicable government agencies, to protect life and property from natural hazards and disasters found to exist in Umatilla County.

RESPONSE: The Property is located in any inventoried hazard areas. The County should find that this policy is not applicable to the Applications.

Chapter 12. ECONOMY OF THE COUNTY

Policy 3: To encourage industrial diversification, modify from pre-designated industrial areas as appropriate.

RESPONSE: Approval of the Applications will expand the County's pre-designated industrial areas and encourage industrial diversification. The County should find that the Applications are consistent with this policy.

Policy 10: Encourage industry and manufacturing diversification while preserving the more productive agricultural lands.

RESPONSE: The Applications are consistent with this policy for two reasons. First, approval of the Applications will not lead to a loss of productive agricultural lands. The Property's soils are classified as Class VII (non-irrigated) and no water rights. As a result, the Property has not been utilized for growing crops and has only been used on a limited basis for livestock grazing. Second, approval of the Applications will encourage industrial diversification because it will facilitate a new light industrial development. The County should find that the Applications are consistent with this policy.

Chapter 14. PUBLIC FACILITIES AND SERVICES

Policy 1: The county will control land development in a timely, orderly, and efficient manner by requiring that public facilities and services be consistent with established levels of rural needs consistent with the level of service requirements listed on pages J-27 and J-28 of the Technical Report. Those needs are identified as follows:

a. Fire protection shall be provided consistent with Policies 8, 9, 10.

RESPONSE: The County should find that the Applications are consistent with this sub-policy for the reasons set forth in response to Policies, 8, 9, and 10 below.

b. Police protection shall be provided consistent with Policy 7.

RESPONSE: The County should find that the Applications are consistent with this sub-policy for the reasons set forth in response to Policy 7 below.

c. Surface Water Drainage – Roadside drainage shall be maintained and plans for drainage shall be required in multiple use areas.

RESPONSE: The Property is not located in a multiple use area. Therefore, the County should find that this sub-policy is not applicable to the Applications.

d. Roads shall be maintained or improved to standards adopted by the County Road Department which are consistent with nationally accepted standards that correlate traffic to desired road conditions.

RESPONSE: The Property will have direct access to Westland Road, which is improved to County road standards. The County should find that the Applications are consistent with this sub-policy.

Policy 6: The County will seek comments from affected public facilities and services providers for all discretionary land use actions including all types of land divisions, conditional uses, variances, zoning map amendments, and comprehensive plan map amendments.

RESPONSE: The Applications are discretionary land use actions. Therefore, the County should seek comments on the Applications from affected service providers. Upon doing so, the County should find that it has processed the Applications consistent with this policy.

Policy 7: Allocate annual funding to maintain at least the state average of .34 officers per 1000 people.

RESPONSE: The County should find that it is maintaining an adequate number of officers in its Sheriff's Department.

Policy 8: The County will encourage the formation or expansion of rural fire districts in areas designated for non-resource use.

RESPONSE: The Property is located in and served by the Umatilla County Fire District #1. The County should find that the Applications are consistent with this policy.

Policy 9: Require adequate water supplies for firefighting as part of significant new developments in rural areas in coordination with the appropriate rural fire district.

RESPONSE: The Umatilla County Fire District #1 will receive notice of the Applications and can provide comments on its capacity to serve the Property.

Policy 10: The County will provide assistance to rural fire districts in their attempts to locate satellite fire stations closer to rural development.

RESPONSE: The Umatilla County Fire District #1 will receive notice of the Applications and can provide comments on its capacity to serve the Property.

Chapter 15. TRANSPORTATION

Policy 25A: Examine interchanges and other potential commercial and industrial locations for appropriateness of development taking into consideration access, sewer and water availability and environmental conditions.

RESPONSE: When the County adopted the UCCP and map, Interstate Highway 82 had not yet been built, and the interchange of Interstate Highways 82 and 84 did not yet exist. Now that it does exist, and it is located in close proximity to the Property, it is appropriate for the County to designate the Property for development. The Property will have access to a public street (Westland Road) that meets applicable spacing standards, a private well and septic serve the Property, and there are no inventoried environmental resources on the Property. Therefore, the County should find that the Applications are consistent with this policy.

Policy 25B: Identify and evaluate factors limiting development in this area.

RESPONSE: The factor limiting development of the Property is its EFU zoning. The County should find that approval of the Applications will remove this limitation.

Chapter 17. URBANIZATION

Policy 5: Where practical, and to conserve the agricultural base, lands committed to urbanization should be those of lesser agricultural potential compatible with continuing production of neighboring farm lands.

RESPONSE: The Applications are consistent with this policy for two reasons. First, the Property is of lesser agricultural potential because it is comprised of Class VII (non-irrigated) soils with no water rights. It has not been utilized to grow crops, and it has only been used on a limited basis for livestock grazing. Second, as explained in response to the exception criteria of OAR Chapter 660 below, urbanization of the Property consistent with the Applications will be compatible with the continuing production of neighboring farm lands. The County should find that the Applications are consistent with this policy.

IV. Applicable State Approval Criteria.

This section of the narrative addresses compliance with applicable state approval criteria, including the Goals and the provisions of the ORS and the OAR.

A. Statewide Planning Goals.

Post-acknowledgment plan amendments ("PAPAs") must be in compliance with the Oregon Statewide Planning Goals. ORS 197.175(2)(a); *1000 Friends of Oregon v. LCDC*, 301 Or 447, 724 P2d 268 (1986). The Applications request PAPAs. Therefore, the County's decision must explain why the Applications are in compliance with the Goals. Alternatively, if a Goal is not applicable, the County must adopt findings explaining why that Goal is not applicable. *Davenport v. City of Tigard*, 22 Or LUBA 577, 586 (1992). The responses below provide findings explaining why the Applications are in compliance with the Goals, or alternatively, why the Goals are not applicable to the Applications.

Goal 1: Citizen Involvement.

To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.

RESPONSE: Goal 1 requires local governments to adopt and administer programs to ensure the opportunity for citizens to be involved in all phases of the planning process. The County has adopted such a program for PAPAs, and it is incorporated within the UCCP and UCDC and has been acknowledged by the Land Conservation and Development Commission. Among other things, the County's program requires notice to citizens, agencies, neighbors, and other interested parties followed by multiple public hearings before the County makes a decision on the Applications. These procedures will provide ample opportunity for citizen involvement in all phases of these Applications. The County should find that, upon compliance with the County's notice and hearing procedures, the County has reviewed the Applications in a manner consistent with Goal

1. *See Wade v. Lane County*, 20 Or LUBA 369, 376 (1990) (Goal 1 is satisfied as long as the local government follows its acknowledged citizen involvement program).

Goal 2: Land Use Planning.

To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions.

RESPONSE: Goal 2 requires establishing a land use planning process and policy framework as a basis for all land use decisions and requires an adequate factual base for all land use decisions. In the present case, the provisions of the UCCP and UCDC establish the land use planning process and policy framework for considering the Applications. Further, this narrative and its related exhibits demonstrate that the Applications satisfy all applicable substantive standards. As such, there is an adequate factual base for the County's decision.

Additionally, Goal 2 requires that the County coordinate its review and decision on the Applications with appropriate government agencies. In its review of the Applications, the County has provided notice and an opportunity to comment to affected government agencies, including nearby cities and the State Departments of Land Conservation and Development and Transportation.

The County should find that the Applications are consistent with Goal 2.

Goal 3: Agricultural Lands.

To maintain and preserve agricultural lands.

RESPONSE: Goal 3 concerns agricultural lands. The Applications request a reasons exception to Goal 3 to allow development of light industrial uses. The justification for this exception is set forth in Sections IV.B and C below.

Goal 4: Forest Lands.

To conserve forest lands by maintaining the forest land base and to protect the state's forest economy by making possible economically efficient forest practices that assure the continuous growing and harvesting of forest tree species as the leading use on forest land consistent with sound management of soil, air, water, and fish and wildlife resources and to provide for recreational opportunities and agriculture.

RESPONSE: Goal 4 protects forest lands. The Property does not include any forest lands, and approval of the Applications will not impact any forest lands. Therefore, the County should find that Goal 4 is not applicable to the Applications.

Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces.

To protect natural resources and conserve scenic and historic areas and open spaces.

RESPONSE: Goal 5 protects certain types of inventoried resources. The Property does not include any inventoried Goal 5 resources, and approval of the Applications will not impact any Goal 5 inventoried resources. Therefore, the County should find that Goal 5 is not applicable to the Applications.

Goal 6: Air, Water and Land Resources Quality.

To maintain and improve the quality of the air, water and land resources of the state.

RESPONSE: Goal 6 addresses waste and process discharges from future development and requires local governments to determine that the future discharges, when combined with existing development, would not violate (or threaten to violate) applicable state or federal environmental quality statutes, rules and standards. The Applications do not propose any specific development and therefore will not increase waste or process discharges. The County will assess discharges of any future development at the time such development is proposed. Thus, the County should find that Goal 6 is not applicable to the Applications.

Goal 7: Areas Subject to Natural Hazards.

To protect people and property from natural hazards.

RESPONSE: There are no identified or inventoried natural hazards in the general area of the Property, and the Property is not located within the designated floodplain. Therefore, the County should find that Goal 7 is not applicable to the Applications.

Goal 8: Recreational Needs.

To satisfy the recreational needs of the citizens of the state and visitors, and where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.

RESPONSE: Goal 8 requires a local government to prepare an inventory of recreation needs and opportunities in the planning area based upon adequate research and analysis. There are no inventoried recreational facilities located on the Property or affected by the Applications. The County should find that Goal 8 is not applicable to the Applications.

Goal 9: Economic Development.

To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.

RESPONSE: In general, Goal 9 is only applicable to areas within urban growth boundaries. The Property is located outside all urban growth boundaries. Therefore, the County should find that Goal 9 is not applicable to the Applications. Alternatively, to the extent Goal 9 is applicable, the County should find that the Applications further the objectives of this goal by increasing the supply of industrial land in the County, which will facilitate economic growth and additional employment. The County should find that the Applications are consistent with Goal 9, to the extent it is applicable at all.

Goal 10: Housing.

To provide for the housing needs of the citizens of the state.

RESPONSE: Goal 10 and its implementing rules require each local government to inventory the supply of buildable residential lands and to ensure that the supply of such buildable lands meets the local government's anticipated housing needs. The Applications will not affect the supply of residential lands in the County. Therefore, the County should find that the Applications are consistent with Goal 10, to the extent it is applicable.

Goal 11: Public Facilities and Services.

To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.

RESPONSE: The Property is not served by public water or sewer facilities and services. Further, the proposed development does not require the extension of public sewer or storm drainage facilities, and Applicant does not propose to extend same. Applicant will extend Regional Water System lines by approximately 1,500 feet to serve the Property. For these reasons, the County should find that the Applications are consistent with Goal 11.

Goal 12: Transportation.

To provide and encourage a safe, convenient and economic transportation system.

RESPONSE: Goal 12 is implemented by the Oregon Transportation Planning Rule ("TPR"), which requires local governments to determine whether or not a proposed PAPA will "significantly affect" an existing or planned transportation facility. OAR 660-012-0060(1). A PAPA will "significantly affect" an existing or planned transportation facility if it will: (1) change the functional classification of a facility; (2) change standards implementing a functional classification system; (3) as measured at the end of the planning period, result in types or levels of travel or access that are inconsistent with the functional classification of an existing facility; or (4) degrade the performance of an existing facility either below applicable performance standards, or if already performing below these standards, degrade it further. *Id.*

Applicant's transportation engineer is addressing the TPR in the TIA for the proposed development. Applicant will submit that TIA to the County in the near future, together with findings in response to Goal 12 and the TPR.

Goal 13: Energy Conservation.

To conserve energy.

RESPONSE: In general, Goal 13 is a planning goal "directed toward the development of local government land management implementation measures which maximize energy conservation." *Brandt v. Marion County*, 22 Or LUBA 473, 484 (1991), *aff'd in party, rev'd in part* 112 Or App 30 (1992). It does not prohibit adoption of a plan amendment that would result in a net increase in energy usage. *Setniker v. Oregon Department of Transportation*, 66 Or LUBA 54 (2012). The Applications are consistent with Goal 13 because the proposed amendments will provide for efficient use of land and energy by locating the proposed development (data centers) near existing electric utility lines rather than locating them at a location far from utility lines and then extending such lines. Further, the Applications propose to limit the uses on the Property to a specific development plan and to impose a trip cap to minimize transportation impacts and energy usage. For these reasons, the County should find that the Applications are consistent with Goal 13.

Goal 14: Urbanization.

To provide for an orderly and efficient transition from rural to urban land use.

RESPONSE: Goal 14 typically limits urban uses to locating inside urban growth boundaries. The Applications request a reasons exception to Goal 14 to allow development of light industrial uses outside of any urban growth boundary. The justification for this exception is set forth in Sections IV.B and C below.

Goal 15: Willamette River Greenway.

To protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational qualities of lands along the Willamette River as the Willamette River Greenway.

RESPONSE: Goal 15 only applies to lands along the Willamette River. The Property is not located along the Willamette River or in the Willamette River Greenway. Approval of the Applications will not impact the Willamette River or the Willamette River Greenway. Therefore, the County should find that Goal 15 is not applicable to the Applications.

Goal 16: Estuarine Resources.

To recognize and protect the unique environmental, economic, and social values of each estuary and associated wetlands; and

To protect, maintain, where appropriate develop, and where appropriate restore the long-term environmental, economic, and social values, diversity, and benefits of Oregon's estuaries.

RESPONSE: Goal 16 concerns estuarine resources. The Property does not include any designated estuarine resources, and the proposed amendments will not impact any estuarine resources. Therefore, the County should find that Goal 16 is not applicable to the Applications.

Goal 17: Coastal Shorelands.

To conserve, protect, where appropriate, develop and where appropriate restore the resources and benefits of all coastal shorelands, recognizing their value for protection and maintenance of water quality, fish and wildlife habitat, water-dependent uses, economic resources and recreation and aesthetics. The management of these shoreland areas shall be compatible with the characteristics of the adjacent coastal waters; and

To reduce the hazard to human life and property, and the adverse effects upon water quality and fish and wildlife habitat, resulting from the use and enjoyment of Oregon's coastal shorelands.

RESPONSE: Goal 17 regulates coastal shorelands. The Property does not include any designated coastal shorelands. Moreover, the proposed amendments will not impact any designated coastal shorelands. Therefore, the County should find that Goal 17 is not applicable to the Applications.

Goal 18: Beaches and Dunes.

To conserve, protect, where appropriate develop, and where appropriate restore the resources and benefits of coastal beach and dune areas; and

To reduce the hazard to human life and property from natural or man-induced actions associated with these areas.

RESPONSE: Goal 18 concerns beaches and dunes. The Property does not include any designated beaches or dunes. Moreover, the proposed amendments will not impact any designated beaches or dunes. Thus, the County should find that Goal 18 is not applicable to the Applications.

Goal 19: Ocean Resources.

To conserve marine resources and ecological functions for the purpose of providing long-term ecological, economic, and social value and benefits to future generations.

RESPONSE: Goal 19 calls for the conservation of ocean resources. The Property does not include or abut any ocean resources, and the proposed amendments will not impact any ocean resources. Therefore, the County should find that Goal 19 is not applicable to the Applications.

B. Oregon Revised Statutes.

197.732 Goal exceptions; criteria; rules; review.

(2) A local government may adopt an exception to a goal if:
(a) The land subject to the exception is physically developed to the extent that it is no longer available for uses allowed by the applicable goal;

RESPONSE: The Property is not physically developed to the extent that it is no longer available for uses allowed by the applicable goal. Applicant is not requesting an exception under this provision.

(b) The land subject to the exception is irrevocably committed as described by Land Conservation and Development Commission rule to uses not allowed by the applicable goal because existing adjacent uses and other relevant factors make uses allowed by the applicable goal impracticable; or

RESPONSE: The Property is not irrevocably committed as described by Land Conservation and Development Commission rule to uses not allowed by the applicable goal because existing adjacent uses and other relevant factors make uses allowed by the applicable goal impracticable. Applicant is not requesting an exception under this provision.

(c) The following standards are met:

(A) Reasons justify why the state policy embodied in the applicable goals should not apply;

RESPONSE: The County should find that the Applications satisfy this subsection for the reasons set forth in response to OAR 660-004-0020(2)(a), which reasons are incorporated herein by reference.

(B) Areas that do not require a new exception cannot reasonably accommodate the use;

RESPONSE: The County should find that the Applications satisfy this subsection for the reasons set forth in response to OAR 660-004-0020(2)(b), which reasons are incorporated herein by reference.

(C) The long term environmental, economic, social and energy consequences resulting from the use at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site; and

RESPONSE: The County should find that the Applications satisfy this subsection for the reasons set forth in response to OAR 660-004-0020(2)(c), which reasons are incorporated herein by reference.

(D) The proposed uses are compatible with other adjacent uses or will be so rendered through measures designed to reduce adverse impacts.

RESPONSE: The County should find that the Applications satisfy this subsection for the reasons set forth in response to OAR 660-004-0020(2)(d), which reasons are incorporated herein by reference.

* * *

(4) A local government approving or denying a proposed exception shall set forth findings of fact and a statement of reasons that demonstrate that the standards of subsection (2) of this section have or have not been met.

RESPONSE: The County should adopt findings of fact and a statement of reasons that demonstrate that the standards of this subsection (2) have been met. If the County does so, its decision will satisfy this criterion.

(5) Each notice of a public hearing on a proposed exception shall specifically note that a goal exception is proposed and shall summarize the issues in an understandable manner.

RESPONSE: In its notices of public hearing for the Applications, the County should specifically note that exceptions to Goals 3 and 14 are proposed and should summarize the issues pertaining to these exceptions in an understandable manner. If the County does so, its decision will satisfy this criterion.

C. Oregon Administrative Rules.

OAR 660-004-0020

Goal 2, Part II(c), Exception Requirements

(1) If a jurisdiction determines there are reasons consistent with OAR 660-004-0022 to use resource lands for uses not allowed by the applicable Goal or to allow public facilities or services not allowed by the applicable Goal, the justification shall be set forth in the comprehensive plan as an exception. As provided in OAR 660-004-0000(1), rules in other divisions may also apply.

RESPONSE: As explained below, there are reasons consistent with OAR 660-004-0022 to use the Property for uses not allowed by Goals 3 and 14. Therefore, the County should adopt an exception to these two Goals. Upon doing so, the County should incorporate the findings set forth in this narrative within the UCCP to memorialize the justification for the exceptions.

(2) The four standards in Goal 2 Part II(c) required to be addressed when taking an exception to a goal are described in subsections (a) through (d) of this section, including general requirements applicable to each of the factors:

(a) "Reasons justify why the state policy embodied in the applicable goals should not apply." The exception shall set forth the facts and assumptions used as the basis for determining that a state policy embodied in a goal should not apply to specific properties or situations, including the amount of land for the use being planned and why the use requires a location on resource land;

RESPONSE: Three reasons justify why the state policy embodied in Goals 3 and 14 should not apply to the Property.

First, it is unnecessary to protect the Property for farming and ranching activities and rural uses because the Property is not a productive farm operation. As explained above, the Property is comprised of Class VII soils in a non-irrigated condition, and the Property does not have water rights. As a result, the Property is not high-value farmland, and it has not been productive for farm uses. Historically, the Property has not been utilized for growing crops, although it has been used to a limited extent for livestock grazing. Applicant will submit additional testimony before the public hearing in this matter detailing the lack of productivity of the Property as a farm operation.

Second, the Property is well-situated for development of urban light industrial uses. For example, the Property is located within approximately a half-mile of interchanges for two different federal interstate highways (I-82 and I-84). *See* aerial photo provided in Exhibit 2. Further, the Property has access to a rail line in close proximity to the north. *Id.* Finally, the Property is surrounded in three different directions (north, south, and west) by properties that are developed with urban industrial uses on exception lands adopted by the County. *See* Map 18-76 of the UCCP in Exhibit 6. One of these exception areas is immediately adjacent to the Property. *Id.* Businesses that have developed in these exception areas include significant industrial production and distribution facilities such as ConAgra Foods, Americold Logistics, United Parcel Service, Hermiston Generating Station, and FedEx Freight.

Third, development of the Property consistent with the Applications will generate significant economic benefits to the County and its residents, including new jobs and ad valorem tax revenues. These benefits will offset the de minimis loss of unproductive farmland. Applicant will submit additional testimony before the public hearing in this matter detailing the economic benefits of the development and the comparatively lower benefits of retaining the Property in farm production.

The County should find that the proposed exceptions satisfy this rule.

(b) "Areas that do not require a new exception cannot reasonably accommodate the use." The exception must meet the following requirements:

(A) The exception shall indicate on a map or otherwise describe the location of possible alternative areas considered for the use that do not require a new exception. The area for which the exception is taken shall be identified;

(B) To show why the particular site is justified, it is necessary to discuss why other areas that do not require a new exception cannot reasonably accommodate the proposed use. Economic factors may be considered along with other relevant factors in determining that the use cannot reasonably be accommodated in other areas. Under this test the following questions shall be addressed:

(i) Can the proposed use be reasonably accommodated on nonresource land that would not require an exception, including increasing the density of uses on nonresource land? If not, why not?

(ii) Can the proposed use be reasonably accommodated on resource land that is already irrevocably committed to nonresource uses not allowed by the applicable Goal, including resource land in existing unincorporated communities, or by increasing the density of uses on committed lands? If not, why not?

(iii) Can the proposed use be reasonably accommodated inside an urban growth boundary? If not, why not?

(iv) Can the proposed use be reasonably accommodated without the provision of a proposed public facility or service? If not, why not?

(C) The "alternative areas" standard in paragraph B may be met by a broad review of similar types of areas rather than a review of specific alternative sites. Initially, a local government adopting an exception need assess only whether those similar types of areas in the vicinity could not reasonably accommodate the proposed use. Site specific comparisons are not required of a local government taking an exception unless another party to the local proceeding describes specific sites that can more reasonably accommodate the proposed use. A detailed evaluation of specific alternative sites is thus not required unless such sites are specifically described, with facts to support the assertion that the sites are more reasonable, by another party during the local exceptions proceeding.

RESPONSE: The area for which the exception is taken is identified in Exhibit 1. The proposed use cannot be reasonably accommodated on any of the areas identified in this rule that do not require a new exception because none of these alternative areas are of sufficient size, shape, and topography and have access to the utility lines needed to power the data center. Applicant examined a number of sites that do not require an exception and determined that the site that most closely meets the needs identified for the proposed uses is the Property. Applicant will submit additional testimony in response to this rule before the initial public hearing in this matter. This testimony will further describe site selection criteria, alternative areas, and why Applicant did not select any of the alternative areas. Applicant also incorporates its response to OAR 660-014-0040(3)(a) in response to this rule. The County should find that the proposed exceptions satisfy this rule.

(c) "The long-term environmental, economic, social and energy consequences resulting from the use at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site." The exception shall describe: the characteristics of each alternative area considered by the jurisdiction in which an exception might be taken, the typical advantages and disadvantages of using the area for a use not allowed by the Goal, and the typical positive and negative consequences resulting from the use at the proposed site with measures designed to reduce adverse impacts. A detailed evaluation of specific alternative sites is not required unless such sites are specifically described with facts to support the assertion that the sites have significantly fewer adverse impacts during the local exceptions proceeding. The exception shall include the reasons why the consequences of the use at the chosen site are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site. Such reasons shall include but are not limited to a description of: the facts used to determine which resource land is least productive, the ability to sustain resource uses near the proposed use, and the long-term economic impact on the general area caused by irreversible removal of the land from the resource base. Other possible impacts to be addressed include the effects of the proposed use on the water table, on the costs of improving roads and on the costs to special service districts;

RESPONSE: The long-term environmental, economic, social and energy consequences resulting from the proposed urban light industrial uses on the Property are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the Property. In fact, these consequences are all positive because developing the site will create jobs and raise ad

valorem tax revenue, which will benefit the County and its citizens. Further, developing the proposed uses on the Property will be more compatible on the Property than most other locations requiring an exception because, unlike other locations, the Property is adjacent and near to existing industrial uses in three different directions. Applicant also incorporates its response to OAR 660-014-0040(3)(b) in response to this rule. The County should find that the proposed exceptions satisfy this rule.

(d) "The proposed uses are compatible with other adjacent uses or will be so rendered through measures designed to reduce adverse impacts." The exception shall describe how the proposed use will be rendered compatible with adjacent land uses. The exception shall demonstrate that the proposed use is situated in such a manner as to be compatible with surrounding natural resources and resource management or production practices. "Compatible" is not intended as an absolute term meaning no interference or adverse impacts of any type with adjacent uses.

RESPONSE: For four reasons, the proposed light industrial uses are compatible with other adjacent uses. First, the proposed uses, which are limited to those identified on the Conceptual Development Plan, will not generate adverse impacts on surrounding properties, such as noise, odor, dust, vibration, blasting, vapor, or bright lights. Second, as illustrated on the Conceptual Development Plan, the proposed uses will be set back from adjacent properties and will be screened by a fence. Third, as explained above and illustrated by the aerial photograph and UCCP Map 18-76, there are many surrounding industrial uses that operate at an urban scale. The proposed light industrial uses of the Property will be compatible with these existing industrial operations. Fourth, in adopting exceptions for other industrial uses in the surrounding corridor, the County noted the general compatibility of light industrial and farm uses, particularly in this location: "* * * [L]ight industrial uses typically are not incompatible with agricultural practices." UCCP 18-361. *See also* UCCP 18-362 ("* * * [M]any of the existing uses [in the Westland Road area] are urban in their nature or scale. Those uses have not proven to be incompatible with nearby farming operations or farm practices."). Applicant also incorporates its response to OAR 660-014-0040(3)(c) in response to this rule. For all of these reasons, the County should find that the proposed exception satisfies this rule.

* * * *

OAR 660-004-0022

Reasons Necessary to Justify an Exception Under Goal 2, Part II(c)

An exception under Goal 2, Part II(c) may be taken for any use not allowed by the applicable goal(s) or for a use authorized by a statewide planning goal that cannot

comply with the approval standards for that type of use. The types of reasons that may or may not be used to justify certain types of uses not allowed on resource lands are set forth in the following sections of this rule. Reasons that may allow an exception to Goal 11 to provide sewer service to rural lands are described in OAR 660-011-0060. Reasons that may allow transportation facilities and improvements that do not meet the requirements of OAR 660-012-0065 are provided in OAR 660-012-0070. Reasons that rural lands are irrevocably committed to urban levels of development are provided in OAR 660-014-0030. Reasons that may justify the establishment of new urban development on undeveloped rural land are provided in OAR 660-014-0040.

RESPONSE: The Applications propose uses that are not allowed by Goals 3 and 14; therefore, the County should take exceptions to these Goals to allow these uses. Applicant addresses the reasons that justify these exceptions in response to (3) below and in response to OAR 660-014-0040.

* * *

(3) Rural Industrial Development: For the siting of industrial development on resource land outside an urban growth boundary, appropriate reasons and facts may include, but are not limited to, the following:

(a) The use is significantly dependent upon a unique resource located on agricultural or forest land. Examples of such resources and resource sites include geothermal wells, mineral or aggregate deposits, water reservoirs, natural features, or river or ocean ports;

(b) The use cannot be located inside an urban growth boundary due to impacts that are hazardous or incompatible in densely populated areas; or

(c) The use would have a significant comparative advantage due to its location (e.g., near existing industrial activity, an energy facility, or products available from other rural activities), which would benefit the county economy and cause only minimal loss of productive resource lands. Reasons for such a decision should include a discussion of the lost resource productivity and values in relation to the county's gain from the industrial use, and the specific transportation and resource advantages that support the decision.

RESPONSE: The reasons provided in this rule are illustrative and not exclusive. The reasons that justify why the policies in Goals 3 and 14 should not apply to the Property are set forth in response to OAR 660-004-0020(2)(a). These reasons are incorporated

herein by reference. Based upon these reasons, the County should find that the Applications satisfy this rule.

660-014-0040

Establishment of New Urban Development on Undeveloped Rural Lands

(1) As used in this rule, "undeveloped rural land" includes all land outside of acknowledged urban growth boundaries except for rural areas committed to urban development. This definition includes all resource and nonresource lands outside of urban growth boundaries. It also includes those lands subject to built and committed exceptions to Goals 3 or 4 but not developed at urban density or committed to urban level development.

RESPONSE: The Property is comprised of land outside of acknowledged urban growth boundaries, and it is not committed to urban development. Therefore, the Property is "undeveloped rural land" for purposes of this rule.

(2) A county can justify an exception to Goal 14 to allow establishment of new urban development on undeveloped rural land. Reasons that can justify why the policies in Goals 3, 4, 11 and 14 should not apply can include but are not limited to findings that an urban population and urban levels of facilities and services are necessary to support an economic activity that is dependent upon an adjacent or nearby natural resource.

RESPONSE: The reasons provided in this rule are illustrative and not exclusive. The reasons that justify why the policies in Goals 3 and 14 should not apply to the Property are set forth in response to OAR 660-004-0020(2)(a). These reasons are incorporated herein by reference. Based upon these reasons, the County should find that the Applications satisfy this rule.

(3) To approve an exception under section (2) of this rule, a county must also show:

(a) That Goal 2, Part II(c)(1) and (c)(2) are met by showing that the proposed urban development cannot be reasonably accommodated in or through expansion of existing urban growth boundaries or by intensification of development in existing rural communities;

RESPONSE: The proposed development cannot be reasonably accommodated in or through expansion of existing urban growth boundaries or by intensification of development in existing rural communities for the reasons set forth in response to OAR

660-004-0020(2)(b). These reasons are incorporated herein by reference. Based upon these reasons, the County should find that the Applications satisfy this rule.

(b) That Goal 2, Part II(c)(3) is met by showing that the long-term environmental, economic, social, and energy consequences resulting from urban development at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located on other undeveloped rural lands, considering:

(A) Whether the amount of land included within the boundaries of the proposed urban development is appropriate; and

RESPONSE: As illustrated on the Conceptual Development Plan, the amount of land included within the boundaries of the proposed urban development is appropriate. The County should find that the Applications satisfy this rule.

(B) Whether urban development is limited by the air, water, energy and land resources at or available to the proposed site, and whether urban development at the proposed site will adversely affect the air, water, energy and land resources of the surrounding area.

RESPONSE: The proposed development is appropriately sized to be served by the air, water, energy, and land resources at or available to the Property. Urban development at the Property will not adversely affect the air, water, energy and land resources of the surrounding area for the reasons explained in response to OAR 660-004-0020(2)(d). The County should find that the Applications satisfy this rule.

(c) That Goal 2, Part II(c)(4) is met by showing that the proposed urban uses are compatible with adjacent uses or will be so rendered through measures designed to reduce adverse impacts considering:

(A) Whether urban development at the proposed site detracts from the ability of existing cities and service districts to provide services; and

RESPONSE: Urban development of the Property consistent with the Applications will not detract from the ability of existing cities and service districts to provide services because the Property will not utilize urban services from any of the nearby cities. Further, although the Property will draw water from the Regional Water System, there is adequate capacity to serve the Property and existing users of the system. Applicant will submit additional testimony in response to this rule before the initial public hearing for this matter. The County should find that the Application satisfies this rule.

(B) Whether the potential for continued resource management of land at present levels surrounding and nearby the site proposed for urban development is assured.

RESPONSE: The potential for continued resource management of land at present levels surrounding an nearby the Property is assured for three reasons. First, development of the Property will not require any new or expanded roadways or extension of any additional public services. Second, as illustrated on the Conceptual Development Plan, Applicant will accommodate all stormwater from the development on the Property. Third, Applicant also incorporates its response to OAR 660-004-0020(2)(d). The County should find that the Application satisfies this rule.

(d) That an appropriate level of public facilities and services are likely to be provided in a timely and efficient manner; and

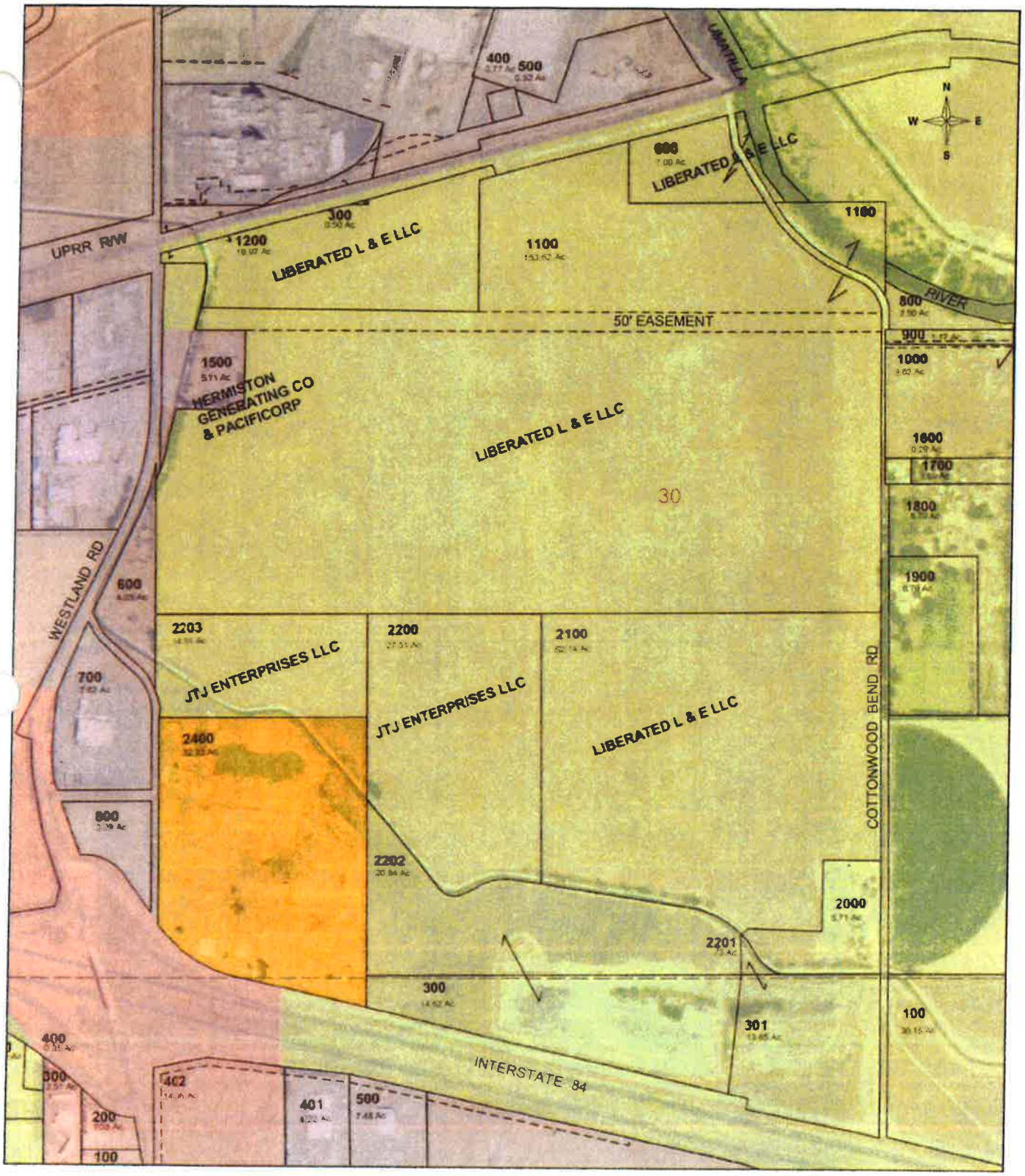
RESPONSE: The Property will only be served by limited public facilities and services (police, fire, water and roads). Applicant will be required to extend Regional Water System lines to the Property, but the extension is only approximately 1,500 feet long. For the reasons set forth in this narrative in response to the specific policies pertaining to these services in UCCP Chapter 14, an appropriate level of public facilities and services is likely to be provided in a timely and efficient manner to serve the Property. The County should find that the Applications satisfy this rule.

(e) That establishment of an urban growth boundary for a newly incorporated city or establishment of new urban development on undeveloped rural land is coordinated with comprehensive plans of affected jurisdictions and consistent with plans that control the area proposed for new urban development.

RESPONSE: For the reasons explained in Section III.B of this narrative, Applicant has coordinated the Applications with the County. Further, the Applications are consistent with the UCCP, which controls the Property. Therefore, the County should find that the Applications are consistent with this rule.

V. Conclusion.

For the reasons set forth above, the Application satisfies the applicable requirements of the UCDC, the UCCP, the Goals, the ORS and the OAR. The County should approve the Applications as proposed.



MAP 4N2830 ZONING

Zone_EFU
Zone_AB
Zone_LI
Zone_RTC

0 200 400 600
Feet

MAP DISCLAIMER: No warranty is made by Umatilla County as to the accuracy, reliability or completeness of this data. Parcel data should be used for reference purposes only. Created by J. Alford, Umatilla County Planning Department, 5/25/16

y:workspace/planning/vicinity maps/i-L/LiberatedLE_5_25_16.gws

EXHIBIT 1
Page 1 of 1

Google Maps Hermiston Generating Station

Imagery ©2017 Google, Map data ©2017 Google 1000 ft

EXHIBIT 2
Page 1 of 1

Soil Map—Umatilla County Area, Oregon

USDA Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

2/11/2017
Page 1 of 3

EXHIBIT 3
Page 1 of 5

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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: Umatilla County Area, Oregon
Survey Area Data: Version 12, Jul 29, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 7, 2010—Aug 21, 2010

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.

Map Unit Legend

Umatilla County Area, Oregon (OR667)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
76B	Quincy loamy fine sand, gravelly substratum, 0 to 5 percent slopes	155.1	100.0%
Totals for Area of Interest		155.1	100.0%

Umatilla County Area, Oregon

76B—Quincy loamy fine sand, gravelly substratum, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 255g
Elevation: 300 to 1,100 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 160 to 190 days
Farmland classification: Not prime farmland

Map Unit Composition

Quincy, gravelly substratum, and similar soils: 85 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Quincy, Gravelly Substratum

Setting

Landform: Strath terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sands over gravelly alluvium

Typical profile

H1 - 0 to 4 inches: loamy fine sand
H2 - 4 to 41 inches: loamy fine sand
H3 - 41 to 60 inches: very gravelly fine sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: SANDS 8-10 PZ (R007XY011OR)

Hydric soil rating: No

Minor Components

Wanser

Percent of map unit: 5 percent
Landform: Depressions
Ecological site: SODIC BOTTOM (R010XY007OR)
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Umatilla County Area, Oregon
Survey Area Data: Version 12, Jul 29, 2016

13 pd.
10

State of Oregon
County of Umatilla

Instrument received
and recorded on
8/15/2016 11:04:09 AM

in the record of instrument
code type DE

Instrument number 2016-6470122
Fee $99.00

Office of County Records

Records Officer
1050974 P10

SEND TAX STATEMENTS TO:
Liberated L & E, LLC
2229 E. Ave. Q
Palmdale, CA 93550

AFTER RECORDING RETURN TO:
David Wm. Hadley
Attorney At Law
130 SE 3rd Street
Hermiston, OR 97838

Umatilla County
Received:8/15/2016
1050974

BARGAIN AND SALE DEED

LIBERATED L & E, LLC, a California limited liability company, as Grantor, hereby conveys to LIBERATED L & E, LLC, a California limited liability company, Grantee, the following described real property situated in Umatilla County, Oregon to-wit:

> The real property described on Exhibit A, which is attached hereto and by this reference incorporated herein.

The true and actual consideration for this conveyance is $-0-. This deed is given in furtherance of a boundary line adjustment approved by Umatilla County on June 24, 2016 and in compliance with ORS 92.190(4). The parcels affected by this boundary line adjustment were acquired by both Grantor and Grantee by Warranty Deed recorded March 15, 2012, as Instrument No. 2012-5890422, Office of County Records, Umatilla County, Oregon.

The resulting legal descriptions for the parcels affected by this boundary line adjustment are described on Exhibits B (Grantee Property) and C (Grantor Property) which are attached hereto and by this reference incorporated herein.

A partial map of the Record Survey is attached as Exhibit D, which shows the real property affected by this boundary line adjustment.

BEFORE SIGNING AND ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, AND SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES, OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930 AND TO INQUIRE

PIONEER TITLE CO. 45209
126 SE COURT, PEND. OR 97801

9

(2)

ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, AND SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND CHAPTER 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

Dated this 29 day of July, 2016.

ACCEPTED:

LIBERATED L & E, LLC, a
California limited liability company,
Grantor

By: _____
Johnny Lee Zamrzla, Member

By: _____
Robert Joe Zamrzla, Member

LIBERATED L & E, LLC, a
California limited liability company,
Grantee

By: _____
Johnny Lee Zamrzla, Member

By: _____
Robert Joe Zamrzla, Member

State of CALIFORNIA
County of _____

This record was acknowledged before me on July ____, 2016 by Johnny Lee Zamrzla as Member of Liberated L & E, LLC, a California limited liability company.

_____
Notary Public – State of California

See attached Acknowledgment

State of CALIFORNIA
County of _____

This record was acknowledged before me on July ____, 2016 by Robert Joe Zamrzla as Member of Liberated L & E, LLC, a California limited liability company.

_____
Notary Public – State of California

PREPARED BY:
David Wm. Hadley, OSB No. 81252
Attorney At Law
130 SE 3rd Street
Hermiston, OR 97838
zamrzlabsd\388

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Los Angeles)

On August 4, 2016 before me, Dawn Babers Notary Public.
Date *Here Insert Name and Title of the Officer*

personally appeared Johnny Lee and Joe Zamrzla
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

DAWN BABERS
COMM. #2082987
NOTARY PUBLIC CALIFORNIA
Los Angeles County
My Comm. Exp. Oct. 21, 2018

Signature Dawn Babers
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document
Title or Type of Document: Bargain and Sale Deed Document Date: July 29, 2016
Number of Pages: 2 Signer(s) Other Than Named Above: none

Capacity(ies) Claimed by Signer(s)

Signer's Name: Johnny Lee Zamrzla	Signer's Name: Joe Zamrzla
☐ Corporate Officer — Title(s):	☐ Corporate Officer — Title(s):
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact	☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator	☐ Trustee ☐ Guardian or Conservator
☐ Other:	☐ Other:
Signer Is Representing:	Signer Is Representing:

May 26, 2016

DESCRIPTION OF PORTION OF TAX LOT 1100 TO ATTACH TO TAX LOT 600, ASSESSOR MAP NO. 4N2830:

A tract of land located in the North Half of Section 30, Township 4 North, Range 28 East, W.M., Umatilla County, Oregon, being described as:

Commencing at the Northeast corner of the Southwest Quarter of the Northwest Quarter of said Section 30; thence North 00°02'00" West along the West line of the Northeast Quarter of the Northwest Quarter of said Section 30 a distance of 32.33 feet to the South line of the Oregon-Washington Railroad & Navigation Company's right-of-way; thence North 75°40'56" East along the South line of said Railroad right-of-way a distance of 619.26 feet; thence South 14°19'04" East along said Railroad right-of-way line a distance of 50.00 feet to the TRUE POINT OF BEGINNING for this description; thence North 75°40'56" East, continuing along the South line of said Railroad right-of-way a distance of 737.86 feet to the East line of the Northeast Quarter of the Northwest Quarter of said Section 30; thence South 00°03'44" West a distance of 324.86 feet to the Northwest corner of the Southwest Quarter of the Northeast Quarter of said Section 30; thence South 89°46'08" East along the North line of the Southwest Quarter of the Northeast Quarter of said Section 30 a distance of 1,327.04 feet to the Northeast corner of the Southwest Quarter of the Northeast Quarter of said Section 30; thence South 00°09'18" West along the East line of the Southwest Quarter of the Northeast Quarter of said Section 30 a distance of 588.92 feet to a point located 257.86 feet South of the North line of the South Half of the North Half of the Southwest Quarter of the Northeast Quarter of said Section 30; thence North 89°45'24" West, parallel with the North line of said South Half of the North Half of the Southwest Quarter of the Northeast Quarter a distance of 1326.08 feet to a point on the East line of the South Half of the North Half of the Southeast Quarter of the Northwest Quarter of said Section 30 which is located 257.86 feet, South 00°03'44" West from the Northeast corner of said South Half of the North Half of the Southeast Quarter of the Northwest Quarter; thence North 89°45'24" West, parallel with the North line of said South Half of the North Half of the Southeast Quarter of the Northwest Quarter a distance of 787.99 feet to the Southeast corner of the Southeasterly Portion of Parcel 1, described in Exhibit A of Statutory Warranty Deed recorded March 15, 2012 as Instrument No. 2012-5890422, Umatilla County Office of Records; thence North 00°02'00" West along the East line of said Southeasterly Portion of Parcel 1 a distance of 708.68 feet to an angle point in the East boundary of said Southeasterly Portion of Parcel 1; thence North 75°40'56 East along the boundary line of said Southeasterly Portion of Parcel 1 a distance of 76.83 feet to the TRUE POINT OF BEGINNING.

Excepting therefrom any portion lying within the County Road and Railroad right-of-ways.

\LE TL600 TO TL1100

EXHIBIT A

May 26, 2016

DESCRIPTION OF REVISED TAX LOT 600, ASSESSOR MAP NO. 4N2830:

That portion of the Northwest Quarter of the Northeast Quarter of Section 30, Township 4 North, Range 28, East of the Willamette Meridian, Umatilla County, Oregon, which lies Westerly of the Umatilla River and Southerly of the Oregon-Washington Railroad & Navigation Company's Railroad right-of-way;

Excepting therefrom any portion lying within the County Road and Railroad rights-of-ways.

ALSO, a tract of land located in the North Half of Section 30, Township 4 North, Range 28 East, W.M., Umatilla County, Oregon, being described as:

Commencing at the Northeast corner of the Southwest Quarter of the Northwest Quarter of said Section 30; thence North 00°02'00" West along the West line of the Northeast Quarter of the Northwest Quarter of said Section 30 a distance of 32.33 feet to the South line of the Oregon-Washington Railroad & Navigation Company's right-of-way; thence North 75°40'56" East along the South line of said Railroad right-of-way a distance of 619.26 feet; thence South 14°19'04" East along said Railroad right-of-way line a distance of 50.00 feet to the TRUE POINT OF BEGINNING for this description; thence North 75°40'56" East, continuing along the South line of said Railroad right-of-way a distance of 737.86 feet to the East line of the Northeast Quarter of the Northwest Quarter of said Section 30; thence South 00°03'44" West a distance of 324.86 feet to the Northwest corner of the Southwest Quarter of the Northeast Quarter of said Section 30; thence South 89°46'08" East along the North line of the Southwest Quarter of the Northeast Quarter of said Section 30 a distance of 1,327.04 feet to the Northeast corner of the Southwest Quarter of the Northeast Quarter of said Section 30; thence South 00°09'18" West along the East line of the Southwest Quarter of the Northeast Quarter of said Section 30 a distance of 588.92 feet to a point located 257.86 feet South of the North line of the South Half of the North Half of the Southwest Quarter of the Northeast Quarter of said Section 30; thence North 89°45'24" West, parallel with the North line of said South Half of the North Half of the Southwest Quarter of the Northeast Quarter a distance of 1326.08 feet to a point on the East line of the South Half of the North Half of the Southeast Quarter of the Northwest Quarter of said Section 30 which is located 257.86 feet, South 00°03'44" West from the Northeast corner of said South Half of the North Half of the Southeast Quarter of the Northwest Quarter; thence North 89°45'24" West, parallel with the North line of said South Half of the North Half of the Southeast Quarter of the Northwest Quarter a distance of 787.99 feet to the Southeast corner of the Southeasterly Portion of Parcel 1, described in Exhibit A of Statutory Warranty Deed recorded March 15, 2012 as Instrument No. 2012-5890422, Umatilla County Office of Records; thence North 00°02'00" West along the East line of said Southeasterly Portion of Parcel 1 a distance of 708.68 feet to an angle point in the East boundary of said Southeasterly Portion of

EXHIBIT B

Parcel 1; thence North 75°40'56 East along the boundary line of said Southeasterly Portion of Parcel 1 a distance of 76.83 feet to the TRUE POINT OF BEGINNING.

Excepting therefrom any portion lying within the County Road and Railroad right-of-ways.

\LE REVISED TL600

EXHIBIT B

May 26, 2016

DESCRIPTION OF REVISED TAX LOT 1100, ASSESSOR MAP NO. 4N2830:

A tract of land located in Section 30, Township 4 North, Range 28 East, W.M., Umatilla County, Oregon, being described as:

Commencing at the Northeast corner of the Southwest Quarter of the Northwest Quarter of said Section 30; thence North 00°02'00" West along the West line of the Northeast Quarter of the Northwest Quarter of said Section 30 a distance of 32.33 feet to the South line of the Oregon-Washington Railroad & Navigation Company's right-of-way; thence North 75°40'56" East along the South line of said Railroad right-of-way a distance of 619.26 feet; thence South 14°19'04" East a distance of 50.00 feet to a point in the East boundary line of the Southeasterly Portion of Parcel 1, described in Exhibit A of Statutory Warranty Deed recorded March 15, 2012 as Instrument No. 2012-5890422, Umatilla County Office of Records; thence South 75°40'56" West along the boundary of said Southeasterly Portion of Parcel 1 a distance of 76.83 feet to an angle point in the boundary of said Southeasterly Portion of Parcel 1; thence South 00°02'00" East along the East boundary line of said Southeasterly Portion of Parcel 1 a distance of 708.68 feet to the Southeast corner of said Southeasterly Portion of Parcel 1, a point located 257.86 feet South of the North line of the South Half of the North Half of the Southeast Quarter of the Northwest Quarter of said Section 30 and the TRUE POINT OF BEGINNING for this description; thence South 89°45'24" East, parallel with the North line of said South Half of the North Half of the Southeast Quarter of the Northwest Quarter a distance of 787.99 feet to a point on the West line of the South Half of the North Half of the Southwest Quarter of the Northeast Quarter of said Section 30 which is located 257.86 feet, South 00°03'44" West from the Northwest corner of said South Half of the North Half of the Southwest Quarter of the Northeast Quarter; thence South 89°45'24" East, parallel with the North line of said South Half of the North Half of the Southwest Quarter of the Northeast Quarter a distance of 1326.08 feet to a point on the East line of the Southwest Quarter of the Northeast Quarter of said Section 30; thence South 00°09'18" West along said East line of the Southwest Quarter of the Northeast Quarter a distance of 735.31 feet to the Northeast corner of the Northwest Quarter of the Southeast Quarter of said Section 30; thence South 00°09'18" West along the East line of said Northwest Quarter of the Southeast Quarter a distance of 739.41 feet to a point which lies 585.00 feet distant Northerly from the South line of the Northwest Quarter of the Southeast Quarter of said Section 30; thence North 89°40'52" West and parallel with the South line of the Northwest Quarter of the Southeast Quarter of said Section 30 a distance of 1,323.70 feet to the East line of the Southwest Quarter of said Section 30; thence North 89°41'02" West and parallel with the South line of the Northeast Quarter of the Southwest Quarter of said Section 30 a distance of 1323.66 feet to a point on the East line of the Northwest Quarter of the Southwest Quarter of said Section 30, located North 00°01'28" West a distance of 585.00 feet from the Southeast corner of said Northwest Quarter of the Southwest Quarter; thence North 89°40'39" West, parallel with the South line of said Northwest Quarter of the Southwest Quarter a distance of 1105.16 feet to

EXHIBIT C

the West line of said Section 30; thence North 00°04'32" East along the West line of said Section 30 a distance of 598.58 feet to the centerline of the Westland Irrigation District Canal; thence Northeasterly along the centerline of said Canal, on the arc of a 731.73 foot radius non-tangent curve to the left a distance of 196.83 feet, (long chord bears North 22°00'10" East a distance of 196.24 feet); thence North 12°00'40" East along the centerline of said Canal a distance of 237.44 feet to a point which lies North 89°59'46" West, a distance of 50.95 feet from a 5/8 inch iron rebar per Umatilla County Survey 01-200-B; thence South 89°59'46" East a distance of 357.00 feet to a 5/8 inch iron rebar per Umatilla County Survey No. 01-200-B; thence North 06°47'02" West, a distance of 407.93 feet to a 5/8" iron rebar per Umatilla County Survey No. 01-200-B; thence North 89°58'01" West a distance of 159.02 feet to a 5/8 inch iron rebar per Umatilla County Survey No. 01-200-B; thence North 89°58'01" West a distance of 50.98 feet to the centerline of said Westland Canal; thence North 14°19'17" East along the centerline of said Canal a distance of 52.46 feet to a point which lies 257.86 feet distant Southerly from the South line of the North Half of the North Half of the Southwest Quarter of the Northwest Quarter of said Section 30; thence South 89°45'24" East and parallel with the South line of the North Half of the North Half of the Southwest Quarter of the Northwest Quarter of Section 30 a distance of 1,406.91 feet to the TRUE POINT OF BEGINNING.

Excepting therefrom any portion lying within the County Road and Railroad right-of-ways and subject to the easement of the Westland Canal.

\LE REVISED TL1100

EXHIBIT C

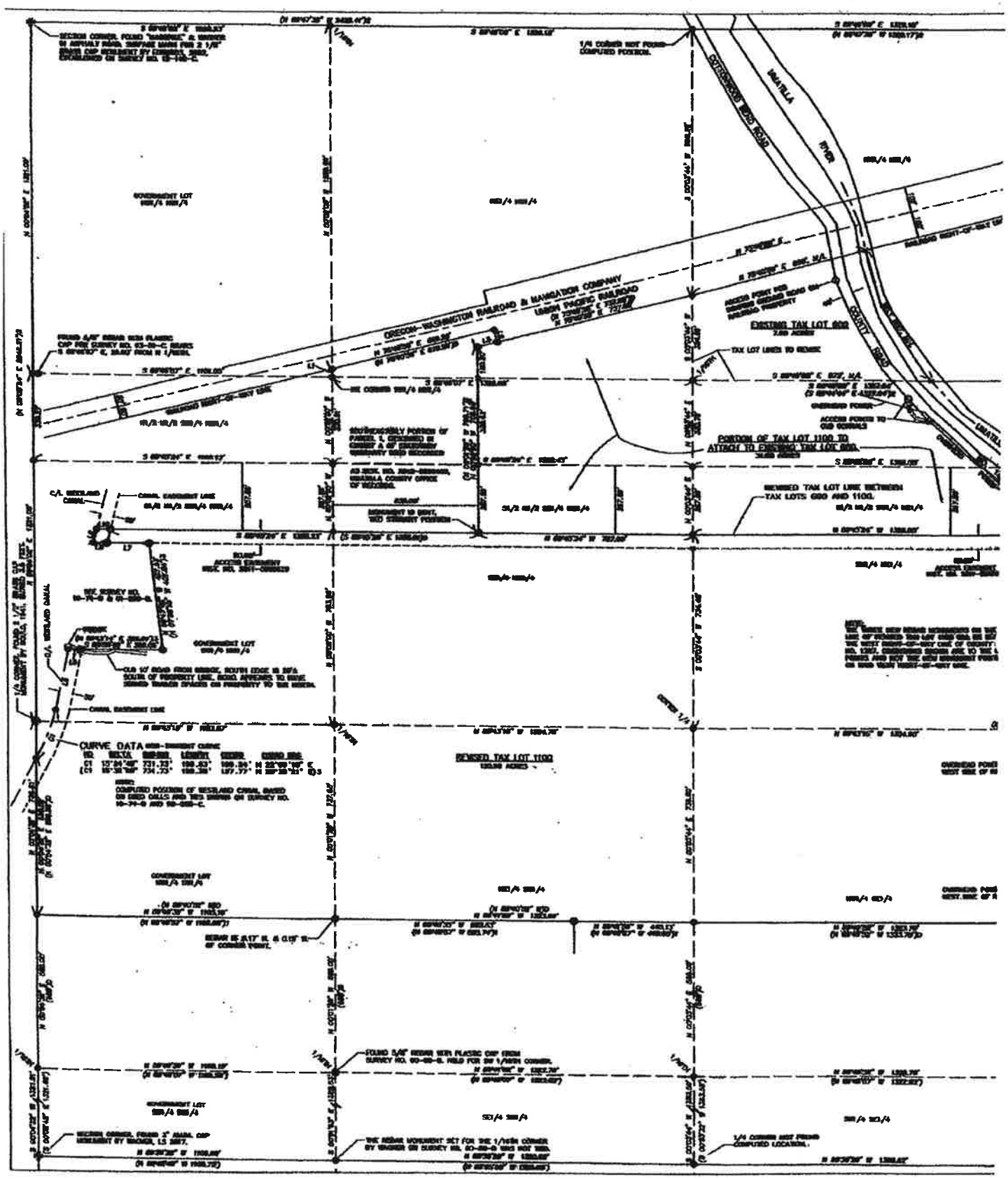

OREGON-WASHINGTON RAILROAD & NAVIGATION COMPANY
UNION PACIFIC RAILROAD
COTTONWOOD ROAD
UMATILLA RIVER
COUNTY ROAD
EXISTING TAX LOT 600
PORTION OF TAX LOT 1100 TO ATTACH TO EXISTING TAX LOT 600.
REVISED TAX LOT LINE BETWEEN TAX LOTS 600 AND 1100.
REVISED TAX LOT 1100
CURVE DATA

EXHIBIT D

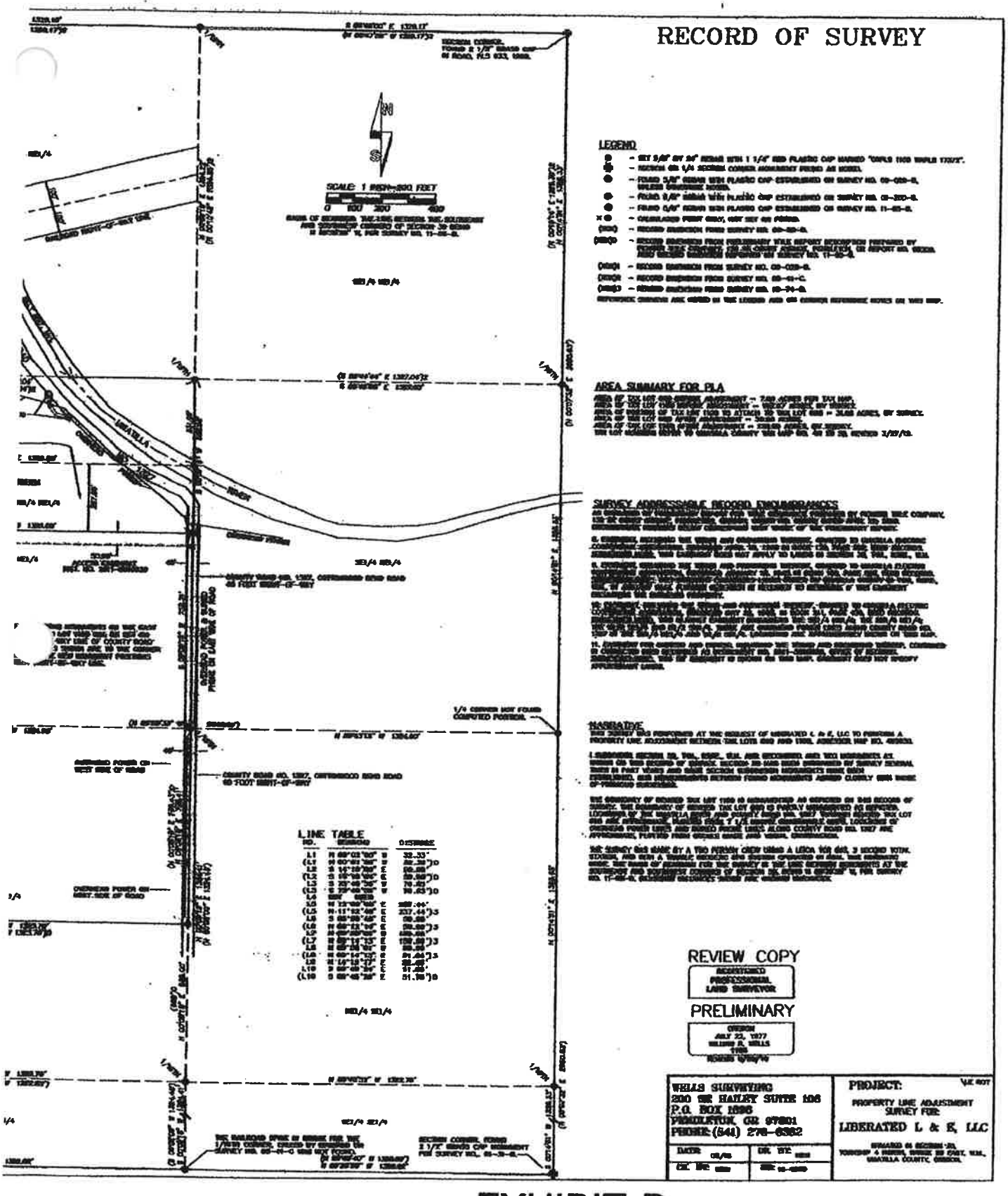
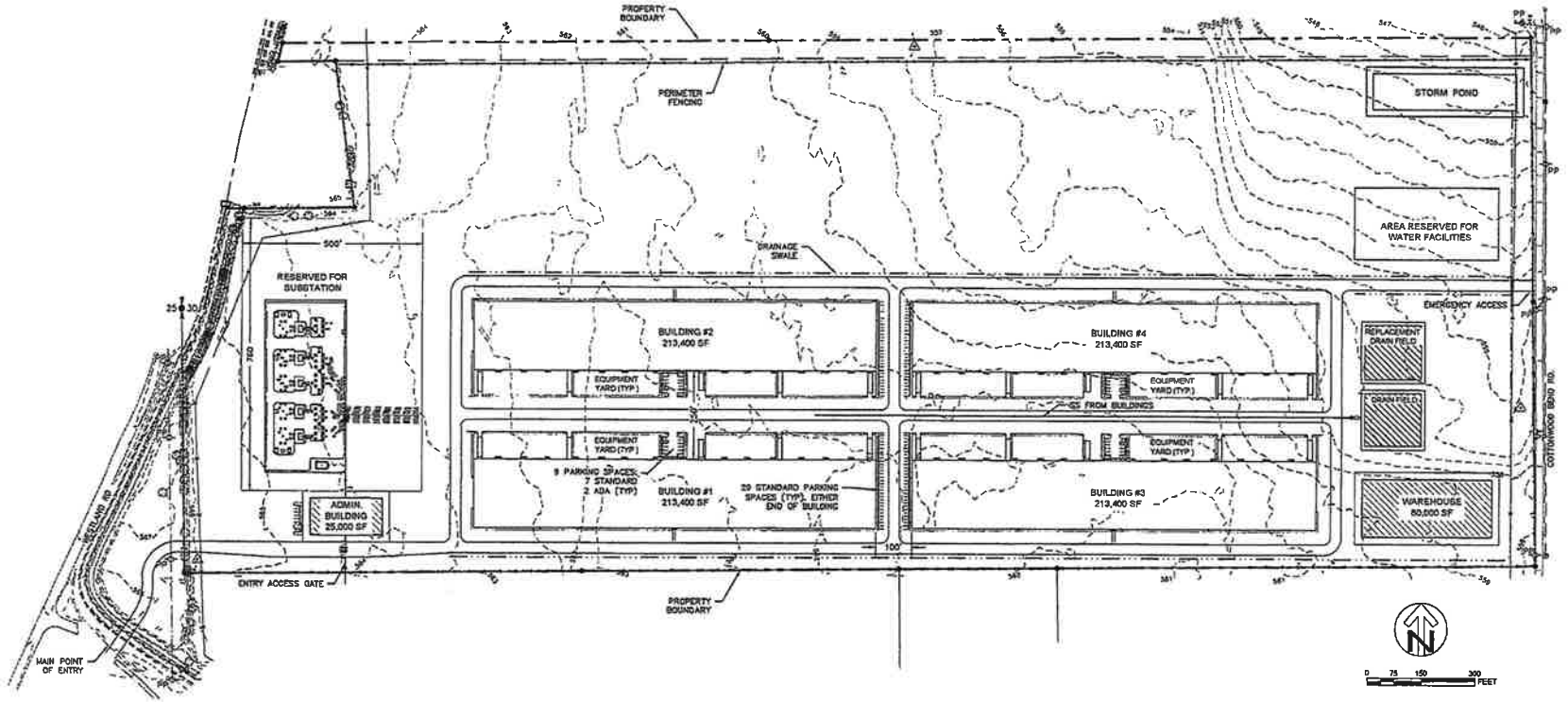

RECORD OF SURVEY
LEGEND
AREA SUMMARY FOR PLA
SURVEY ADDRESSABLE RECORD ENCUMBRANCES
NARRATIVE
LINE TABLE
REVIEW COPY
PRELIMINARY
WELLS SURVEYING
200 SE HAILEY SUITE 106
P.O. BOX 1696
PRINEVILLE, OR 97801
PHONE: (541) 276-6362
PROJECT:
PROPERTY LINE ADJUSTMENT SURVEY FOR:
LIBERATED L & E, LLC

EXHIBIT D



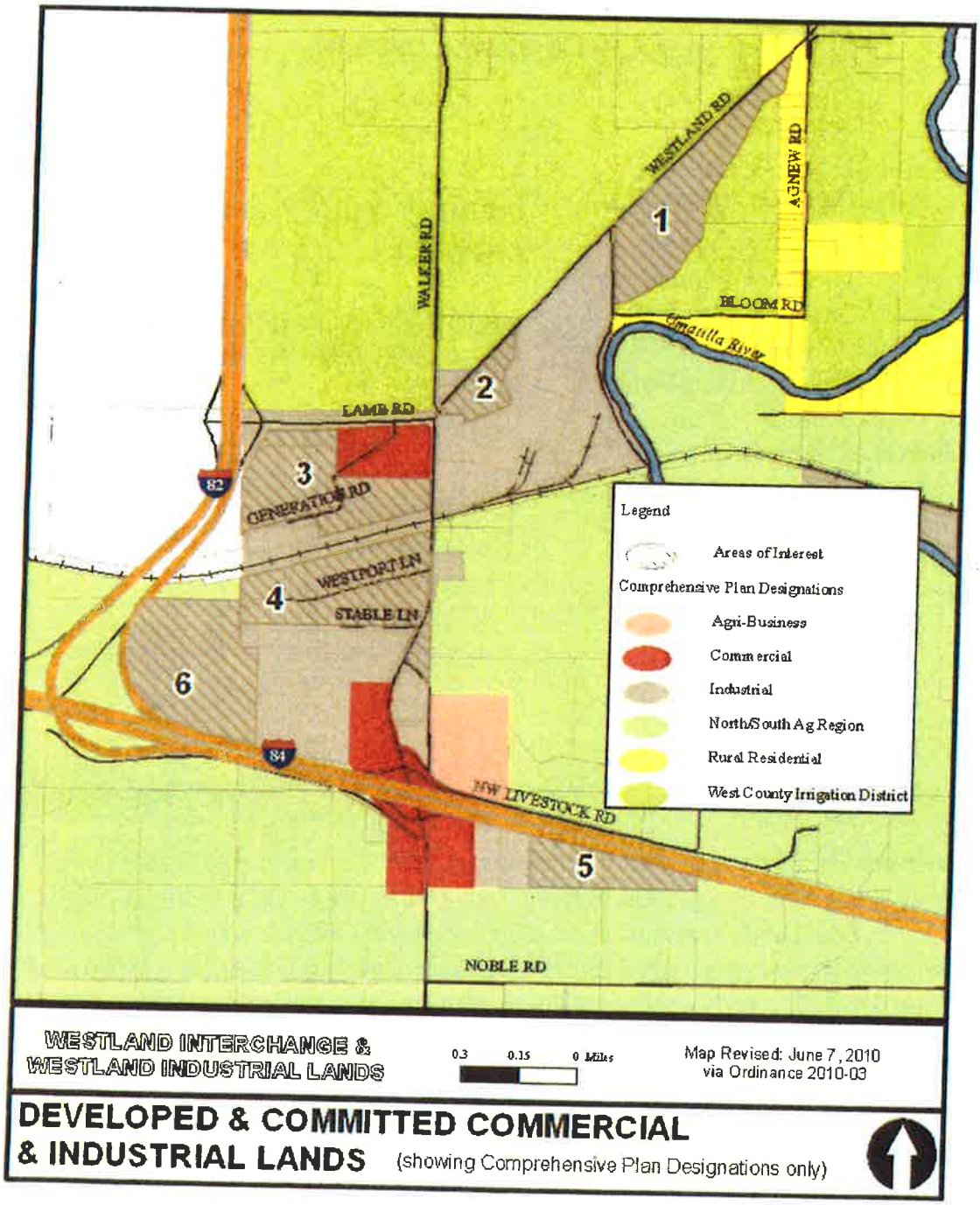
		PROJECT MANAGER	BRIAN WILKINSON, PE
0	12/15/16	ZONING APPLICATION	
ISSUE	DATE	DESCRIPTION	PROJECT NUMBER 10048345

PRELIMINARY
NOT FOR CONSTRUCTION

VADATA PDX-80

PDX-80
PRELIMINARY SITE PLAN

VERIFY SCALE | FILENAME - | SCALE AS SHOWN | SHEET 1 OF 1



Map 18-76 – Developed & Committed Commercial and Industrial Lands – Westland Interchange (XVIII-454A)

BEFORE THE PLANNING COMMISSION AND BOARD OF COMMISSIONERS

OF UMATILLA COUNTY, OREGON

In the Matter of Requests for: (1) Comprehensive Plan Map Amendment from North/South Agriculture to Industrial; (2) Zoning Map Amendment from Exclusive Farm Use to Light Industrial with Limited Use Overlay; and (3) Reasons Exceptions to Statewide Planning Goals 3 and 14, all on Approximately 120 Acres of Real Property Generally Located Northeast of the Interstate Highway 82/Interstate Highway 84 Interchange between Westland Road and Cottonwood Bend Road.	**COUNTY FILE NOS. T-17-072, Z-311-17, AND P-119-17** **SUPPLEMENTAL NARRATIVE IN SUPPORT OF THE APPLICATIONS FILED BY VADATA, INC.**

I. Introduction.

Vadata, Inc., a Delaware corporation ("Applicant" or "Vadata") has filed applications ("Applications") requesting that Umatilla County ("County"): (1) amend the Comprehensive Plan Map designation from North/South Agriculture to Industrial; (2) amend the Zoning Map designation from Exclusive Farm Use to Light Industrial with Limited Use Overlay; and (3) adopt reasons exceptions to Statewide Planning Goals 3 and 14, all on approximately 120 acres of real property generally located northeast of the Interstate Highway 82/Interstate Highway 84 interchange between Westland Road and Cottonwood Bend Road ("Property"). Applicant has now submitted supplemental application materials, including a Transportation Impact Analysis. This narrative explains how the Transportation Impact Analysis helps demonstrate that the Applications satisfy applicable approval criteria, including Umatilla County Development Code ("UCDC") 152.019, Statewide Planning Goal 12, and the Oregon Transportation Planning Rule ("TPR").

II. Applicable County Approval Criteria.

A. Umatilla County Development Code.

TRAFFIC IMPACT STUDY

§ 152.019 TRAFFIC IMPACT STUDY.

(A) Purpose: The purpose of this section of the code is to implement Section 660- 012-0045 (2) (e) of the State Transportation Planning Rule that requires the County to adopt a process to apply conditions to specified land use proposals in order to minimize adverse impacts to and protect transportation facilities. This section establishes the standards for when a proposal must be reviewed for potential traffic impacts; when a Traffic Impact Analysis must be submitted with an application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; what must be in a Traffic Impact Analysis; and who is qualified to prepare the analysis.

RESPONSE: Applicant acknowledges the purpose of this section.

(B) Applicability: A Traffic Impact Analysis shall be required to be submitted to the County with a land use application, when one or more of the following actions apply:

(1) A change in plan amendment designation; or

RESPONSE: The Applications propose a change in the UCCP map designation for the Property. Therefore, a Traffic Impact Analysis is required. Applicant has submitted to the County an analysis that is prepared in accordance with this section.

* * * *

(C) Traffic Impact Analysis Requirements

(1) Preparation. A Traffic Impact Analysis shall be prepared by a professional engineer. The Traffic Impact Analysis will be paid for by the applicant.

RESPONSE: Transportation engineer Diego Arguea, P.E. of Kittelson & Associates, Inc. ("KAI") prepared a Transportation Impact Analysis dated February 2017 ("TIA"). A copy of the TIA is included with this supplemental narrative. Applicant paid for the TIA. The County should find that the Applications are consistent with this requirement.

(2) Transportation Planning Rule Compliance as provided in § 152.751.

RESPONSE: As explained in response to Statewide Planning Goal 12/TPR at page 5 of this supplemental narrative, in the TIA, KAI concludes that, subject to a condition limiting development of the Property to the level of trips that will be generated by development in accordance with the Conceptual Site Plan, approval of the Applications will not "significantly affect" any existing or planned transportation facilities for purposes of the TPR. Based upon this testimony, the County should find that the Applications are consistent with this requirement.

(3) Pre-filing Conference. The applicant will meet with the Umatilla County Public Works Director and Planning Director prior to submitting an application that requires a Traffic Impact Analysis. The County has the discretion to determine the required elements of the TIA and the level of analysis expected. The County shall also consult the Oregon Department of Transportation (ODOT) on analysis requirements when the site of the proposal is adjacent to or otherwise affects a State roadway.

RESPONSE: Applicant and KAI held a pre-application conference with the County Planning Director and Public Works Director on December 2, 2016. KAI also consulted with ODOT in preparing the TIA. KAI prepared the TIA in accordance with its consultations with the County and ODOT. The County should find that the TIA satisfies this requirement.

(4) For development proposed within the Umatilla Army Chemical Depot boundary of the I-82/Lamb Road or I- 84/Army Depot Access Road Interchange Area Management Plan (IAMP) Management Area Prior to the construction and completion of near-term improvements projects (Projects A and B) identified in the I-82/Lamb Road IAMP, the following additional submittal requirements may be required:

RESPONSE: The Property is not located within the Umatilla Army Chemical Depot boundary of the I-82/Lamb Road or I-84/Army Depot Access Road Interchange Area Management Plan. The County should find this requirement is not applicable.

(D) Approval Criteria: When a Traffic Impact Analysis is required; approval of the proposal requires satisfaction of the following criteria:

(1) Traffic Impact Analysis was prepared by an Oregon Registered Professional Engineer qualified to perform traffic engineering analysis;

RESPONSE: Diego Arguea, P.E. of KAI prepared the TIA. Mr. Arguea is an Oregon registered professional transportation engineer and is qualified to perform traffic engineering analysis. The County should find that the TIA satisfies this requirement.

(2) If the proposed action shall cause a significant effect pursuant to the Transportation Planning Rule, or other traffic hazard or negative impact to a transportation facility, the Traffic Impact Analysis shall include mitigation measures that meet the County's Level-of-Service and/or Volume/Capacity standards and are satisfactory to the County Engineer, and ODOT when applicable; and

RESPONSE: As explained in the TIA, approval of the Applications will not cause a significant effect pursuant to the TPR or other traffic hazard or negative impact to a transportation facility. Therefore, no mitigation measures are required. The County should find that the TIA satisfies this requirement.

(3) The proposed site design and traffic and circulation design and facilities, for all transportation modes, including any mitigation measures, are designed to:

(a) Have the least negative impact on all applicable transportation facilities;

(b) Accommodate and encourage non-motor vehicular modes of transportation to the extent practicable;

(c) Make the most efficient use of land and public facilities as practicable;

(d) Provide the most direct, safe and convenient routes practicable between on-site destinations, and between on-site and off-site destinations; and

(e) Otherwise comply with applicable requirements of the Umatilla County Code.

RESPONSE: The proposed site design identifies the proposed site access point via a new driveway that crosses the existing channel along the south of the subject property to the Triple M Truck & Equipment store driveway. *See* Conceptual Site Plan included with Applications. That access point meets applicable spacing standards. Further, the design incorporates an efficient and safe on-site circulation system. *Id.* The County should find that the TIA satisfies this requirement.

(E) Conditions of Approval: The County may deny, approve, or approve a proposal with appropriate conditions.

(1) Where the existing transportation system is shown to be impacted by the proposed action, dedication of land for streets, transit facilities, sidewalks, bikeways, paths, or accessways may be required to ensure that the transportation system is adequate to handle the additional burden caused by the proposed action.

(2) Where the existing transportation system is shown to be impacted by the proposed action, improvements such as paving, curbing, installation or contribution to traffic signals, construction of sidewalks, bikeways, accessways, paths, or streets that serve the proposed action may be required.

RESPONSE: As explained in the TIA, subject to imposing a condition limiting development of the Property to the level of trips that will be generated by development in accordance with the Conceptual Site Plan, the existing transportation system will not be adversely impacted by development in accordance with the Applications. Therefore, the County should find that, subject to this condition, the TIA satisfies this requirement.

Goal 12: Transportation.

To provide and encourage a safe, convenient and economic transportation system.

RESPONSE: Goal 12 is implemented by the TPR, which requires local governments to determine whether or not a proposed PAPA will "significantly affect" an existing or planned transportation facility. OAR 660-012-0060(1). A PAPA will "significantly affect" an existing or planned transportation facility if it will: (1) change the functional classification of a facility; (2) change standards implementing a functional classification system; (3) as measured at the end of the planning period, result in types or levels of travel or access that are inconsistent with the functional classification of an existing facility; or (4) degrade the performance of an existing facility either below applicable performance standards, or if already performing below these standards, degrade it further. *Id.*

The County should find that the Applications will not significantly affect any existing or planned transportation facilities. In support of this conclusion, the Board should rely upon the TIA, which concluded that, subject to imposing a condition limiting development of the Property to the level of trips that will be generated by development in accordance with the Conceptual Site Plan, approval of the Applications would not result in any of the outcomes listed in OAR 660-012-0060(1)(a). As a result, KAI concluded that the Applications would not significantly affect any existing or planned transportation facilities for purposes of the TPR.

The County should find that the Applications are consistent with Goal 12 and the TPR, subject to imposing the trip cap.

V. Conclusion.

For the reasons set forth above, the Application satisfies the applicable requirements of the UCDC, the UCCP, the Goals, the ORS and the OAR. The County should approve the Applications as proposed.

Transportation Impact Analysis

Umatilla County Data Centers

Umatilla County, Oregon

February 2017

KITTELSON & ASSOCIATES

Transportation Impact Analysis

Umatilla County Data Centers

Umatilla County, Oregon

Prepared For:
Vadata, Inc.
PO Box 80683
Seattle, WA 98108-0683

Prepared By:
Kittelson & Associates, Inc.
610 SW Alder Street, Suite 700
Portland, OR 97205
(503) 228-5230

Project Principal: Matt Hughart. AICP
Project Manager: Diego Arguea, P.E.
Project Analyst: Kylie Caviness

Project No. 20856.00

January 2017

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

Section 1
Executive Summary

EXECUTIVE SUMMARY

Vadata, Inc. proposes to develop a data center campus in Umatilla County, Oregon, on land parcels adjacent to Westland Road immediately north of Interstate-84 in Umatilla County, Oregon.

The data centers are planned to include a total of 958,600 square feet[1], and will require a zone change from EFU (Exclusive Farm Use) to a Light Industrial with a Limited Use Overlay Zone. Access to the site will be provided via a new driveway that crosses the existing channel along the south of the subject property to the Triple M Truck & Equipment store driveway, approximately 200-300 feet east of Westland Road.

The results of this study indicate that the proposed rezoning and subsequent development of the data centers (as a limited use) are consistent with the Transportation Planning Rule (TPR) and applicable Umatilla County transportation-related approval criteria, and can be constructed while maintaining acceptable traffic operations and safety at the study intersections. The findings of this analysis and our recommendations are discussed below.

FINDINGS

- All of the study intersections currently operate at acceptable mobility targets and levels of service during the weekday AM and PM peak hours and with 95th percentile queue lengths of one vehicle or less.
- A review of historical crash data did not reveal patterns or trends in the site vicinity that require mitigation associated with this project.
- All of the study intersections are forecast to continue to operate at acceptable mobility targets and levels of service during the weekday AM and PM peak hours under future 2018 and 2031 background traffic conditions without the proposed development. Projected 95th percentile queue lengths during the weekday AM and PM peak hours are one vehicle or less.
- The proposed development is estimated to generate 86 net new trips (45 inbound, 41 outbound) during the weekday AM peak hour, and 86 net new trips (18 inbound, 68 outbound) during the weekday PM peak hour.
- All of the study intersections are forecast to operate at acceptable mobility targets and levels of service during weekday AM and PM peak hours under future 2018 and 2031 background traffic conditions without the proposed development as well as 2018 and 2031 total conditions with the proposed development traffic.
- Projected 95th percentile queue lengths during the weekday AM and PM peak hours are two vehicles or less.

[1] Includes 4 data center buildings (each 213,400 square feet) and an 80,000 square-foot logistics building and a 25,000 square-foot administration building to support the data centers.

- The proposed zone change from EFU (Exclusive Farm Use) to Light Industrial with a Limited Use Overlay Zone effectively caps the development potential of the subject property to the proposed data centers being evaluated in this study.
- By capping the development to the number of trips allowed by the proposed development plan, the proposed map amendments will not result in any of the outcomes identified in OAR 660-012-0060(1)(a)-(c) and therefore, the proposed map amendments will not significantly affect any existing or planned transportation facilities.
- The 15-year horizon analysis conducted in this report demonstrates the long-term sufficiency of the transportation network, satisfying TPR requirements for the proposed rezoning and subsequent development.

RECOMMENDATIONS

The following mitigation measures are recommended with site development:

- No transportation operations- or safety-based mitigations were identified as a result of the proposed development.
- Signage, above-ground utilities, and landscaping near the internal intersections and site access points should be maintained to ensure adequate sight distance.

Additional details of the study methodology, findings, and recommendations are provided within this report.

Section 2
Introduction

INTRODUCTION

This report presents the results of a traffic analysis associated with the proposed rezoning and subsequent development and access for land parcels on Westland Road immediately north of Interstate-84 to determine what, if any, transportation improvements need to be made as a part of the development to ensure affected transportation facilities operate at acceptable levels. This study considers a 120-acre parcel owned by Vadata, Inc. east of Westland Road and north of the Interstate 84 westbound ramp intersection with Westland Road. **Figure 1** shows the site vicinity and location. **Figure 2** illustrates the current lane configuration and traffic controls at existing intersections identified for study.

Vadata, Inc. is proposing to rezone the approximately 120-acre parcel from EFU (Exclusive Farm Use) to Light Industrial with a Limited Use Overlay Zone and construct 958,600 square feet of data center buildings and associated administrative support space. Access to the site is proposed via a single entrance on the Triple M Truck & Equipment driveway (approximately 200-300 feet east of Westland Road).

SCOPE OF THE REPORT

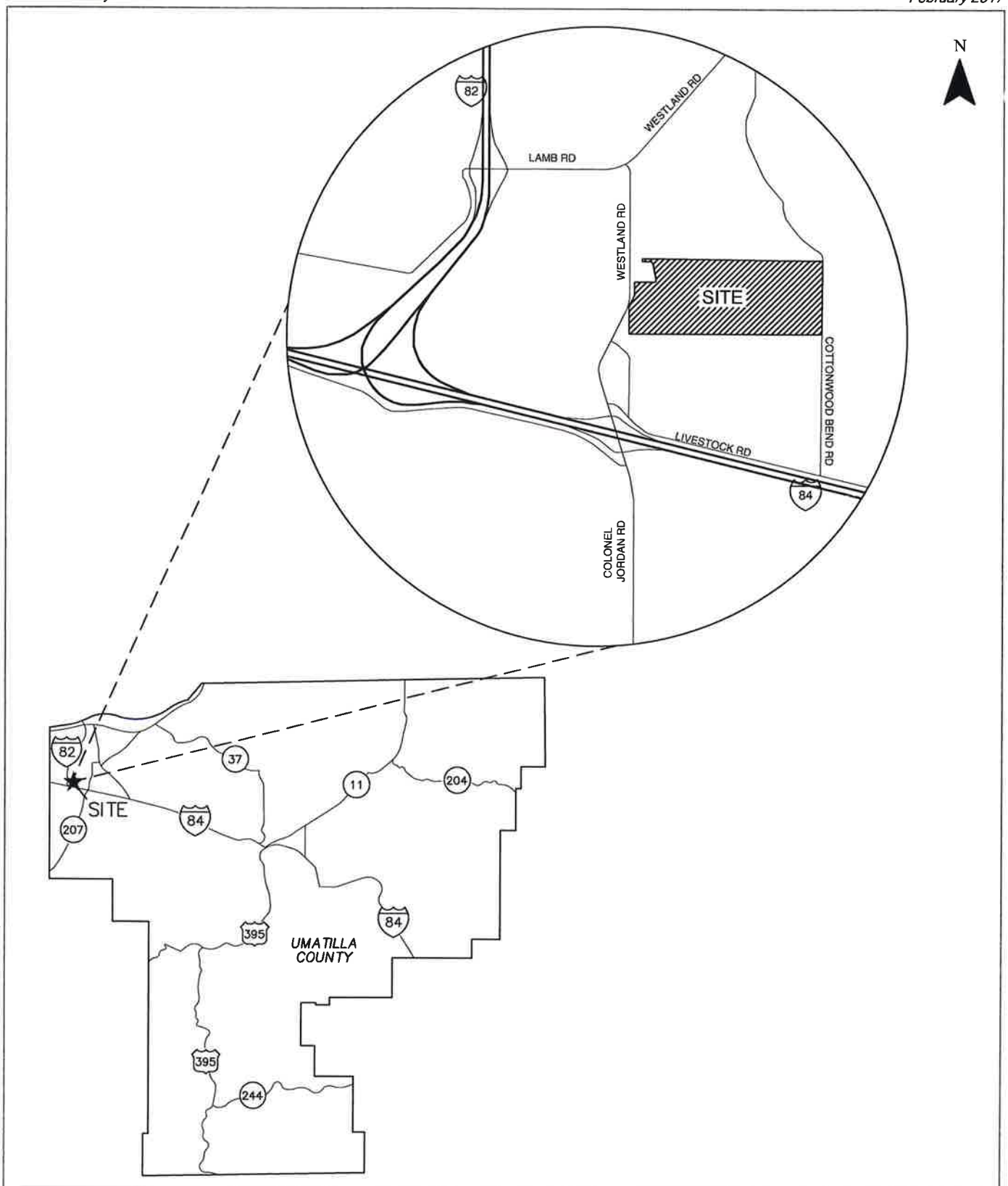
This analysis determines the transportation-related impacts associated with the proposed data centers development and was prepared in accordance with Umatilla County's requirements for traffic impact studies. The study intersections and scope of this project were selected in consultation with Umatilla County staff and our past experience with transportation studies in this study area. The operational analyses were performed at these intersections:

- Lamb Road & I-82 Southbound Ramps
- Lamb Road & I-82 Northbound Ramps
- Westland Road & Lamb Road
- Westland Road & Triple M Truck & Equipment Driveway
- Westland Road & Livestock Road
- Westland Road & I-84 Westbound Ramps
- Westland Road & I-84 Eastbound Ramps
- Future Site Driveway and Triple M Truck & Equipment Driveway/Realigned Livestock Road

This report evaluates these transportation issues:

- 2016 land use and transportation-system conditions within the site vicinity during the weekday AM and PM peak periods;
- Transportation Planning Rule assessment of the proposed rezoning from EFU (Exclusive Farm Use) to Light Industrial with a Limited Use Overlay Zone.
- Forecast year 2018 background traffic conditions during the weekday AM and PM peak periods;
- Forecast year 2031 (with relocated Livestock Road) background traffic conditions during the weekday AM and PM peak periods;

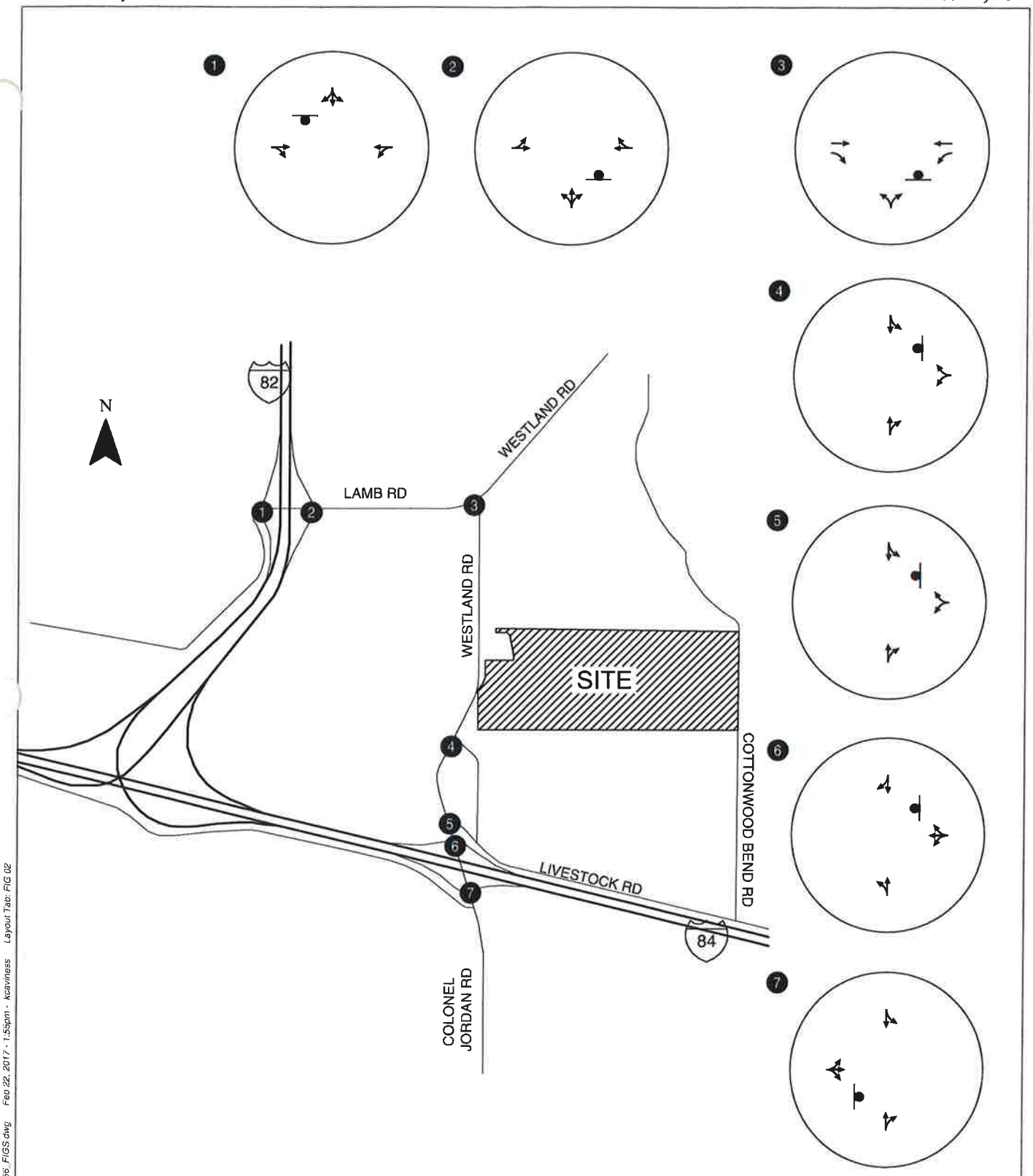
- Trip generation and distribution estimates for the proposed data centers development;
- Forecast year 2018 total traffic conditions (with proposed site access) during the weekday AM and PM peak periods with build-out of the site; and,
- Forecast year 2031 total traffic conditions (with relocated Livestock Road) during the weekday AM and PM peak periods with build-out of the site.



Site Vicinity
Umatilla County, Oregon

Figure
1

KITTELSON & ASSOCIATES



- STOP SIGN

Existing Lane Configurations and Traffic Control Devices
Umatilla County, Oregon

Figure 2

KITTELSON & ASSOCIATES

Section 3
Year 2016 Conditions

YEAR 2016 CONDITIONS

The year 2016 conditions analysis identifies base line site conditions and the corresponding operational and geometric characteristics of the roadways within the study area. These base line conditions will be compared with future conditions later in this report.

TRANSPORTATION FACILITIES

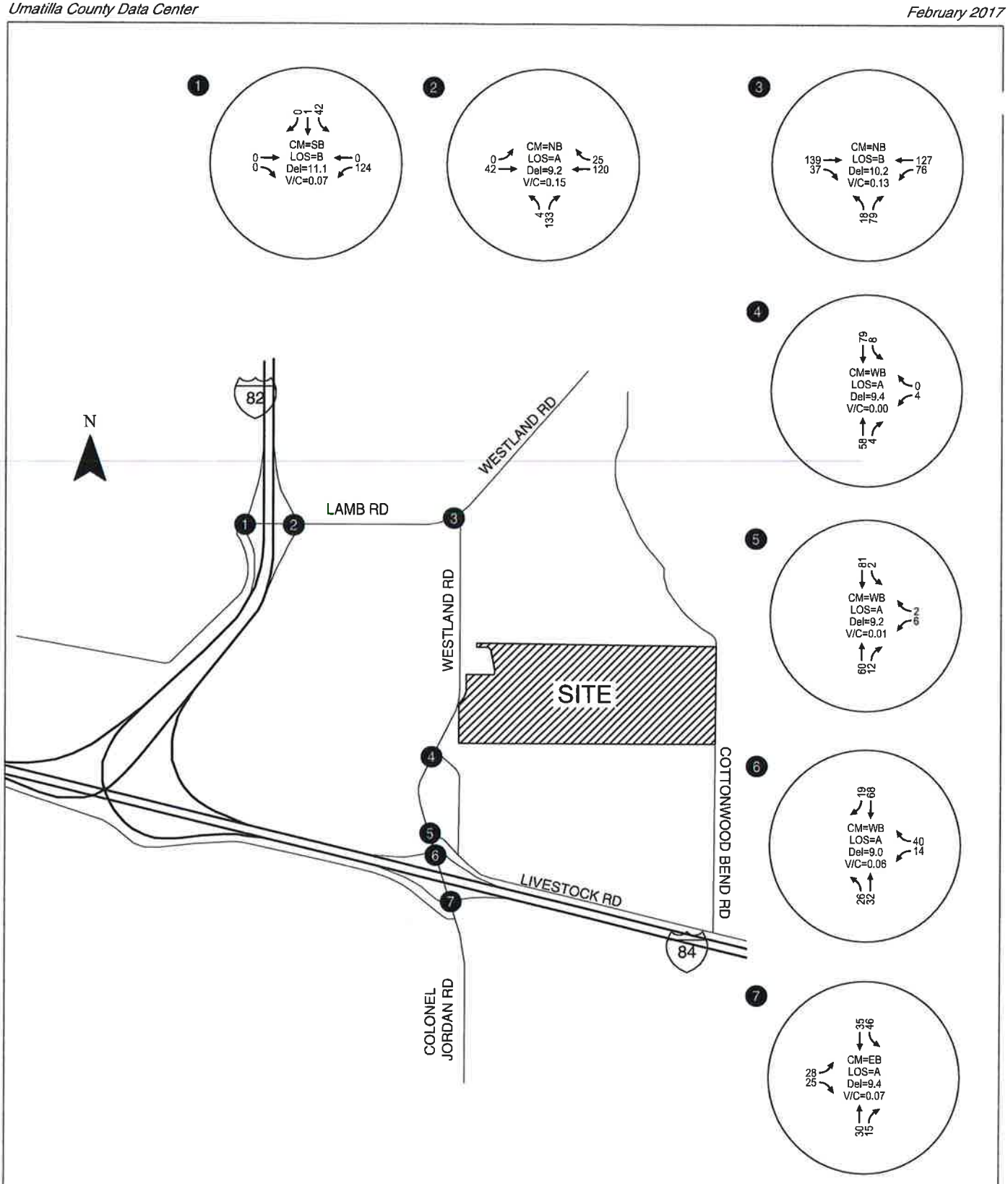
As indicated in Figure 1, the site is roughly bounded by Westland Road to the west, Cottonwood Bend Road to the east, the ConAgra Foods facility and railroad line to the north, and the Westland A Canal to the south. The site is undeveloped and no formal access currently exists. Future access to the site is proposed via a single entrance on the Triple M Truck & Equipment driveway (approximately 200-300 feet east of Westland Road), which is currently a gravel road connecting NW Livestock Road and Westland Road. Westland Road is a two-lane road with no pedestrian or bicycle facilities.

TRAFFIC VOLUMES AND PEAK HOUR OPERATIONS

Manual turning-movement counts were obtained at the study intersections in December 2016. The traffic counts were conducted on a typical mid-week day from 7:00 to 9:00 AM and 4:00 to 6:00 PM[2]. The system-wide morning peak hour was found to occur between 7:20 and 8:20 AM; however, the Westland Road / Lamb Road intersection best serves as a proxy for the relevant peak hour. Therefore, the weekday AM peak hour analysis was conducted using the Westland Road / Lamb Road intersection peak hour, which occurred from 7:00 to 8:00 AM. The system-wide evening peak hour was found to occur between 5:00 and 6:00 PM. The Westland Road / Lamb Road intersection peak hour is the same, so the weekday PM peak hour analysis was conducted using counts reflective of the 5:00 to 6:00 PM peak hour. Traffic counts were seasonally adjusted before use in the operational analysis in accordance with procedures presented in ODOT's *Analysis Procedures Manual* (APM) (Reference 1). The agriculture trend from the Seasonal Factor Table was used to determine a reasonable seasonal adjustment factor, resulting in an adjustment factor of 1.3617.

Figure 3 and **Figure 4** summarize 2016 AM and PM peak hour turning-movement counts and the capacity/level-of-service analysis for the study intersections. All of the study intersections currently operate at acceptable mobility targets and levels of service during weekday AM and PM peak hour. The I-84 and I-82 interchange ramp terminals satisfy ODOT V/C standards. ***Appendix A*** *contains the traffic count worksheets used in this study.*

[2] The site is located in close proximity to the Northwestern Livestock Commission (located at 28871 NW Livestock Road) which holds an auction every Tuesday beginning at 11:00 AM. To ensure that traffic from this regularly occurring event was accounted for, the traffic counts used in this analysis were collected on a Tuesday.



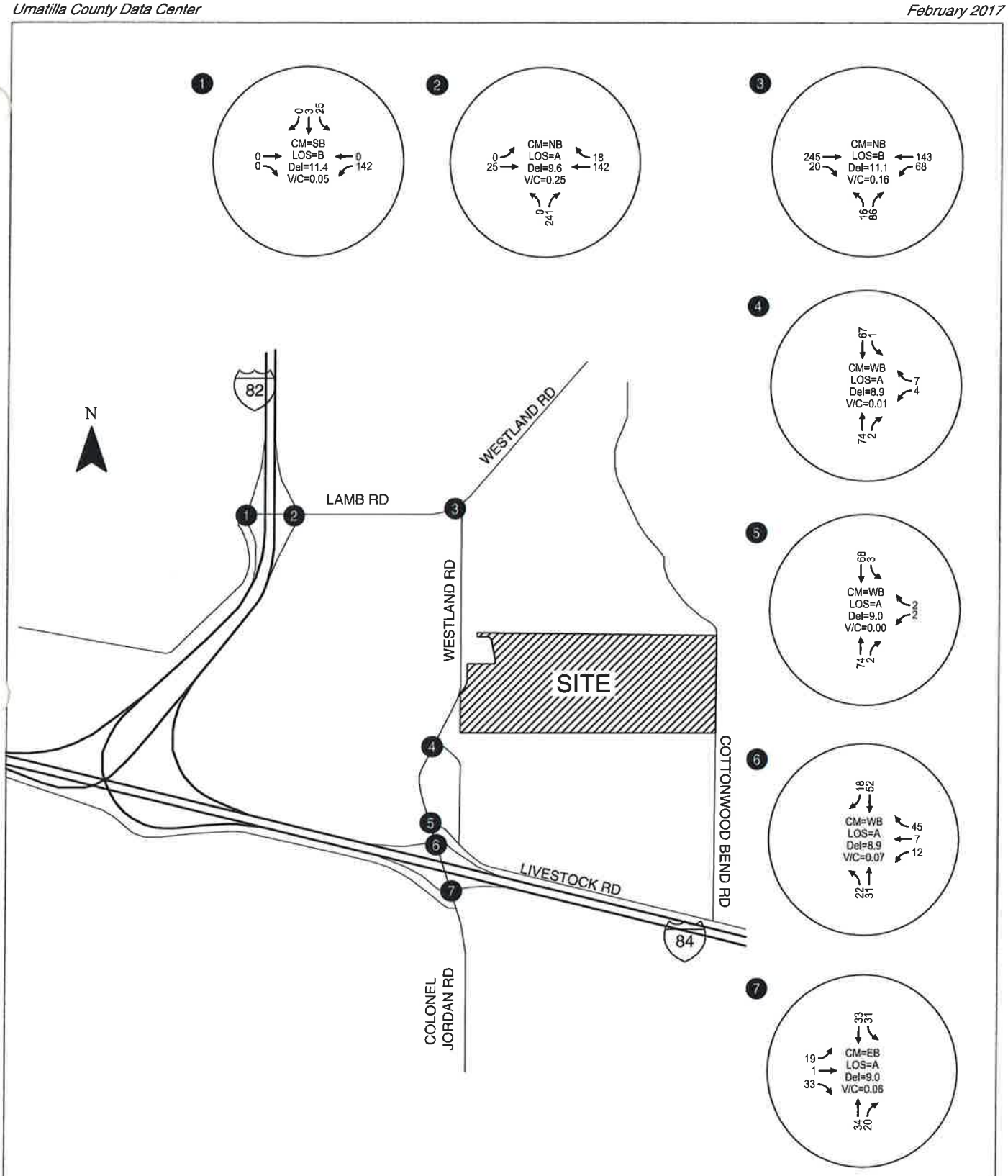
CM = CRITICAL MOVEMENT
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE
Del = CRITICAL MOVEMENT CONTROL DELAY
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

Existing Weekday AM
Peak Hour Traffic Conditions
Umatilla County, Oregon

Figure
3

C:\Users\kcavinass\Desktop\20856_FIGS.dwg Feb 22, 2017 - 3:29pm - kcavinass Layout Tab: FIG 03

KITTELSON & ASSOCIATES



CM = CRITICAL MOVEMENT
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE
Del = CRITICAL MOVEMENT CONTROL DELAY
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

Existing Weekday PM
Peak Hour Traffic Conditions
Umatilla County, Oregon

Figure
4

KITTELSON & ASSOCIATES

Operational Standards

All level-of-service analyses described in this report were performed in accordance with the procedures stated in the 2000 and 2010 *Highway Capacity Manuals (HCM)* (Reference 2 and 3). *A description of level of service and the criteria by which they are determined is presented in* ***Appendix B.*** Appendix B also indicates how level of service is measured and what is generally considered the acceptable range of level of service. Motorists using an intersection that operates at LOS "A" experience very little delay while those using an intersection that operates at LOS "F" experience long delays.

For purposes of this transportation analysis, Umatilla County's intersection level-of-service standards were used to evaluate performance (based on HCM 2000 methods). These standards specify that an LOS "D" is considered acceptable at a signalized intersection, and an LOS "E" is considered acceptable at an unsignalized intersection.

The I-84 ramp terminals with Westland Road are operated and maintained by the Oregon Department of Transportation (ODOT). Per the *Oregon Highway Plan*, ODOT requires that the ramp terminal intersections operate with a volume-to-capacity ratio less than or equal to 0.70. The ODOT intersections[3] were analyzed using HCM 2010 methods.

All intersection evaluations used the peak 15-minute flow rate during each peak hour. Using the peak 15-minute flow rate ensures that this analysis is based on a reasonable worst-case scenario. For this reason, the analysis reflects conditions that are only likely to occur for 15 minutes out of each average peak hour. The transportation system will likely operate under conditions better than those described in this report during all other time periods.

Current 95th Percentile Queueing

Queues at all stop-controlled approaches and left-turn movements were assessed under year 2016 traffic volumes using the 95th percentile queues reported from Synchro. The results are summarized in **Table 1**.

[3] Synchro 9 fails to report LOS results for the I-82 Southbound Ramps/Lamb Road intersection using HCM 2010 methodology. Therefore, HCM 2000 methodological results are reported for this intersection throughout the report.

Table 1. 2016 Existing 95th Percentile Queues

Intersection	Approach	Weekday AM Peak Hour 95th Percentile Queue[1]	Weekday PM Peak Hour 95th Percentile Queue[1]
Lamb Road & I-82 Southbound Ramps	Southbound	<25 feet	<25 feet
	Westbound Left	<25 feet	<25 feet
Lamb Road & I-82 Northbound Ramps	Northbound	<25 feet	25 feet
	Eastbound Left	<25 feet	<25 feet
Westland Road & Lamb Road	Northbound	<25 feet	<25 feet
	Westbound Left	<25 feet	<25 feet
Westland Road & Triple M Truck & Equipment Driveway	Southbound Left	<25 feet	<25 feet
	Eastbound	<25 feet	<25 feet
Westland Road & Livestock Road	Westbound	<25 feet	<25 feet
	Southbound Left	<25 feet	<25 feet
Westland Road & I-84 Eastbound Ramps	Southbound Left	<25 feet	<25 feet
	Eastbound	<25 feet	<25 feet
Westland Road & I-84 Westbound Ramps	Northbound Left	<25 feet	<25 feet
	Westbound	<25 feet	<25 feet

[1] Rounded to nearest 25 feet

As shown in Table 1, all movements currently have 95th percentile queues equal to or less than 25 feet (one car length). ***Appendix C*** *includes the level-of-service and queueing worksheets under year 2016 traffic conditions.*

Traffic Safety

The crash history at the study intersections was reviewed to identify potential safety issues. The Oregon Department of Transportation (ODOT) provided crash records from the study area for the most recent five-year period available, from January 1, 2010, through December 31, 2014. A total of five crashes were reported at study intersections; four involving property-damage-only and one that included a reported injury. **Table 2** summarizes the recorded crash data.

Table 2. Crash Data Summary (2010-2014)

Year	Crash Type	Weather	Surface	Light Condition	Crash Severity[1]	Location Comments
2014	Fixed Object / Run Off Road	Cloudy	Wet	Dark	PDO	I-82 SB Ramps & Lamb Road
2011	Angle	Clear	Dry	Day	INJ	I-84 EB Ramps & Westland Road
2011	Angle	Clear	Dry	Day	PDO	I-84 EB Ramps & Westland Road
2013	Turning	Clear	Dry	Day	PDO	Westland Road at Westport Lane[2]
2011	Angle – Right Turn	Unknown	Unknown	Day	PDO	Westland Road at Lamb Road

[1] Where INJ = injury and PDO = property damage only
[2] Westland Road & Westport Lane not a study intersection

No crash trends or safety deficiencies were identified in the study area based on the crash data that require mitigation in conjunction with the proposed site development. ***Appendix D*** *includes the crash data sheets.*

Section 4
Transportation Planning Rule & Transportation Impact Analysis

TRANSPORTATION PLANNING RULE ANALYSIS

Per Oregon Administrative Rule (OAR) 660-012-0060 (the Transportation Planning Rule), a zone change cannot create an unmitigated significant effect on an existing or planned transportation facility. If a significant effect is caused in comparison, it must be mitigated within the planning horizon. To address the TPR, a trip generation comparison has been prepared assuming a reasonable *worst-case* development scenario for the existing zoning (EFU), and for the proposed zoning (Light Industrial). The following trip generation table assumes one single family home for the existing zoning, which would operate as an exclusive farm use. The proposed zoning trip generation assumes a Light Industrial land use with a lot coverage of 0.25 floor-area ratio, resulting in approximately 30 acres, or 1.3 million square feet of light industrial land uses. A trip comparison table is provided below in Table 3.

Table 3. TPR Trip Generation Comparison

Land Use	ITE Land Use Code	Units	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Existing Zoning – Exclusive Farm Use								
Single Family Home	210	1 home	0	1	1	1	0	1
Proposed Zoning – Light Industrial								
General Light Industrial	110	1,306,800 square feet	1,058	144	1,202	152	1,115	1,268
Net New Trips (Proposed – Existing Zoning)			**1,058**	**143**	**1,201**	**151**	**1,115**	**1,267**

As shown in Table 3, the proposed zone change to Light Industrial could result in an increase of up to approximately 1,201 net new weekday AM peak hour trips and 1,267 weekday PM peak hour trips over the existing zoning. To address this potential increase and satisfy the TPR requirement for *significant effect*, the proposed Light Industrial zone change will include Umatilla County's Limited Use Overlay which limits the list of permitted uses and general activities of the subject property. In this case, the Limited Use overlay will limit the use of the site to a data center development, thereby capping the development potential (and thus the number of trips).

The TPR is thus addressed by the analysis of the impacts of the proposed data center buildings evaluated in this study. By capping the development to the number of trips allowed by the proposed development plan, the proposed map amendments will not result in any of the outcomes identified in OAR 660-012-0060(1)(a)-(c) and therefore, the proposed map amendments will not significantly affect any existing or planned transportation facilities. The remainder of this report focuses on the development of the proposed 958,600 square feet of data centers (and supporting buildings) on the 120-acre site. A 15-year horizon analysis (year 2031) has been prepared to demonstrate the long-term sufficiency of the transportation network under the *Limited Use Overlay*/data center development.

TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study area's transportation system will operate in the assumed occupancy year 2018, and in the future 2031 planning year. The impact of traffic generated by the proposed data centers during a typical weekday AM and PM peak hour was examined as follows:

- Background weekday AM and PM peak hour traffic conditions for the years 2018 (assumed year of occupancy) and 2031 (15-year planning-level analysis) were analyzed at each of the study intersections during the weekday AM and PM peak hour.
- Background conditions were developed by applying a two percent annual growth rate to the year 2016 traffic volumes and adding in-process development trips to account for regional growth in the site vicinity.
- Site-generated trips were estimated for build-out of the site.
- Site trip-distribution patterns were derived after all study intersections traffic patterns.
- Year 2018 (assumed year of occupancy) and 2031 (15-year planning-level analysis) total traffic conditions were analyzed at each of the study intersections and site-access points during the weekday AM and PM peak hours.

2018 BACKGROUND TRAFFIC CONDITIONS

The 2018 background traffic analysis identifies how the study area's transportation system will operate without the proposed development. This analysis includes traffic attributed to general growth in the region, but does not include traffic from the proposed development.

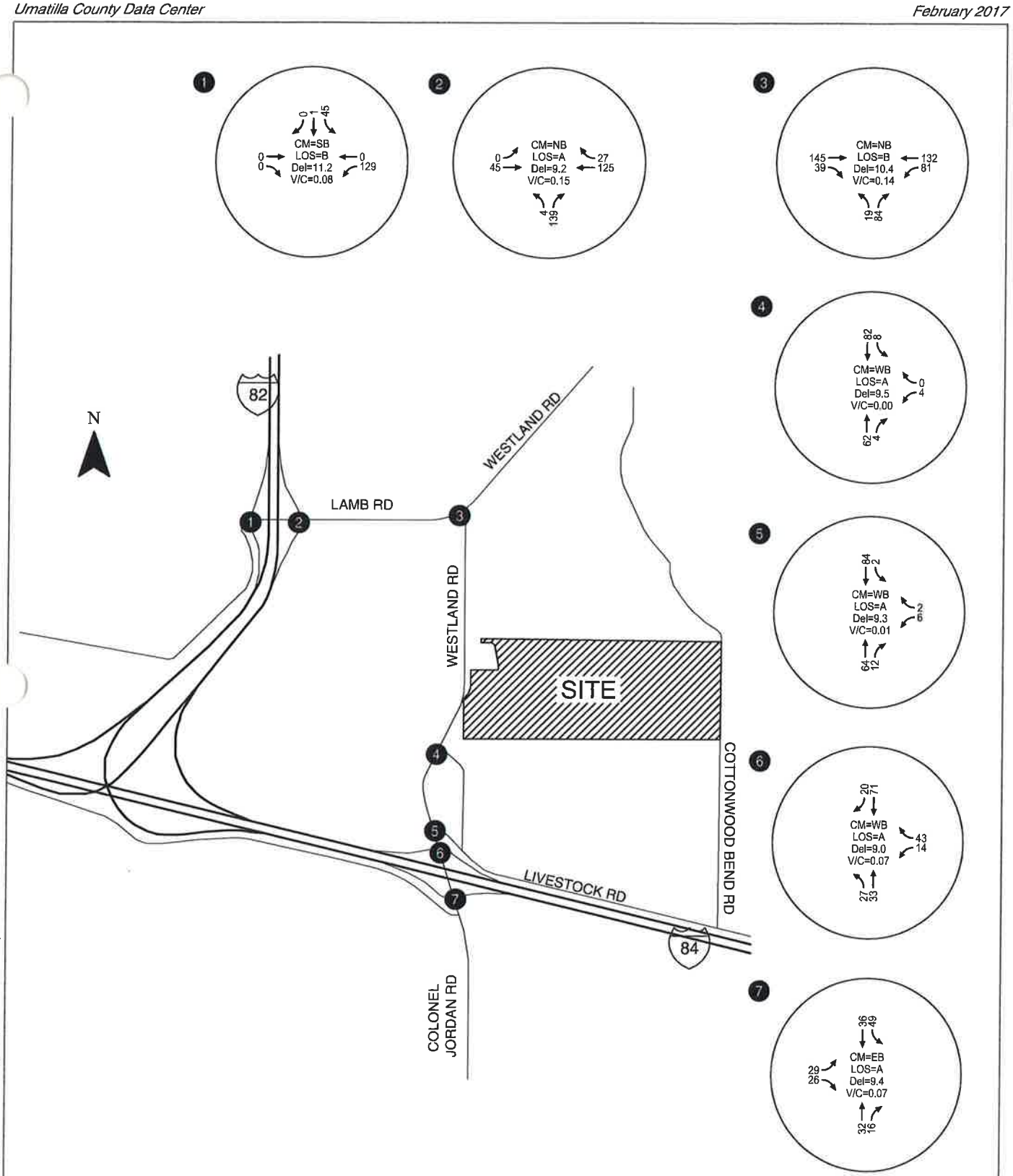
Traffic Volumes

The growth rate used in this analysis was derived from an examination of historical traffic counts on Westland Road. The counts reflect very little growth in traffic over the past ten years; however, an annual growth rate of 2-percent was assumed for future years to reflect a reasonable worst-case conservative analysis and to be consistent with other traffic studies from the area. In addition, trips from one in-process development were identified:

- **Perennial Wind Chaser Station:** a natural gas-fired electrical generating plant planned for property located east of Westland Road near the Union Pacific Railroad tracks.

The year 2018 background traffic volumes were developed by applying the two percent annual growth rate to the year 2016 traffic volumes and adding in-process development trips.

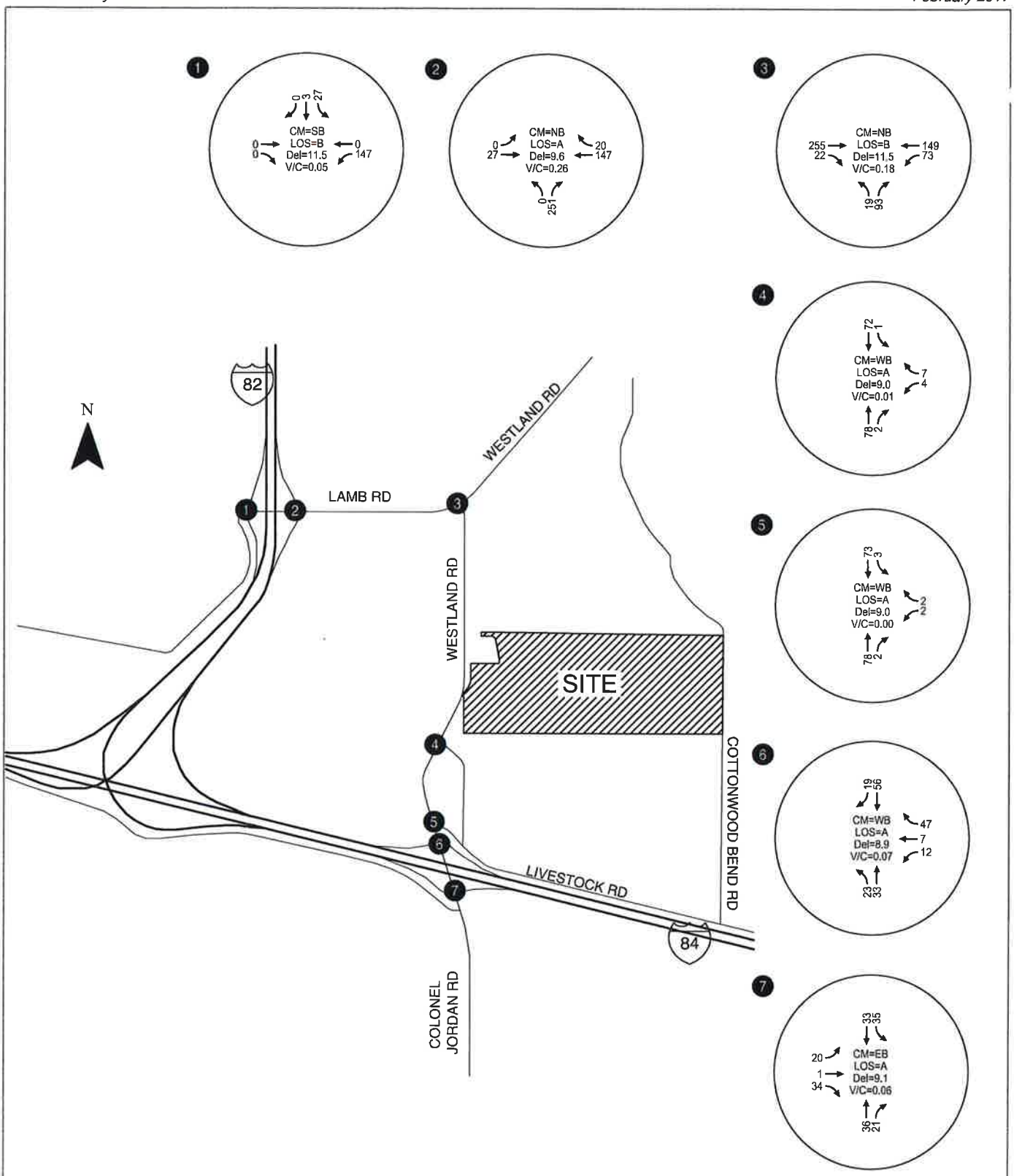
Figure 5 and **Figure 6** illustrate the resulting forecast year 2018 background traffic volumes during the weekday AM and PM peak hours, respectively.



CM = CRITICAL MOVEMENT
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE
Del = CRITICAL MOVEMENT CONTROL DELAY
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2018 Background Weekday AM Peak Hour Traffic Conditions Umatilla County, Oregon

Figure 5



CM = CRITICAL MOVEMENT
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE
Del = CRITICAL MOVEMENT CONTROL DELAY
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2018 Background Weekday PM Peak Hour Traffic Conditions
Umatilla County, Oregon

Figure 6

C:\Users\kcavinass\Desktop\20856_FIGS.dwg Feb 22, 2017 - 3:32pm - kcavinass Layout Tab: FIG 06

KITTELSON & ASSOCIATES

Operational Analysis

The weekday AM and PM peak-hour turning-movement volumes shown in Figure 5 and Figure 6 were used to conduct an operational analysis at each study intersection to determine the year 2018 background traffic levels of service. The analysis determined that all of the study intersections are forecast to operate at acceptable levels of service and v/c ratios during the 2018 background weekday AM and PM peak hour. ***Appendix E*** *contains the year 2018 background traffic level-of-service, v/c, and queueing worksheets.*

95th Percentile Queueing

Queues at all stop-controlled approaches and left-turn movements were assessed under 2018 background conditions based on the 95th percentile queues reported from Synchro. The results are summarized in **Table 4**.

Table 4. 2018 Background Conditions 95th Percentile Queues

Intersection	Approach	Weekday AM Peak Hour 95th Percentile Queue[1]	Weekday PM Peak Hour 95th Percentile Queue[1]
Lamb Road & I-82 Southbound Ramps	Southbound	<25 feet	<25 feet
	Westbound Left	<25 feet	<25 feet
Lamb Road & I-82 Northbound Ramps	Northbound	<25 feet	25 feet
	Eastbound Left	<25 feet	<25 feet
Westland Road & Lamb Road	Northbound	<25 feet	<25 feet
	Westbound Left	<25 feet	<25 feet
Westland Road & Triple M Truck & Equipment Driveway	Southbound Left	<25 feet	<25 feet
	Westbound	<25 feet	<25 feet
Westland Road & Livestock Road	Westbound	<25 feet	<25 feet
	Southbound Left	<25 feet	<25 feet
Westland Road & I-84 Eastbound Ramps	Southbound Left	<25 feet	<25 feet
	Eastbound	<25 feet	<25 feet
Westland Road & I-84 Westbound Ramps	Northbound Left	<25 feet	<25 feet
	Westbound	<25 feet	<25 feet

[1]Rounded to nearest 25 feet

As shown in the Table 4, all movements are projected to have 95th percentile queues equal to or less than 25 feet (one car length) under 2018 background conditions.

PROPOSED DEVELOPMENT PLAN

Vadata, Inc. is proposing to develop and rezone a 120-acre parcel from EFU to LU to develop a total of approximately 958,600 square feet of building area. The description of what is to be built is listed below.

- Four (4), 213,400 square-foot data center buildings, totaling 853,600 square feet.
- One (1), 80,000 square foot logistics warehouse to support the data centers;
- One (1), 25,000 square foot administrative office building to support the data centers;

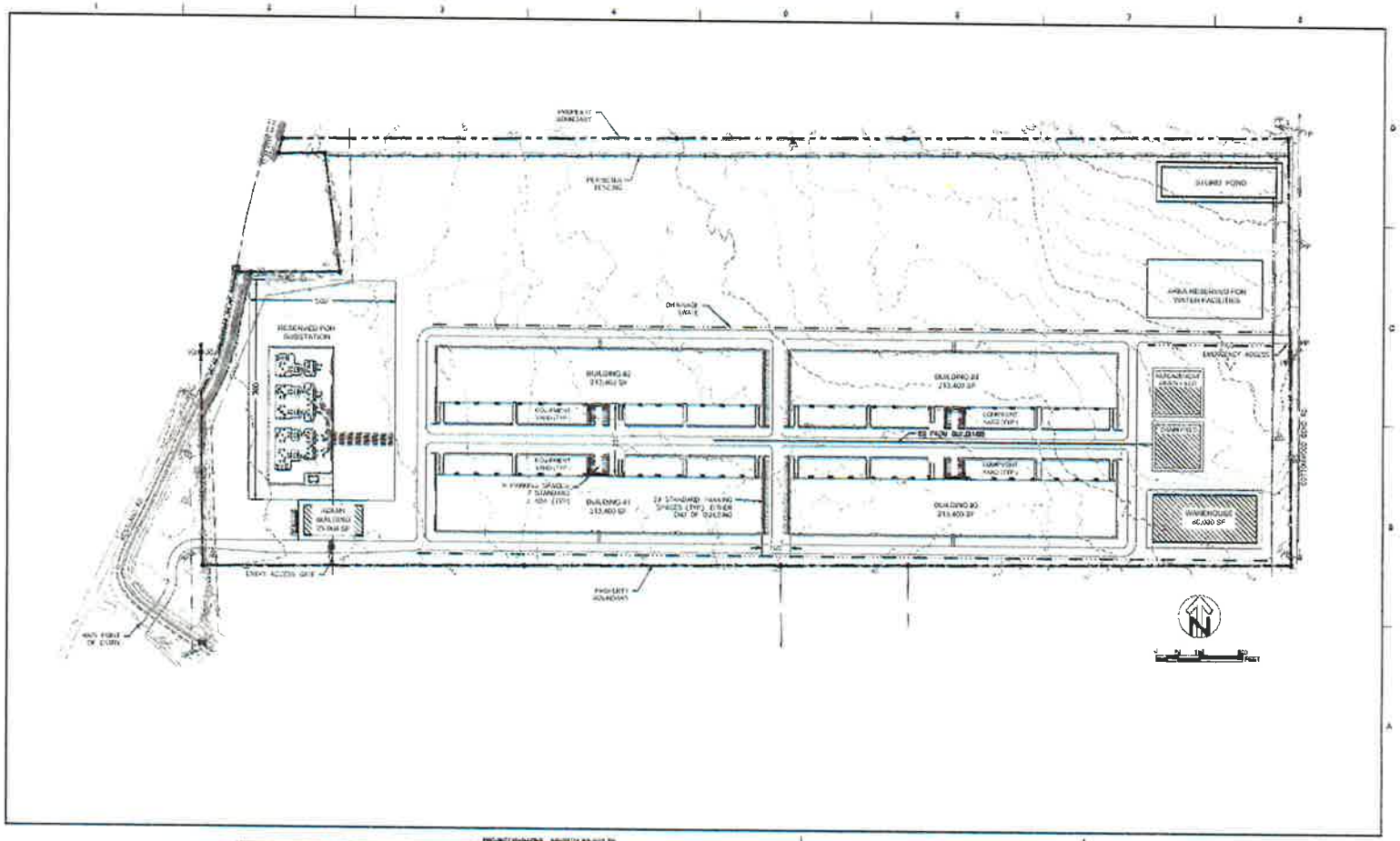
The above breakdown results in a total of 958,600 SF of data center land uses on the site.

Construction of this development is expected to be completed in the year 2018. As shown in **Figure 7**, access to the site is proposed via a single driveway located off of the current gravel roadway adjacent to the Triple M Truck & Equipment store. The driveway would be located approximately 200-300 feet east of Westland Road.

Figure 8 illustrates the assumed lane configurations and traffic control devices at the study intersections.

Future Development Assumptions

The 120-acre property is currently zoned EFU and is transitioning to industrial zoning using the "Limited Use Overlay" application.



HDR

PRELIMINARY
NOT FOR CONSTRUCTION

VADATA PDX-80

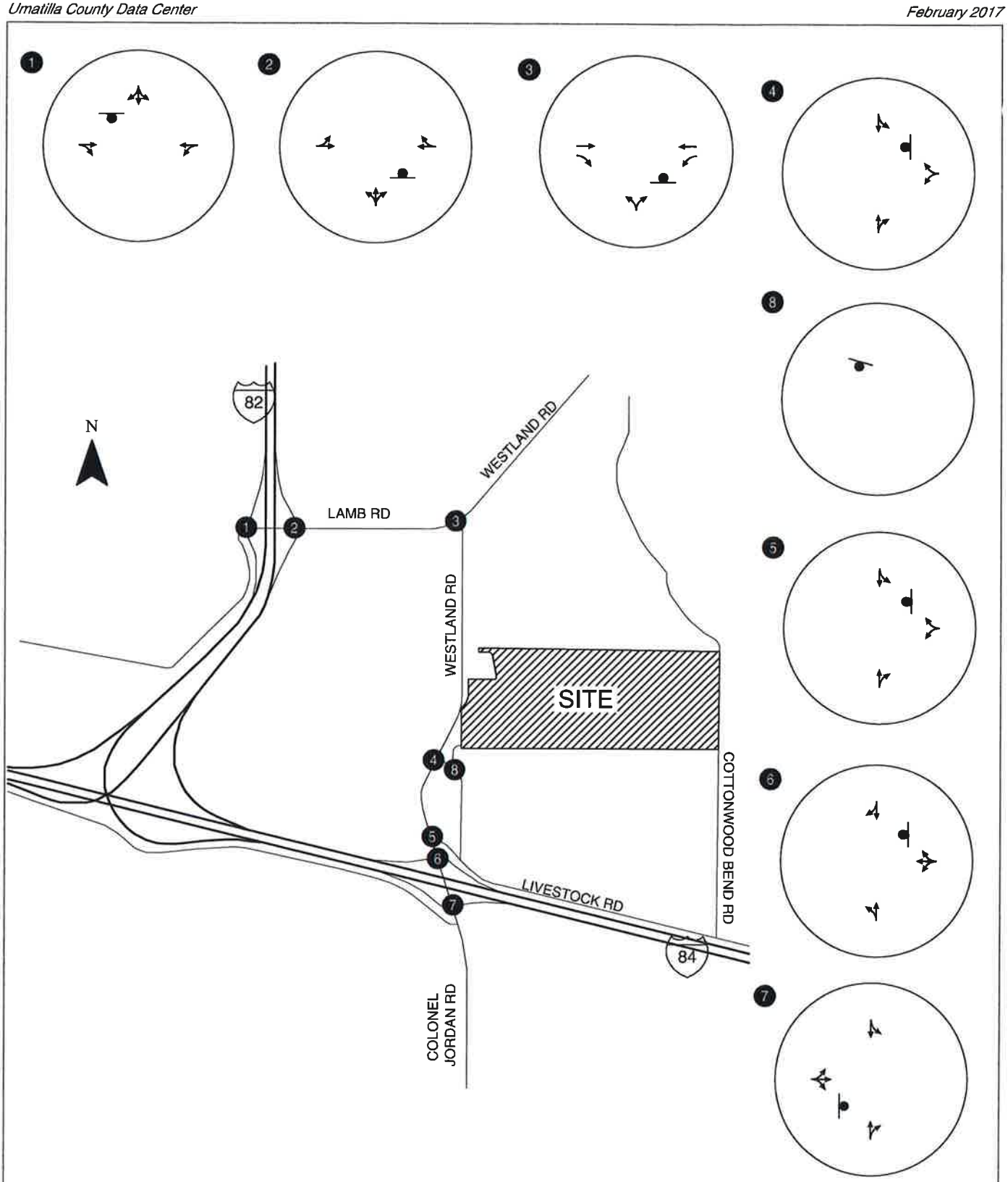
PDX-80
PRELIMINARY SITE PLAN

SHEET
1 OF 1

Conceptual Site Plan
Umatilla County, Oregon

Figure
7

KITTELSON & ASSOCIATES



- STOP SIGN
- SITE IMPROVEMENT
- EXISTING

2018 Assumed Lane Configurations and Traffic Control Devices with Site Development
Umatilla County, Oregon

Figure 8

C:\Users\kcaviness\Desktop\20956_FIGS.dwg Feb 22, 2017 - 2:00pm - kcaviness Layout Tab: FIG 08

KITTELSON & ASSOCIATES

Trip Generation

The weekday AM & PM peak hour vehicle trip end projections were generated using *Trip Generation, 9th Edition* (Reference 3), published by the Institute of Transportation Engineers (ITE). As described previously, the proposed development includes 853,600 square feet of data center buildings and 105,000 square feet of supporting uses: logistical and administrative. These uses are included in the trip generation data of the *Data Center* land use in ITE, and thus are not separated out into separate buildings. **Table 5** summarizes the estimated weekday AM and PM peak hour trips generated by the full 958,600 square-foot data center development.

Table 5. Estimated Data Center Buildings Site-Generated Trips

Land Use	ITE Land Use Code	Units (sq. ft.)	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Data Center	160	958,600	45	41	86	18	68	86

As shown in Table 5, the proposed data center development is estimated to generate 86 net new trips (45 inbound, 41 outbound) during the weekday AM peak hour, and 86 net new trips (18 inbound, 68 outbound) during the weekday PM peak hour. As previously described, this use within a Limited Use Overlay Zone constitutes a reasonable "worst case" scenario.

Site Trip Distribution/Trip Assignment

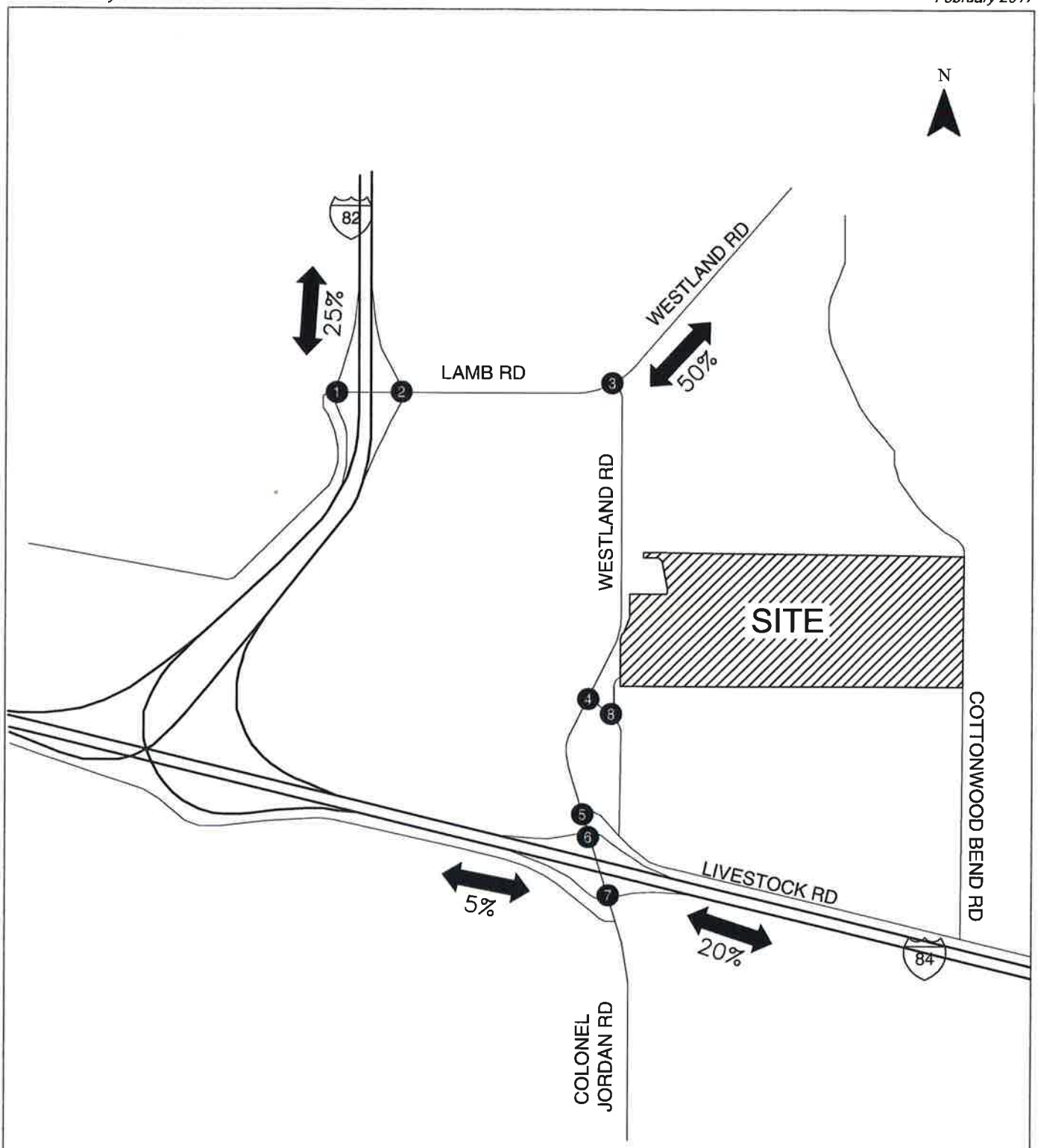
The site-generated trips were distributed onto the study area roadway system considering existing traffic patterns, the location of major trip origins and destinations in the greater Hermiston/Umatilla County area, and information provided in previous studies of the area. The traffic generated by the proposed data center buildings is expected to follow the trip distribution pattern illustrated in **Figure 9**.

Trip Assignment

The estimated site-generated trips were assigned to the network by distributing the trips shown in Table 5 according to the trip distribution pattern shown in Figure 9. **Figure 10** and **Figure 11** illustrate the site-generated trips that are expected to use the roadway system during the weekday AM and PM peak hour.

YEAR 2018 TOTAL TRAFFIC CONDITIONS

The total traffic conditions analysis forecasts how the study area's transportation system will operate with the traffic generated by the proposed data center buildings. The year 2018 background traffic volumes for the weekday AM and PM peak hour (shown in Figure 5 and Figure 6) were added to the site-generated traffic (shown in Figure 10 and Figure 11) to arrive at the total traffic volumes in **Figure 12** and **Figure 13**.



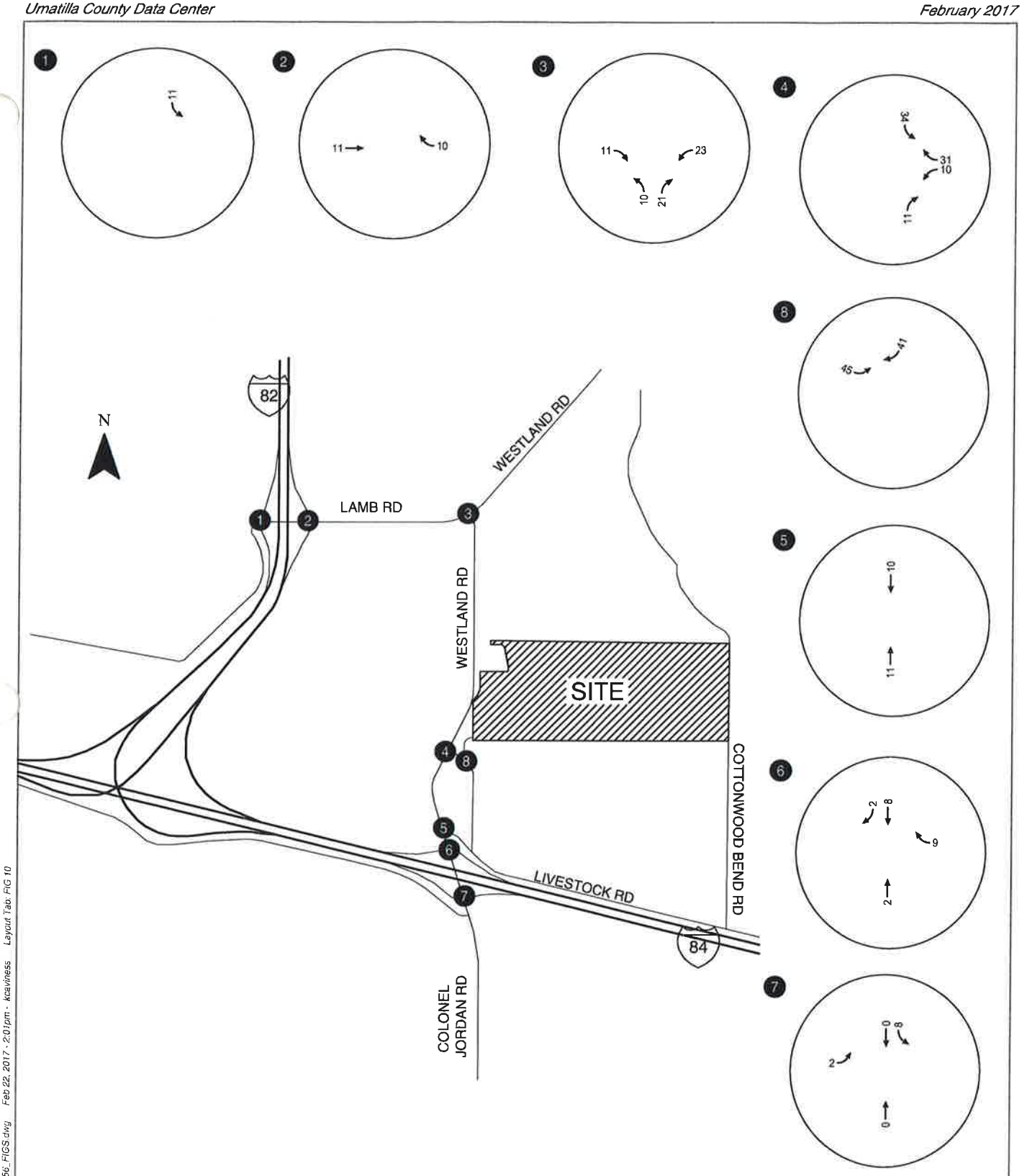
XX% -- TRIP DISTRIBUTION

Estimated Trip Distribution
Umatilla County, Oregon

Figure 9

C:\Users\kcavness\Desktop\20866_FIGS.dwg Feb 22, 2017 - 2:01pm - kcavness Layout Tab: FIG 09

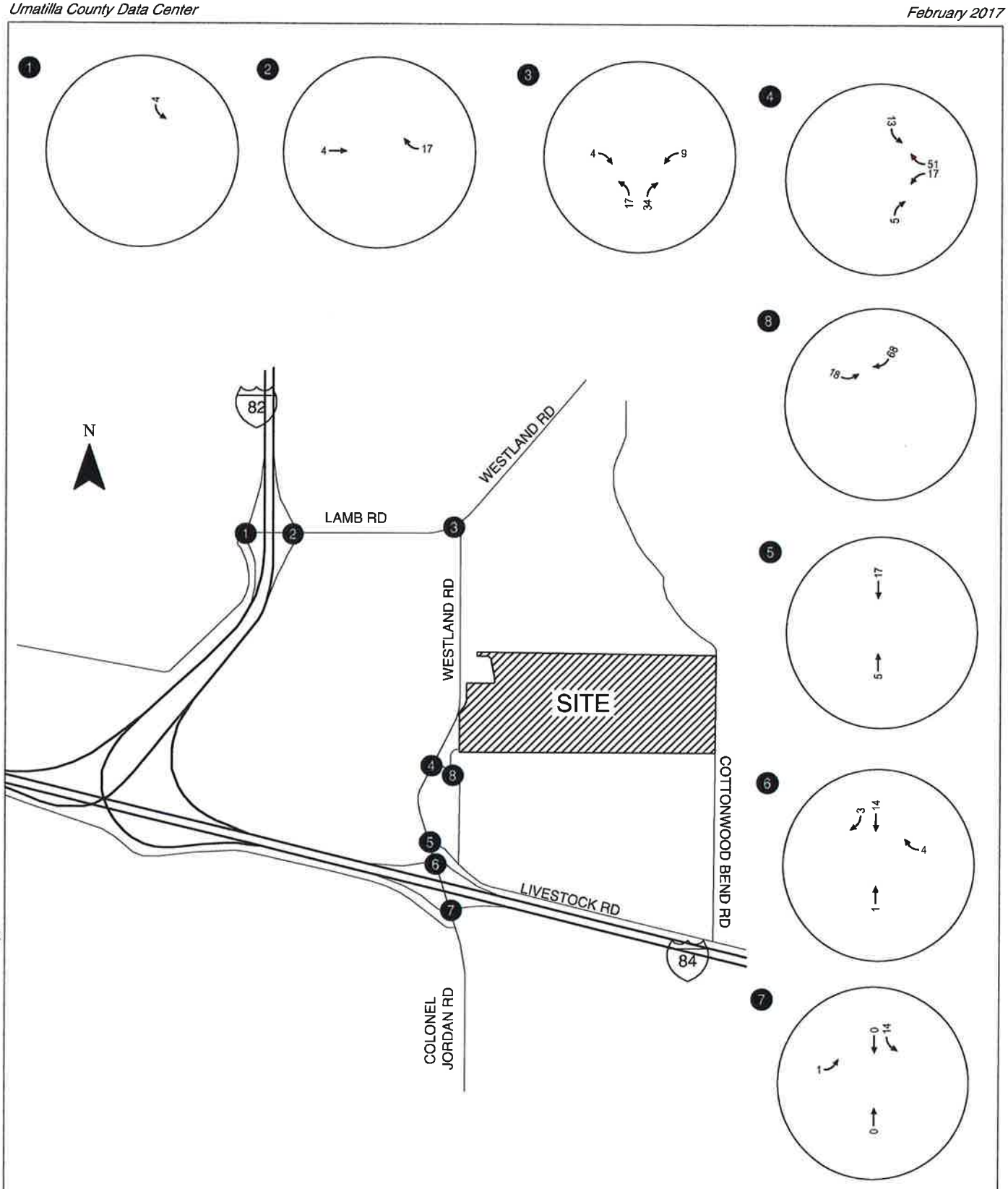
KITTELSON & ASSOCIATES



Estimated Site-Generated Traffic Volumes
Weekday AM Peak Hour
Umatilla County, Oregon

Figure 10

KITTELSON & ASSOCIATES

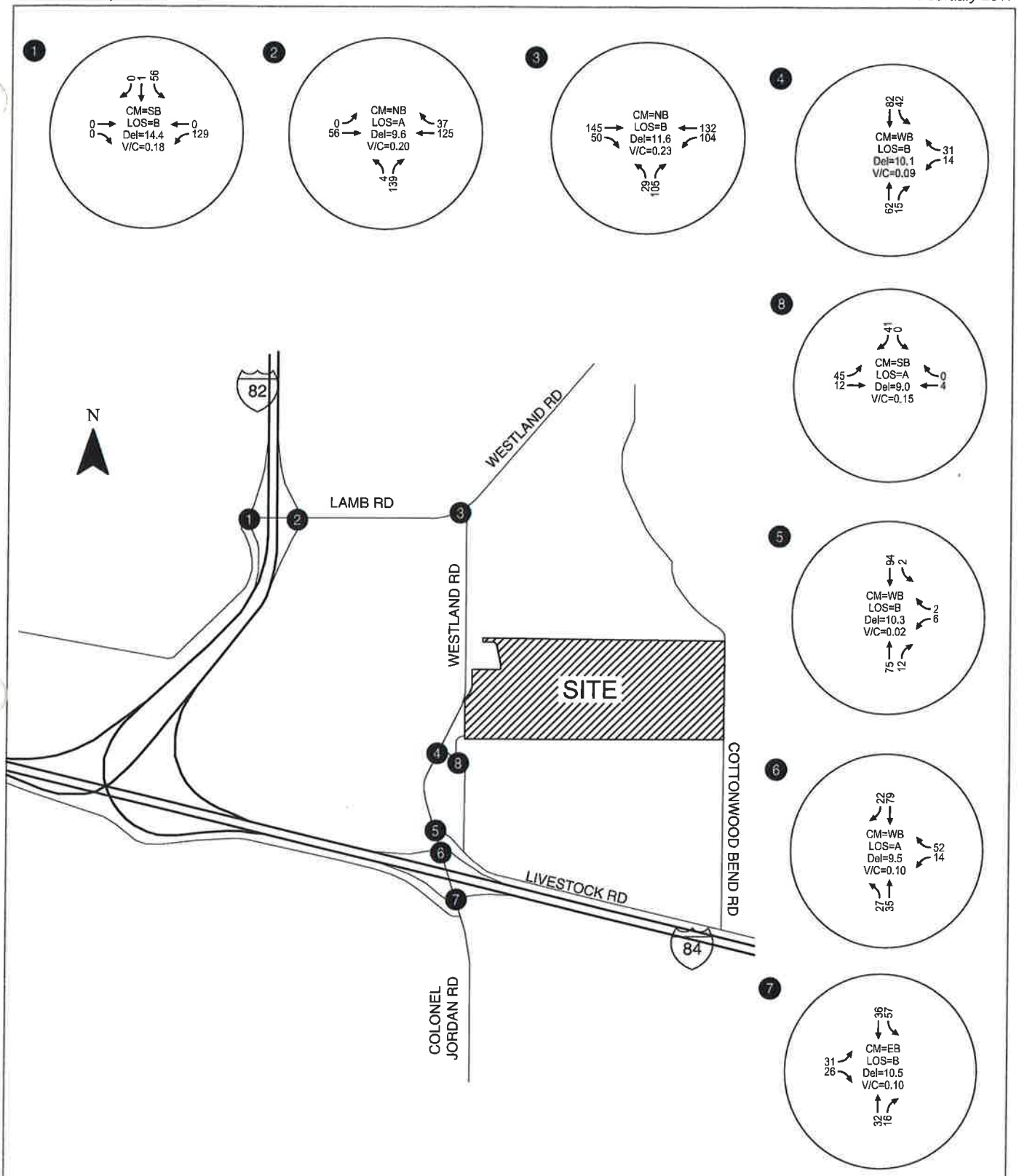


Estimated Site-Generated Traffic Volumes
Weekday PM Peak Hour
Umatilla County, Oregon

Figure 11

C:\Users\kcaviness\Desktop\20856_FIGS.dwg Feb 22, 2017 - 2:02pm - kcaviness Layout Tab: FIG 11

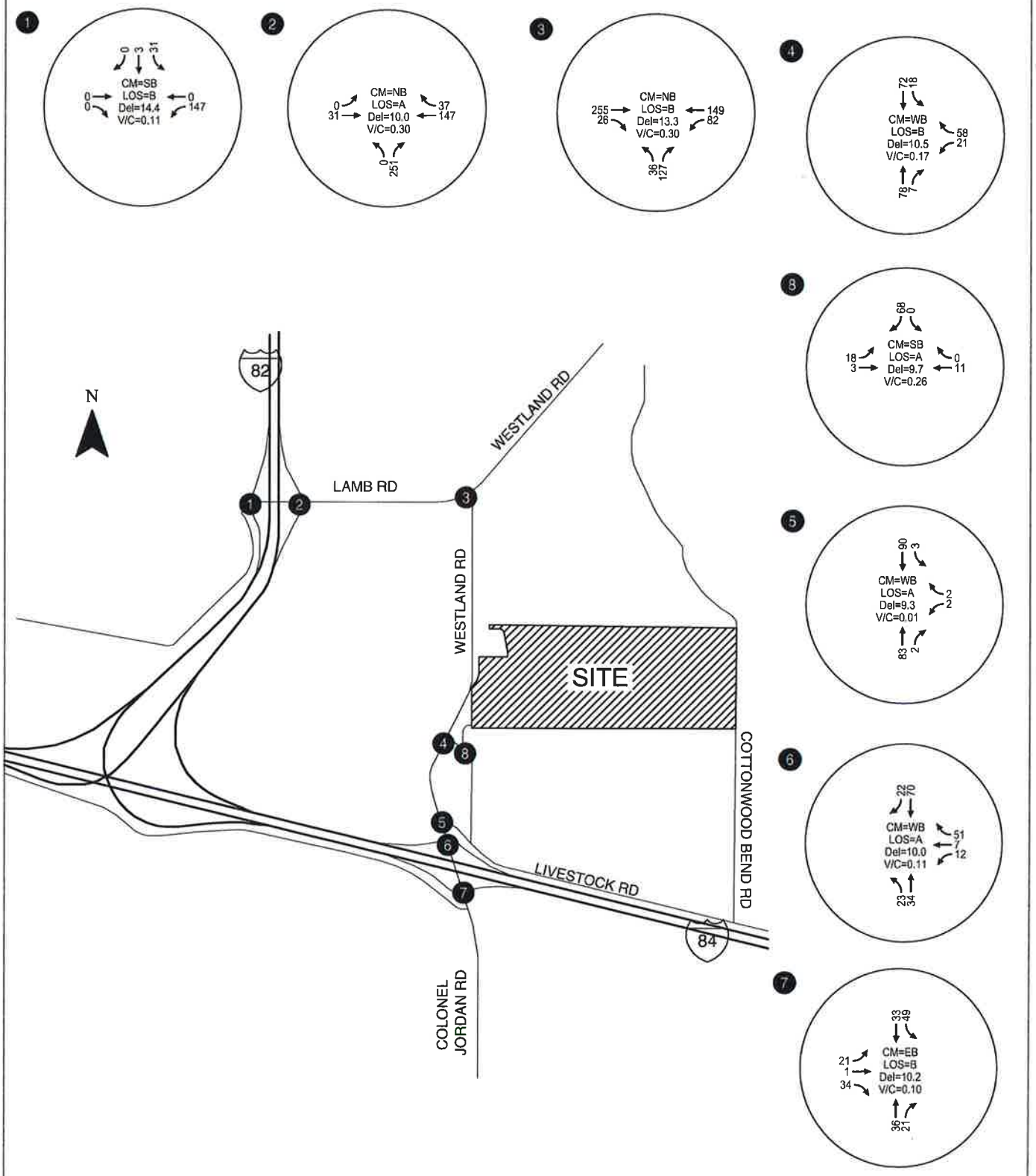
KITTELSON & ASSOCIATES



CM = CRITICAL MOVEMENT
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE
Del = CRITICAL MOVEMENT CONTROL DELAY
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2018 Total Weekday AM Peak Hour Traffic Conditions Umatilla County, Oregon

Figure 12



CM = CRITICAL MOVEMENT
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE
Del = CRITICAL MOVEMENT CONTROL DELAY
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2018 Total Weekday PM Peak Hour Traffic Conditions Umatilla County, Oregon

Figure 13

C:\Users\kcavness\Desktop\20856_FIGS.dwg Feb 22, 2017 - 3:34pm - kcavness Layout Tab: FIG 13

KITTELSON & ASSOCIATES

Intersection Operations

The results of the total traffic analysis shown in Figure 12 and Figure 13 indicate that all of the study intersections and site access points are forecast to operate at acceptable levels of service during the weekday AM and PM peak hour. Further, the I-84 and I-82 interchange ramp terminals are projected to continue to satisfy ODOT V/C standards. ***Appendix F** contains the year 2018 total traffic level-of-service and queueing worksheets.*

95th Percentile Queueing

Vehicle queues at all stop-controlled approaches and left-turn movements were assessed under 2018 total traffic conditions based on the 95th percentile queues reported from Synchro. The results are summarized in **Table 6**.

Table 6. 2018 Total Conditions 95th Percentile Queues

Intersection	Approach	Weekday AM Peak Hour 95th Percentile Queue[1]	Weekday PM Peak Hour 95th Percentile Queue[1]
Lamb Road & I-82 Southbound Ramps	Southbound	<25 feet	<25 feet
	Westbound Left	<25 feet	<25 feet
Lamb Road & I-82 Northbound Ramps	Northbound	<25 feet	25 feet
	Eastbound Left	<25 feet	<25 feet
Westland Road & Lamb Road	Northbound	<25 feet	<25 feet
	Westbound Left	<25 feet	<25 feet
Westland Road & Triple M Truck & Equipment Driveway	Southbound Left	<25 feet	<25 feet
	Westbound	<25 feet	<25 feet
Site Access & Triple M Truck & Equipment Driveway	Eastbound Left	<25 feet	<25 feet
	Southbound	<25 feet	<25 feet
Westland Road & Livestock Road	Westbound	<25 feet	<25 feet
	Southbound Left	<25 feet	<25 feet
Westland Road & I-84 Eastbound Ramps	Southbound Left	<25 feet	<25 feet
	Eastbound	<25 feet	<25 feet
Westland Road & I-84 Westbound Ramps	Northbound Left	<25 feet	<25 feet
	Westbound	<25 feet	<25 feet

[1]Rounded to nearest 25 feet

As shown in Table 6, all movements are projected to have 95th percentile queues less than or equal to 25 feet (one car length) under 2018 total traffic conditions.

YEAR 2031 BACKGROUND TRAFFIC CONDITIONS

The purpose of the year 2031 background traffic analysis is 1) to provide the County, ODOT, and Vadata, Inc. with a planning-level analysis of the study area, and 2) to identify how the study area's transportation system will operate in the future after 15 years of traffic growth. The background traffic analysis does not include traffic from the proposed development.

Livestock Road Realignment

Umatilla County has identified the need to close the existing intersection of Livestock Road with Westland Road (south of the automobile entrance to the proposed development) due to its close spacing to the I-84 interchange. When implemented, Livestock Road will be rerouted to an existing County right-of-way that exists behind/east of the Triple M Truck & Equipment business where it will then intersect Westland Road where the Triple M Truck & Equipment takes its access. Based on discussions with Umatilla County officials, the realignment of Livestock Road is assumed for purposes of the 2031 background and total traffic analyses presented in this report. The assumed lane configurations and traffic control are displayed in **Figure 14**, showing the new realignment of Livestock Road at Westland Road and Triple M Truck & Equipment driveway.

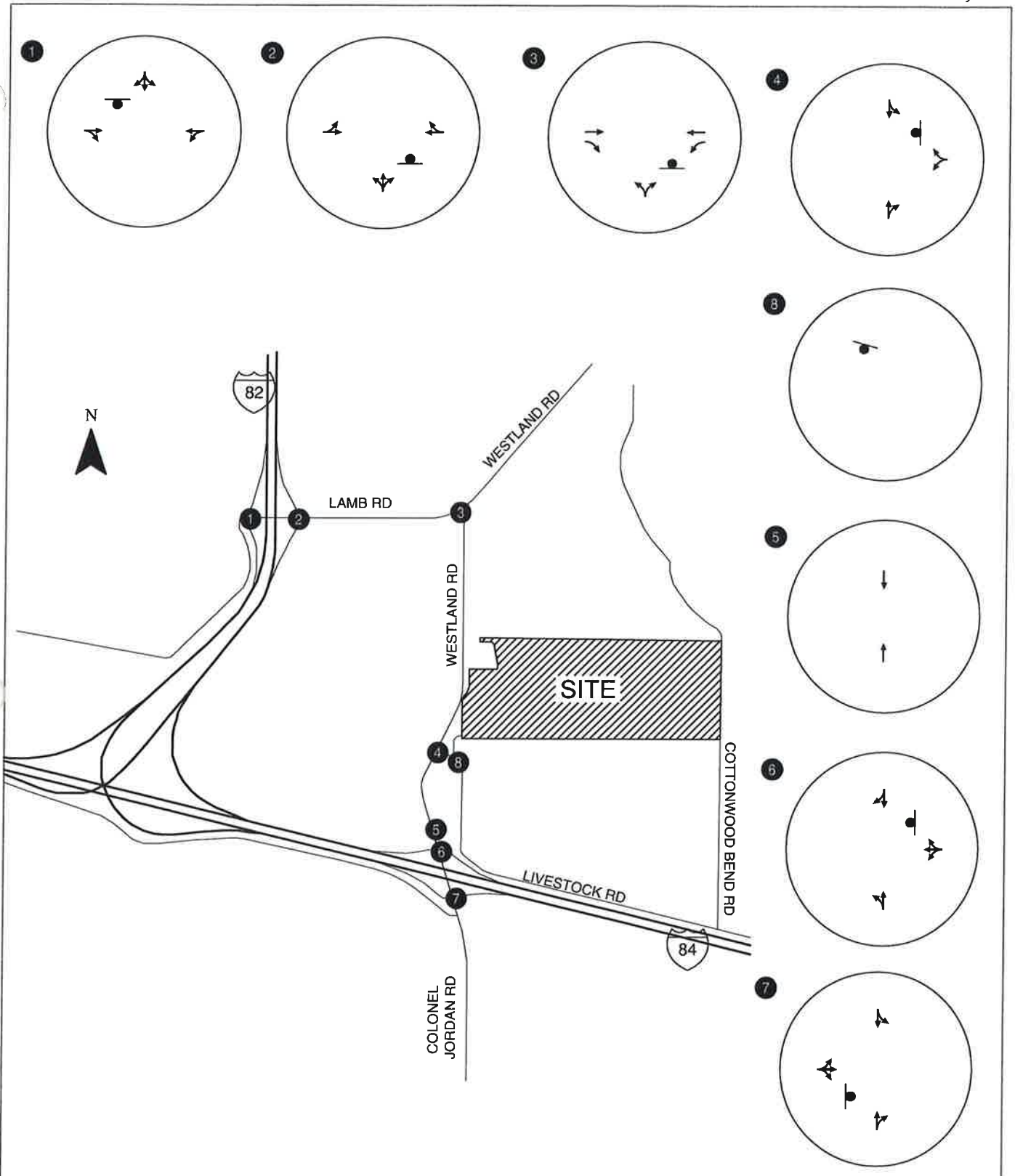
Traffic on Livestock Road has been rerouted along the new assumed alignment and reassigned to the network as detailed in **Appendix G** of this report.

Traffic Volumes

Year 2031 background traffic volumes were developed by applying a 2-percent annual growth rate to the year 2016 traffic volumes. **Figure 15** and **Figure 16** illustrate the year 2031 background traffic volumes projected during the weekday AM and PM peak hours.

Operations Analysis

The weekday AM and PM peak-hour turning-movement volumes shown in Figure 15 and Figure 16 were used to conduct an operational analysis at each study intersection to determine the year 2031 background traffic levels of service. As shown, the study intersections are forecast to operate at acceptable levels of service during the weekday AM and PM peak hour. The I-84 and I-82 interchange ramp terminals are also projected to continue to satisfy ODOT V/C standards. ***Appendix H*** *contains the year 2031 background traffic level-of-service and queueing worksheets.*

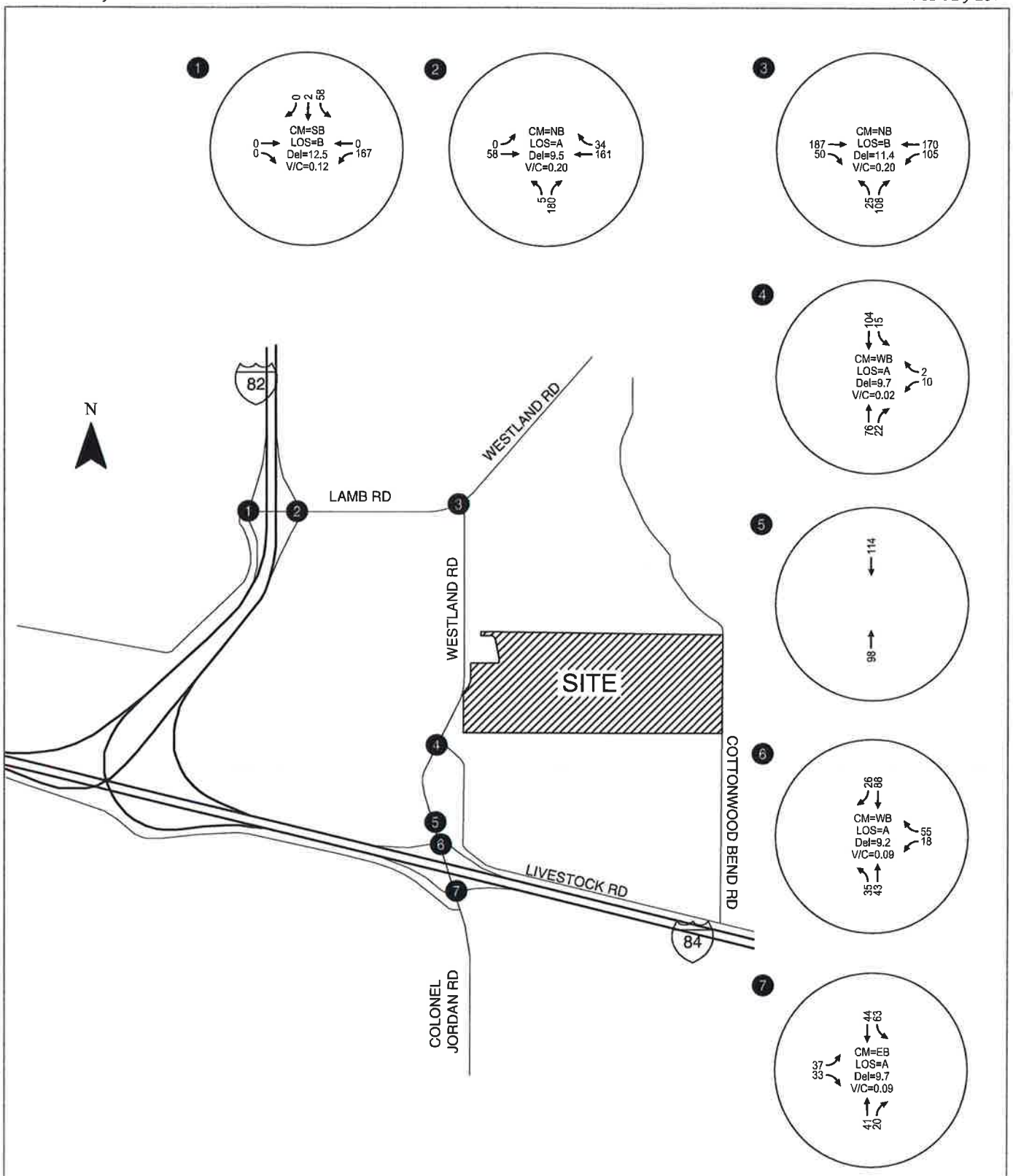


- STOP SIGN
- SITE IMPROVEMENT
- EXISTING

2031 Assumed Lane Configurations and Traffic Control Devices with Site Development
Umatilla County, Oregon

Figure 14

KITTELSON & ASSOCIATES



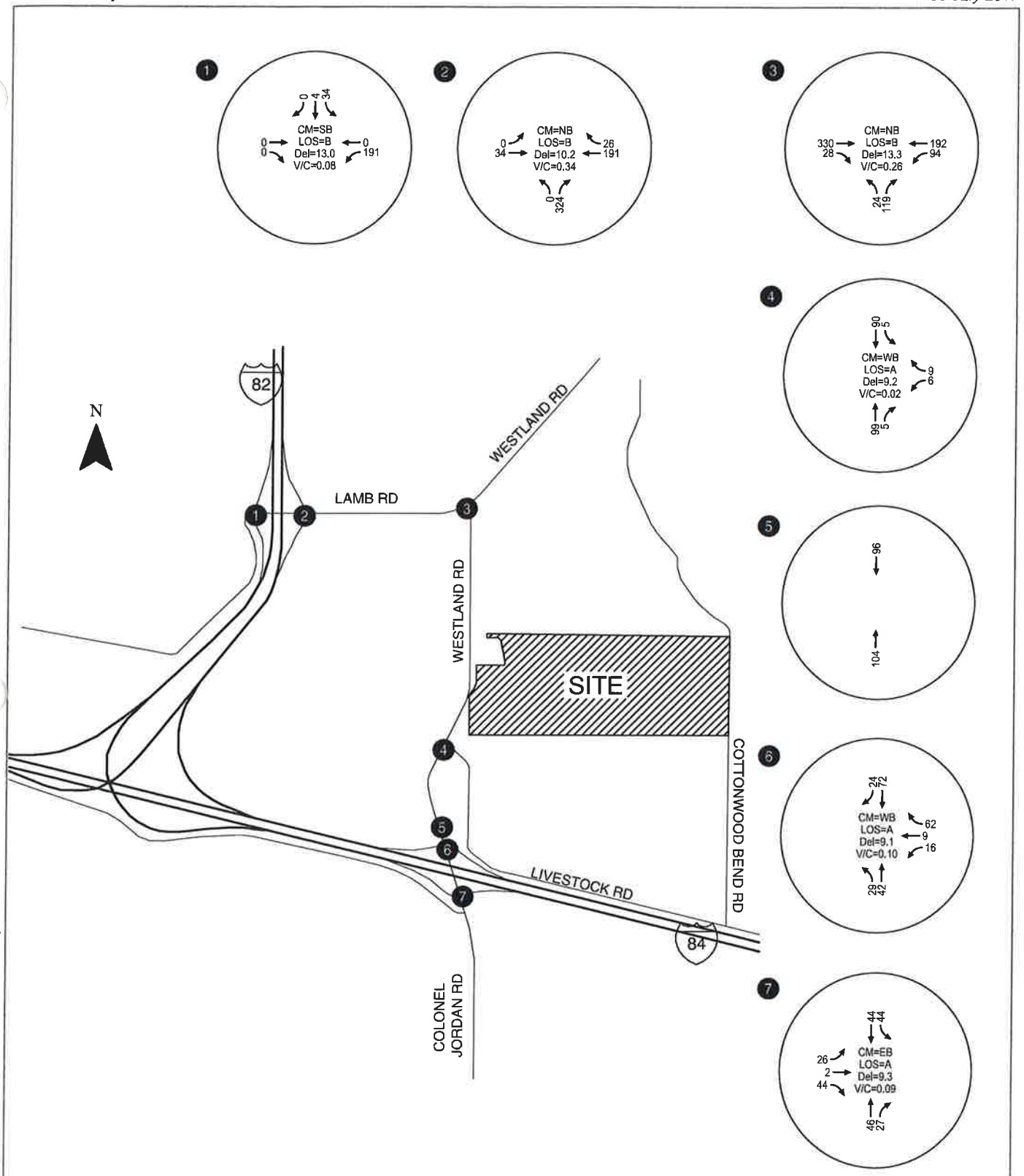
CM = CRITICAL MOVEMENT
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE
Del = CRITICAL MOVEMENT CONTROL DELAY
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2031 Background Weekday AM Peak Hour Traffic Conditions Umatilla County, Oregon

Figure 15

C:\Users\kcavness\Desktop\20856_FIGS.dwg Feb 22, 2017 - 3:35pm - kcavness Layout Tab: FIG 15

KITTELSON & ASSOCIATES



CM = CRITICAL MOVEMENT
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE
Del = CRITICAL MOVEMENT CONTROL DELAY
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2031 Background Weekday PM Peak Hour Traffic Conditions
Umatilla County, Oregon

Figure 16

KITTELSON & ASSOCIATES

95th Percentile Queueing

Vehicle queues at all stop-controlled approaches and left-turn movements were assessed under 2031 background conditions based on the 95th percentile queues reported from Synchro. The results are summarized in **Table 7**.

Table 7. 2031 Background Conditions 95th Percentile Queues

Intersection	Approach	Weekday AM Peak Hour 95th Percentile Queue[1]	Weekday PM Peak Hour 95th Percentile Queue[1]
Lamb Road & I-82 Southbound Ramps	Southbound	<25 feet	<25 feet
	Westbound Left	<25 feet	<25 feet
Lamb Road & I-82 Northbound Ramps	Northbound	<25 feet	50 feet
	Eastbound Left	<25 feet	<25 feet
Westland Road & Lamb Road	Northbound	<25 feet	25 feet
	Westbound Left	<25 feet	<25 feet
Westland Road & Triple M Truck & Equipment Driveway/Livestock Road	Southbound Left	<25 feet	<25 feet
	Westbound	<25 feet	<25 feet
Westland Road & I-84 Eastbound Ramps	Southbound Left	<25 feet	<25 feet
	Eastbound	<25 feet	<25 feet
Westland Road & I-84 Westbound Ramps	Northbound Left	<25 feet	<25 feet
	Westbound	<25 feet	<25 feet

[1]Rounded to nearest 25 feet

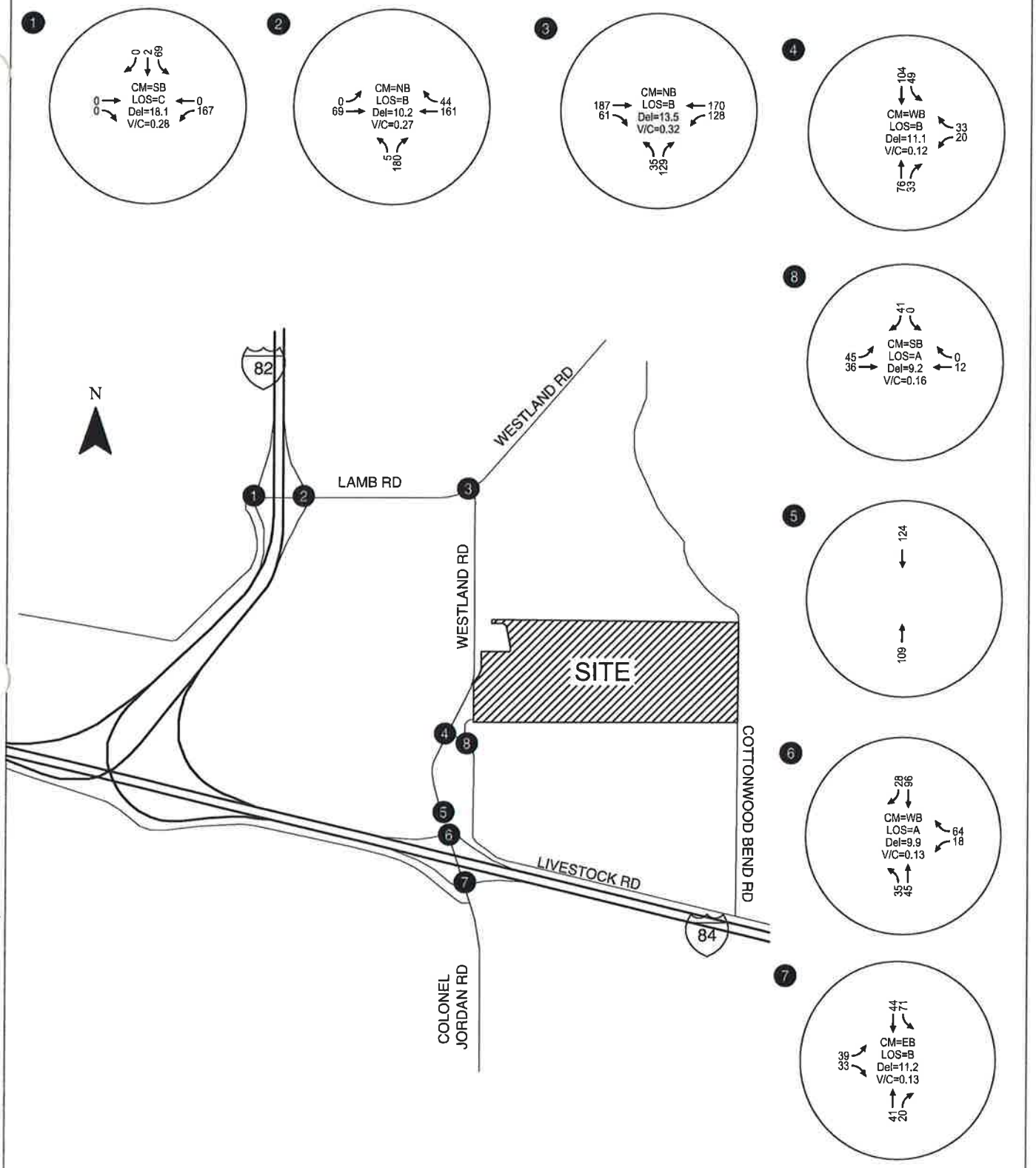
As shown in Table 7, all movements are projected to have 95th percentile queues equal to or less than 50 feet (two cars length) under 2031 background conditions.

YEAR 2031 TOTAL TRAFFIC CONDITIONS

The total traffic conditions analysis forecasts how the study area's transportation system will operate in 2031 assuming the proposed development is fully built and operational.

Traffic Volumes

The site-generated traffic volumes (shown in Figure 10 and Figure 11) were added to the year 2031 background traffic volumes (shown in Figure 15 and Figure 16) to arrive at the year 2031 total traffic volumes with the proposed development, shown in **Figure 17** and **Figure 18.**



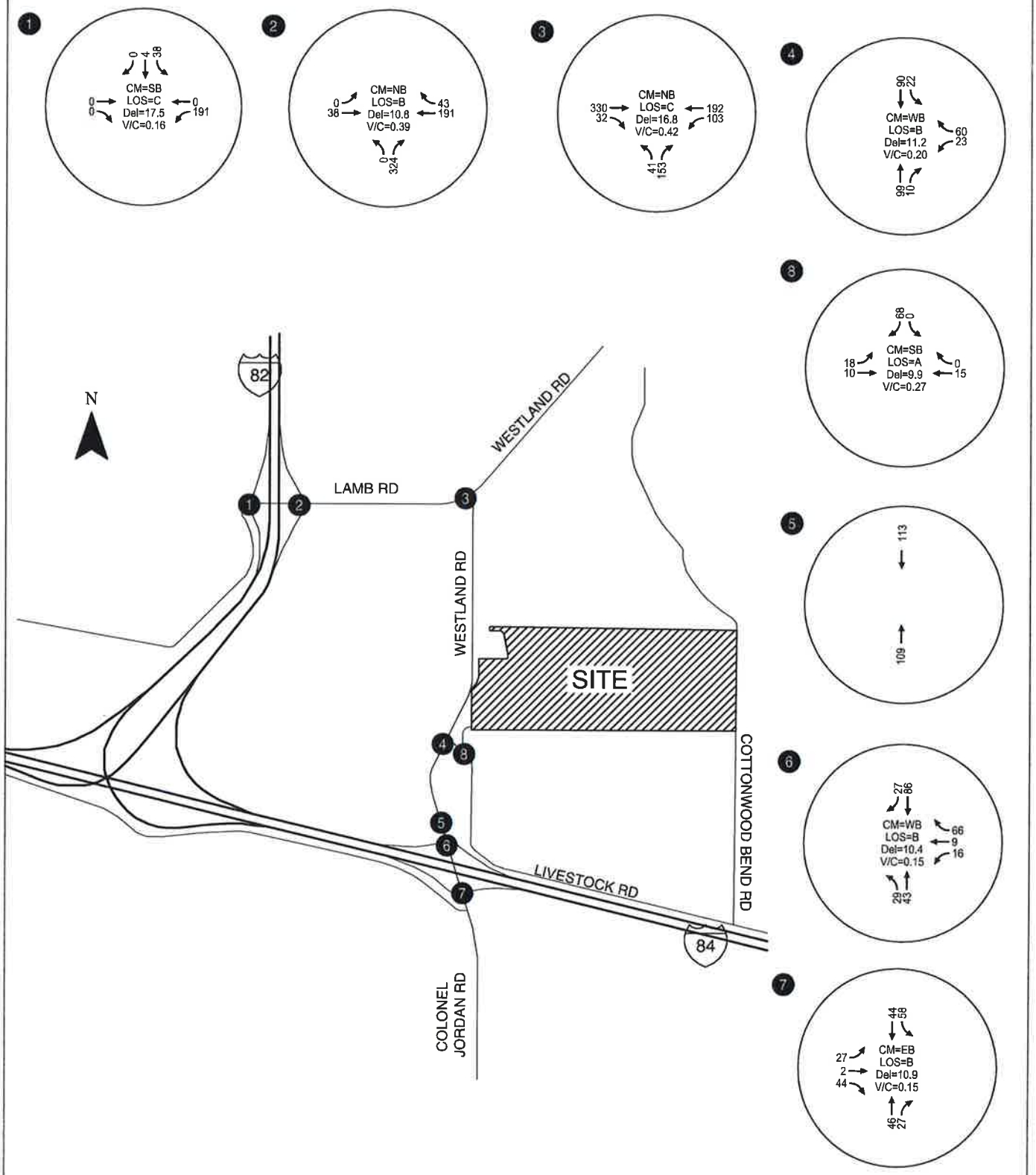
CM = CRITICAL MOVEMENT
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE
Del = CRITICAL MOVEMENT CONTROL DELAY
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2031 Total Weekday AM Peak Hour Traffic Conditions Umatilla County, Oregon

Figure 17

kcawinessDesktop\20856_FIGS.dwg Feb 22, 2017 - 3:37pm - kcawiness Layout Tab: FIG 17

KITTELSON & ASSOCIATES



CM = CRITICAL MOVEMENT
LOS = CRITICAL MOVEMENT LEVEL OF SERVICE
Del = CRITICAL MOVEMENT CONTROL DELAY
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2031 Total Weekday PM Peak Hour Traffic Conditions Umatilla County, Oregon

Figure 18

C:\Users\kcavness\Desktop\20856_FIGS.dwg Feb 22, 2017 - 3:38pm - kcavness Layout Tab: FIG 18

KITTELSON & ASSOCIATES

Intersection Operations

As shown in Figure 17 and Figure 18, all of the study intersections are forecast to continue to operate with acceptable levels of service during the weekday AM and PM peak hour and the I-84 and I-82 interchange ramp terminals are projected to continue to satisfy ODOT V/C standards. ***Appendix I*** *includes the year 2031 total traffic level-of-service and queueing worksheets.*

95th Percentile Queueing

Vehicle queues at all stop-controlled approaches and left-turn movements were assessed under 2031 total traffic conditions based on the 95th percentile queues reported from Synchro. The results are summarized in **Table 8**.

Table 8. 2031 Total Traffic Conditions 95th Percentile Queues

Intersection	Approach	Weekday AM Peak Hour 95th Percentile Queue[1]	Weekday PM Peak Hour 95th Percentile Queue[1]
Lamb Road & I-82 Southbound Ramps	Southbound	<25 feet	<25 feet
	Westbound Left	<25 feet	<25 feet
Lamb Road & I-82 Northbound Ramps	Northbound	<25 feet	50 feet
	Eastbound Left	<25 feet	<25 feet
Westland Road & Lamb Road	Northbound	<25 feet	50 feet
	Westbound Left	<25 feet	<25 feet
Westland Road & Triple M Truck & Equipment Driveway/Livestock Road	Southbound Left	<25 feet	<25 feet
	Westbound	<25 feet	<25 feet
Site Access & Triple M Truck & Equipment Driveway/Livestock Road	Southbound	<25 feet	<25 feet
	Eastbound Left	<25 feet	<25 feet
Westland Road & I-84 Eastbound Ramps	Southbound Left	<25 feet	<25 feet
	Eastbound	<25 feet	<25 feet
Westland Road & I-84 Westbound Ramps	Northbound Left	<25 feet	<25 feet
	Westbound	<25 feet	<25 feet

[1]Rounded to nearest 25 feet

As shown in Table 8, all movements are projected to have 95th percentile queues less than or equal to 50 feet (two cars length) under 2031 total traffic conditions.

Section 5
Conclusions and Recommendations

CONCLUSIONS AND RECOMMENDATIONS

The results of this study indicate that the proposed rezoning and subsequent development of data center buildings (as a limited use) are consistent with the Transportation Planning Rule (TPR) and applicable Umatilla County transportation-related approval criteria, and can be constructed while maintaining acceptable traffic operations and safety at the study intersections. The findings of this analysis and our recommendations are discussed below.

FINDINGS

- All of the study intersections currently operate at acceptable mobility targets and levels of service during the weekday AM and PM peak hours and with 95th percentile queue lengths of one vehicle or less.
- A review of historical crash data did not reveal patterns or trends in the site vicinity that require mitigation associated with this project.
- All of the study intersections are forecast to continue to operate at acceptable mobility targets and levels of service during the weekday AM and PM peak hours under future 2018 and 2031 background traffic conditions without the proposed development. Projected 95th percentile queue lengths during the weekday AM and PM peak hours are one vehicle or less.
- The proposed development is estimated to generate 86 net new trips (45 inbound, 41 outbound) during the weekday AM peak hour, and 86 net new trips (18 inbound, 68 outbound) during the weekday PM peak hour.
- All of the study intersections are forecast to operate at acceptable mobility targets and levels of service during weekday AM and PM peak hours under future 2018 and 2031 background traffic conditions without the proposed development as well as 2018 and 2031 total conditions with the proposed development traffic.
- Projected 95th percentile queue lengths during the weekday AM and PM peak hours are two vehicles or less.
- The proposed zone change from EFU (Exclusive Farm Use) to Light Industrial with a Limited Use Overlay Zone effectively caps the development potential of the subject property to the proposed data centers being evaluated in this study.
- By capping the development to the number of trips allowed by the proposed development plan, the proposed map amendments will not result in any of the outcomes identified in OAR 660-012-0060(1)(a)-(c) and therefore, the proposed map amendments will not significantly affect any existing or planned transportation facilities.
- The 15-year horizon analysis conducted in this report demonstrates the long-term sufficiency of the transportation network, satisfying TPR requirements for the proposed rezoning and subsequent development.

RECOMMENDATIONS

The following mitigation measures are recommended with site development:

- No transportation operations- or safety-based mitigations were identified as a result of the proposed development.
- Signage, above-ground utilities, and landscaping near the internal intersections and site access points should be maintained to ensure adequate sight distance.

Section 6
References

REFERENCES

1. The Oregon Department of Transportation. *Analysis Procedures Manual.* 2015.

2. Transportation Research Board. *Highway Capacity Manual*. 2000.

3. Transportation Research Board. *Highway Capacity Manual*. 2010.

4. Institute of Transportation Engineers. *9th Edition, Trip Generation Manual*. 2012.

Appendix A
Traffic Count Data

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: I-82 SB Ramps -- Lamb Rd/County 1232 Rd

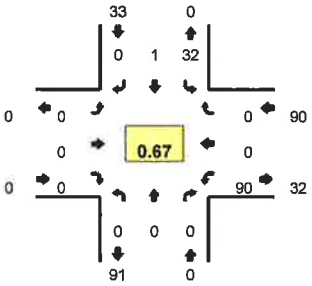
CITY/STATE: Hermiston, OR

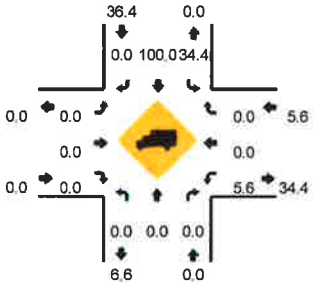
QC JOB #: 14079301

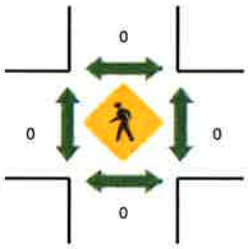
DATE: Tue, Dec 13 2016

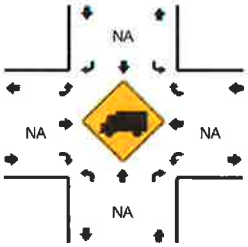
Peak-Hour: 7:00 AM -- 8:00 AM

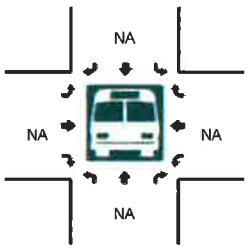
Peak 15-Min: 7:30 AM -- 7:45 AM











15-Min Count Period Beginning At	I-82 SB Ramps (Northbound)				I-82 SB Ramps (Southbound)				Lamb Rd/County 1232 Rd (Eastbound)				Lamb Rd/County 1232 Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	6	1	0	0	0	0	0	0	14	0	0	0	21	
7:15 AM	0	0	0	0	6	0	0	0	0	0	0	0	22	0	0	0	28	
7:30 AM	0	0	0	0	8	0	0	0	0	0	0	0	38	0	0	0	46	
7:45 AM	0	0	0	0	12	0	0	0	0	0	0	0	16	0	0	0	28	123
8:00 AM	0	0	0	0	8	1	0	0	0	0	0	0	15	0	0	0	24	126
8:15 AM	0	0	0	0	10	0	0	0	0	0	0	0	20	0	0	0	30	128
8:30 AM	0	0	0	0	8	0	0	0	0	0	0	0	17	0	0	0	25	107
8:45 AM	0	0	0	0	6	1	0	0	0	0	0	0	16	0	0	0	23	102

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	32	0	0	0	0	0	0	0	152	0	0	0	184
Heavy Trucks	0	0	0		8	0	0		0	0	0		8	0	0		16
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:52 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

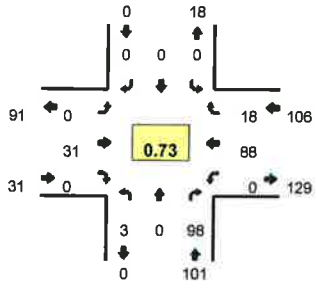
Type of peak hour being reported: User-Defined

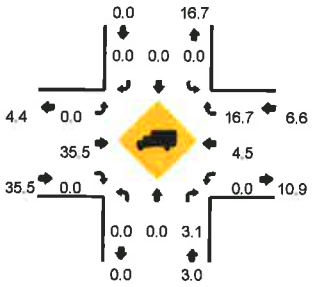
Method for determining peak hour: Total Entering Volume

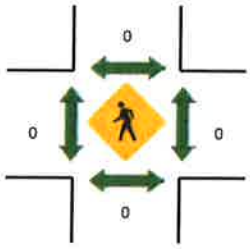
LOCATION: I-82 NB Ramps -- Lamb Rd/County 1232 Rd
CITY/STATE: Hermiston, OR

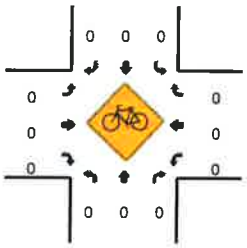
QC JOB #: 14079303
DATE: Tue, Dec 13 2016

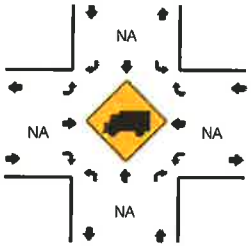
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

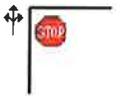


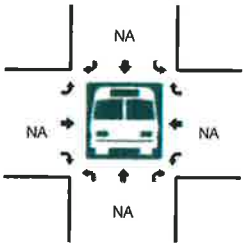












15-Min Count Period Beginning At	I-82 NB Ramps (Northbound)				I-82 NB Ramps (Southbound)				Lamb Rd/County 1232 Rd (Eastbound)				Lamb Rd/County 1232 Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	7	0	0	0	0	0	0	6	0	0	0	15	8	0	36	
7:15 AM	0	0	34	0	0	0	0	0	0	6	0	0	0	22	7	0	69	
7:30 AM	3	0	35	0	0	0	0	0	0	8	0	0	0	35	0	0	81	
7:45 AM	0	0	22	0	0	0	0	0	0	11	0	0	0	16	3	0	52	238
8:00 AM	0	1	17	0	0	0	0	0	0	9	0	0	0	15	1	0	43	245
8:15 AM	0	0	14	0	0	0	0	0	0	10	0	0	0	20	5	0	49	225
8:30 AM	0	0	14	0	0	0	0	0	0	7	0	0	0	17	3	0	41	185
8:45 AM	0	0	20	0	0	0	0	0	0	7	0	0	0	17	5	0	49	182

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	0	140	0	0	0	0	0	0	32	0	0	0	140	0	0	324
Heavy Trucks	0	0	0		0	0	0		0	8	0		0	8	0		16
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:52 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

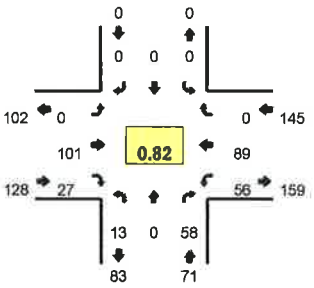
Type of peak hour being reported: User-Defined

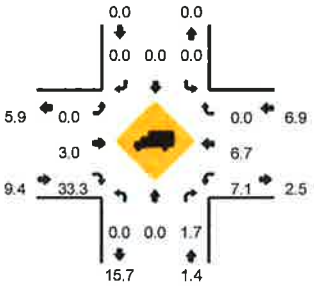
Method for determining peak hour: Total Entering Volume

LOCATION: Westland Rd -- County 1232 Rd
CITY/STATE: Hermiston, OR

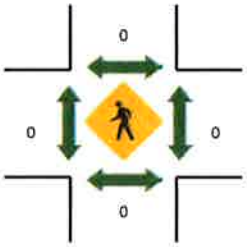
QC JOB #: 14079305
DATE: Tue, Dec 13 2016

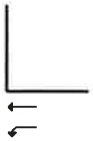
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:15 AM -- 7:30 AM

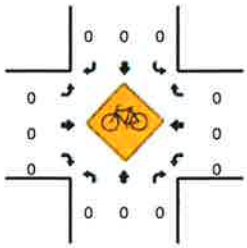


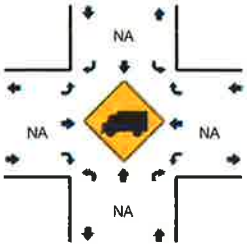


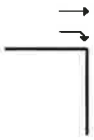
Quality Counts

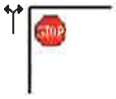


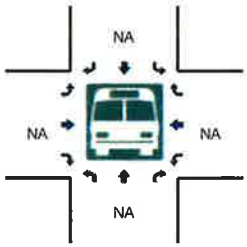












15-Min Count Period Beginning At	Westland Rd (Northbound)				Westland Rd (Southbound)				County 1232 Rd (Eastbound)				County 1232 Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	6	0	25	0	0	0	0	0	0	8	4	0	12	13	0	0	68	
7:15 AM	6	0	22	0	0	0	0	0	0	33	7	0	12	25	0	0	105	
7:30 AM	0	0	6	0	0	0	0	0	0	37	4	0	16	34	0	0	97	
7:45 AM	1	0	5	0	0	0	0	0	0	23	12	0	16	17	0	0	74	344
8:00 AM	1	0	7	0	0	0	0	0	0	20	6	0	8	16	0	0	58	334
8:15 AM	5	0	6	0	0	0	0	0	0	14	7	0	6	20	0	0	58	287
8:30 AM	2	0	7	0	0	0	0	0	0	18	6	0	13	17	0	0	63	253
8:45 AM	2	0	7	0	0	0	0	0	0	21	6	0	15	20	0	0	71	250

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	0	88	0	0	0	0	0	0	132	28	0	48	100	0	0	420
Heavy Trucks	0	0	0		0	0	0		0	8	16		0	12	0		36
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:52 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

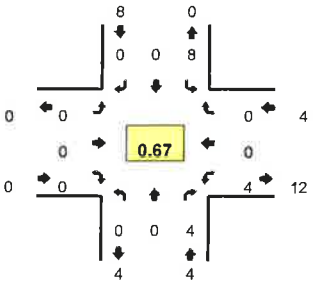
LOCATION: Westland Rd -- Triple M Truck Equip

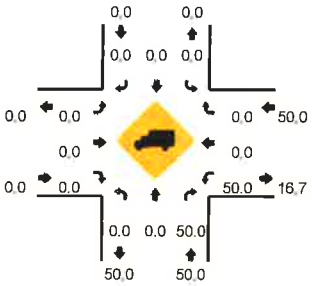
CITY/STATE: Hermiston, OR

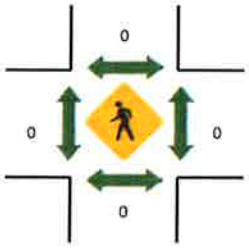
QC JOB #: 14079307

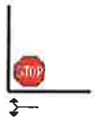
DATE: Tue, Dec 13 2016

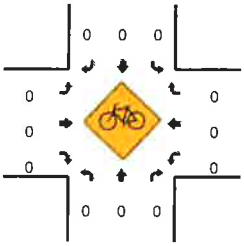
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

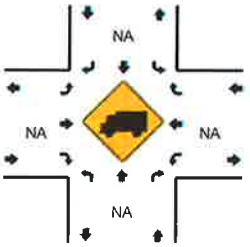


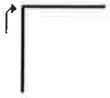


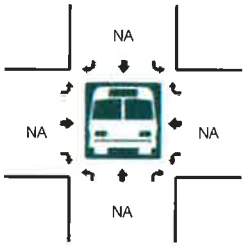












15-Min Count Period Beginning At	Westland Rd (Northbound)				Westland Rd (Southbound)				Triple M Truck Equip (Eastbound)				Triple M Truck Equip (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0	5	
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	
7:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	3	
7:45 AM	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0	0	6	16
8:00 AM	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	4	15
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3	16
8:30 AM	0	0	3	0	1	0	0	0	0	0	0	0	0	0	3	0	7	20
8:45 AM	0	0	2	0	1	0	0	0	0	0	0	0	1	0	2	0	6	20

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	16	0	0	0	0	0	0	0	8	0	0	0	24
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:52 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

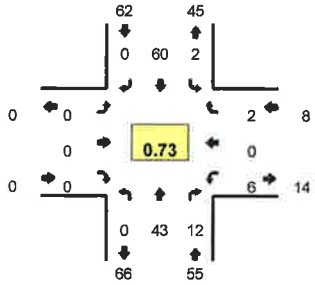
Type of peak hour being reported: User-Defined

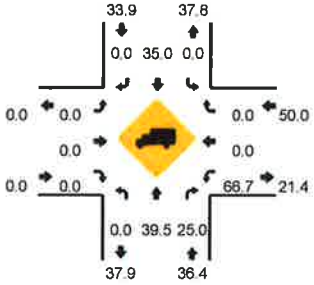
Method for determining peak hour: Total Entering Volume

LOCATION: Westland Rd -- NW Livestock Rd
CITY/STATE: Hermiston, OR

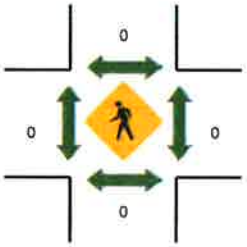
QC JOB #: 14079309
DATE: Tue, Dec 13 2016

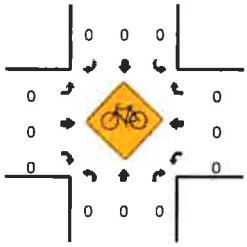
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

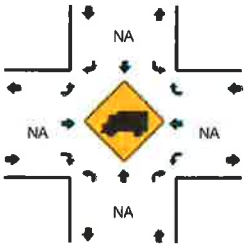


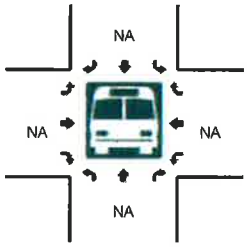


Quality Counts









15-Min Count Period Beginning At	Westland Rd (Northbound)				Westland Rd (Southbound)				NW Livestock Rd (Eastbound)				NW Livestock Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	3	1	0	0	21	0	0	0	0	0	0	2	0	0	0	27	
7:15 AM	0	7	2	0	0	5	0	0	0	0	0	0	0	0	0	0	14	
7:30 AM	0	17	5	0	1	14	0	0	0	0	0	0	2	0	2	0	41	
7:45 AM	0	16	4	0	1	20	0	0	0	0	0	0	2	0	0	0	43	125
8:00 AM	0	10	3	0	0	18	0	0	0	0	0	0	1	0	0	0	32	130
8:15 AM	0	10	1	0	0	14	0	0	0	0	0	0	2	0	0	0	27	143
8:30 AM	0	13	5	0	1	12	0	0	0	0	0	0	1	0	0	0	32	134
8:45 AM	0	15	1	0	3	14	0	0	0	0	0	0	1	0	0	0	34	125

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	64	16	0	4	80	0	0	0	0	0	0	8	0	0	0	172
Heavy Trucks	0	20	8		0	28	0		0	0	0		4	0	0		60
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:52 PM

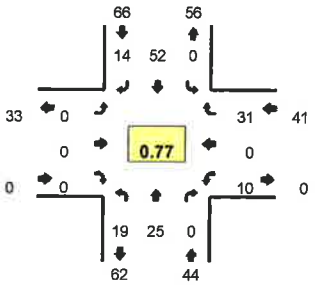
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

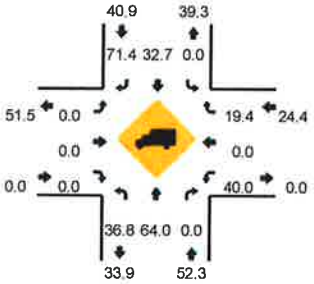
Method for determining peak hour: Total Entering Volume

LOCATION: Westland Rd/County 1325 Rd -- I-84 WB Ramps
CITY/STATE: Hermiston, OR

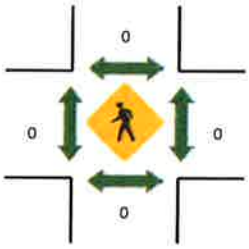
QC JOB #: 14079311
DATE: Tue, Dec 13 2016

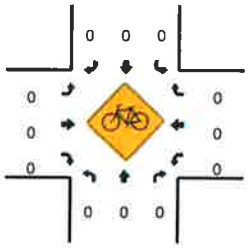


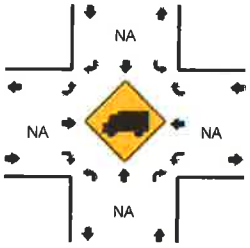
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

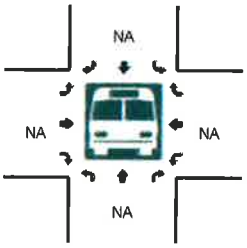


Quality Counts









15-Min Count Period Beginning At	Westland Rd/County 1325 Rd (Northbound)				Westland Rd/County 1325 Rd (Southbound)				I-84 WB Ramps (Eastbound)				I-84 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	0	0	0	0	20	4	0	0	0	0	0	0	0	3	0	30	
7:15 AM	6	4	0	0	0	5	0	0	0	0	0	0	6	0	6	0	27	
7:30 AM	7	13	0	0	0	13	3	0	0	0	0	0	0	0	9	0	45	
7:45 AM	3	8	0	0	0	14	7	0	0	0	0	0	4	0	13	0	49	151
8:00 AM	9	9	0	0	0	17	2	0	0	0	0	0	2	0	3	0	42	163
8:15 AM	4	5	0	0	0	13	3	0	0	0	0	0	5	0	6	0	36	172
8:30 AM	6	8	0	0	0	13	0	0	0	0	0	0	3	0	10	0	40	167
8:45 AM	3	7	0	0	0	11	4	0	0	0	0	0	0	0	9	0	34	152

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	32	0	0	0	56	28	0	0	0	0	0	16	0	52	0	196
Heavy Trucks	8	20	0		0	20	20		0	0	0		8	0	12		88
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:52 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

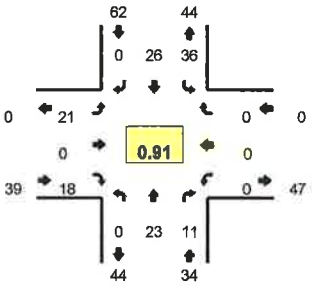
Type of peak hour being reported: User-Defined

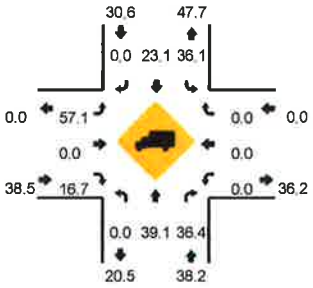
Method for determining peak hour: Total Entering Volume

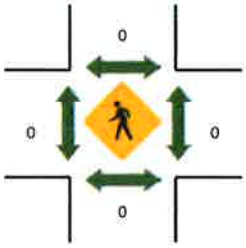
LOCATION: Westland Rd/County 1325 Rd -- I-84 EB Ramps
CITY/STATE: Hermiston, OR

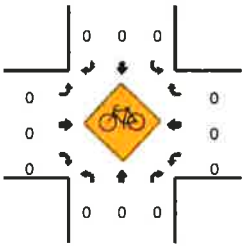
QC JOB #: 14079313
DATE: Tue, Dec 13 2016

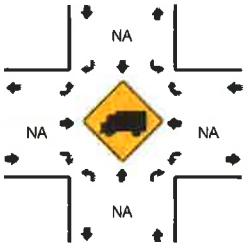
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

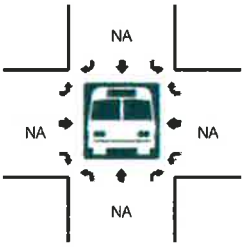












15-Min Count Period Beginning At	Westland Rd/County 1325 Rd (Northbound)				Westland Rd/County 1325 Rd (Southbound)				I-84 EB Ramps (Eastbound)				I-84 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	2	2	0	16	5	0	0	1	0	2	0	0	0	0	0	28	
7:15 AM	0	5	3	0	4	5	0	0	6	0	10	0	0	0	0	0	33	
7:30 AM	0	11	3	0	9	5	0	0	8	0	1	0	0	0	0	0	37	
7:45 AM	0	5	3	0	7	11	0	0	6	0	5	0	0	0	0	0	37	135
8:00 AM	0	13	3	0	10	10	0	0	5	1	4	0	0	0	0	0	46	153
8:15 AM	0	5	2	0	10	7	0	0	3	0	4	0	0	0	0	0	31	151
8:30 AM	0	12	4	0	9	8	0	0	2	0	0	0	0	0	0	0	35	149
8:45 AM	0	7	2	0	6	5	0	0	3	0	6	0	0	0	0	0	29	141

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	44	12	0	36	20	0	0	32	0	4	0	0	0	0	0	148
Heavy Trucks	0	16	4		12	4	0		24	0	0		0	0	0		60
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:52 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

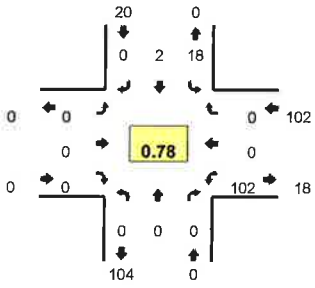
Type of peak hour being reported: User-Defined

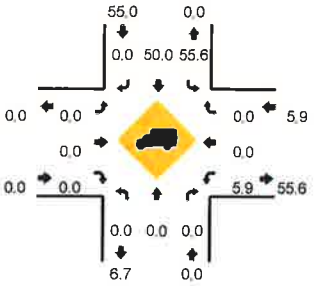
Method for determining peak hour: Total Entering Volume

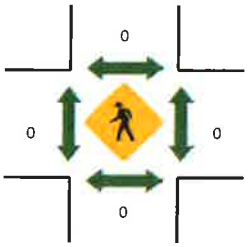
LOCATION: I-82 SB Ramps -- Lamb Rd/County 1232 Rd
CITY/STATE: Hermiston, OR

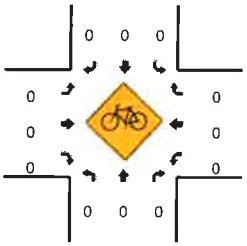
QC JOB #: 14079302
DATE: Tue, Dec 13 2016

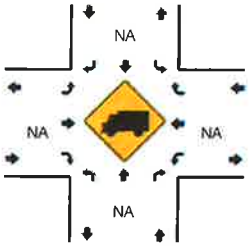
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:30 PM -- 5:45 PM

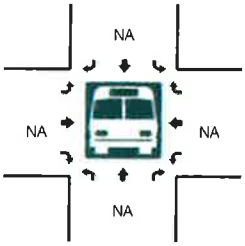












15-Min Count Period Beginning At	I-82 SB Ramps (Northbound)				I-82 SB Ramps (Southbound)				Lamb Rd/County 1232 Rd (Eastbound)				Lamb Rd/County 1232 Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	27	0	0	0	29	
4:15 PM	0	0	0	0	3	1	0	0	0	0	0	0	34	0	0	0	38	
4:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	18	0	0	0	20	
4:45 PM	0	0	0	0	5	0	0	0	0	0	0	0	20	0	0	0	25	112
5:00 PM	0	0	0	0	3	0	0	0	0	0	0	0	22	0	0	0	25	108
5:15 PM	0	0	0	0	5	1	0	0	0	0	0	0	32	0	0	0	38	108
5:30 PM	0	0	0	0	7	1	0	0	0	0	0	0	31	0	0	0	39	127
5:45 PM	0	0	0	0	3	0	0	0	0	0	0	0	17	0	0	0	20	122

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	28	4	0	0	0	0	0	0	124	0	0	0	156
Heavy Trucks	0	0	0		12	4	0		0	0	0		4	0	0		20
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:53 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

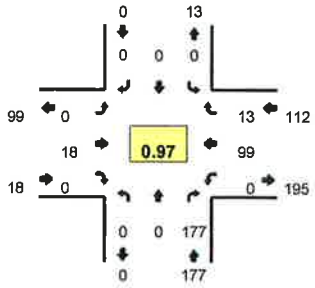
Type of peak hour being reported: User-Defined

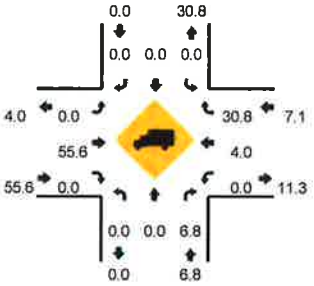
Method for determining peak hour: Total Entering Volume

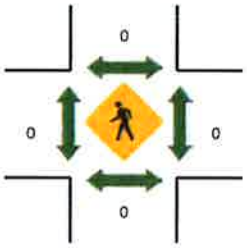
LOCATION: I-82 NB Ramps -- Lamb Rd/County 1232 Rd
CITY/STATE: Hermiston, OR

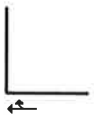
QC JOB #: 14079304
DATE: Tue, Dec 13 2016

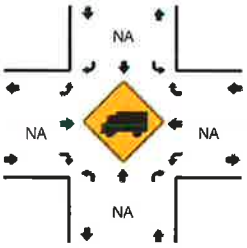
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:30 PM -- 5:45 PM

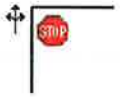


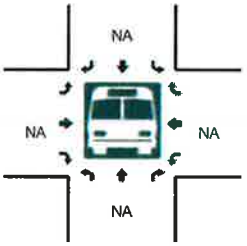












15-Min Count Period Beginning At	I-82 NB Ramps (Northbound)				I-82 NB Ramps (Southbound)				Lamb Rd/County 1232 Rd (Eastbound)				Lamb Rd/County 1232 Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	46	0	0	0	0	0	0	2	0	0	0	27	7	0	82	
4:15 PM	0	0	50	0	0	0	0	0	0	2	0	0	0	35	7	0	94	
4:30 PM	0	0	43	0	0	0	0	0	0	2	0	0	0	18	8	0	71	
4:45 PM	0	0	42	0	0	0	0	0	0	5	0	0	0	21	5	0	73	320
5:00 PM	0	0	47	0	0	0	0	0	0	3	0	0	0	21	2	0	73	311
5:15 PM	0	0	41	0	0	0	0	0	0	5	0	0	0	29	2	0	77	294
5:30 PM	0	0	38	0	0	0	0	0	0	7	0	0	0	33	3	0	79	302
5:45 PM	0	0	53	0	0	0	0	0	0	3	0	0	0	16	6	0	78	307

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	144	0	0	0	0	0	0	28	0	0	0	132	12	0	316
Heavy Trucks	0	0	12		0	0	0		0	12	0		0	0	8		32
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:53 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

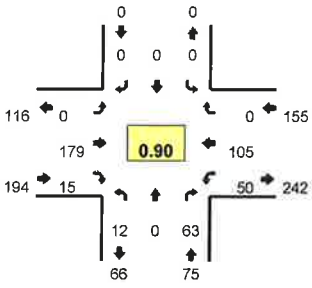
Type of peak hour being reported: User-Defined

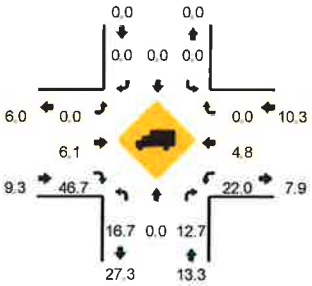
Method for determining peak hour: Total Entering Volume

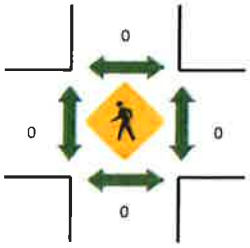
LOCATION: Westland Rd -- County 1232 Rd
CITY/STATE: Hermiston, OR

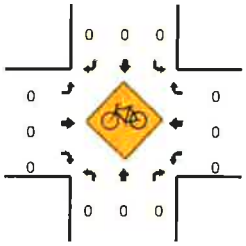
QC JOB #: 14079306
DATE: Tue, Dec 13 2016

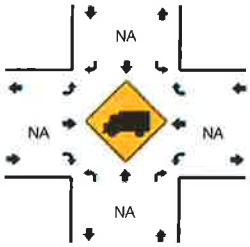
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:45 PM -- 6:00 PM

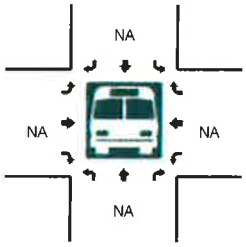












15-Min Count Period Beginning At	Westland Rd (Northbound)				Westland Rd (Southbound)				County 1232 Rd (Eastbound)				County 1232 Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	0	16	0	0	0	0	0	0	48	1	0	9	31	0	0	107	
4:15 PM	6	0	10	0	0	0	0	0	0	49	2	0	10	36	0	0	113	
4:30 PM	6	0	18	0	0	0	0	0	0	45	2	0	7	25	0	0	103	
4:45 PM	4	0	17	0	0	0	0	0	0	42	2	0	5	19	0	0	89	412
5:00 PM	1	0	9	0	0	0	0	0	0	44	3	0	13	24	0	0	94	399
5:15 PM	1	0	16	0	0	0	0	0	0	47	3	0	8	32	0	0	107	393
5:30 PM	3	0	14	1	0	0	0	0	0	35	6	0	15	31	0	0	105	395
5:45 PM	8	0	24	0	0	0	0	0	0	53	3	0	14	18	0	0	118	424

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	0	96	0	0	0	0	0	0	212	12	0	56	72	0	0	472
Heavy Trucks	0	0	0		0	0	0		0	24	8		12	8	0		52
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:53 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

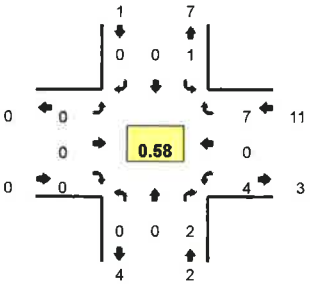
Type of peak hour being reported: User-Defined

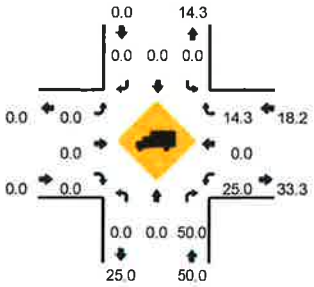
Method for determining peak hour: Total Entering Volume

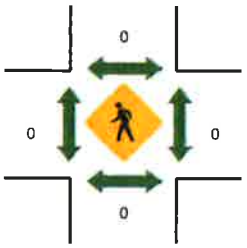
LOCATION: Westland Rd -- Triple M Truck Equip
CITY/STATE: Hermiston, OR

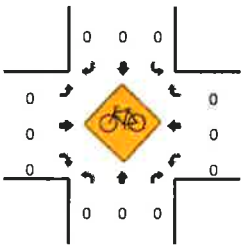
QC JOB #: 14079308
DATE: Tue, Dec 13 2016

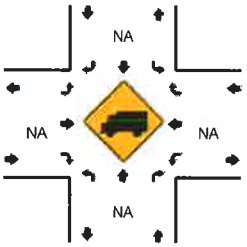
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:45 PM -- 6:00 PM

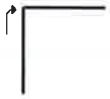


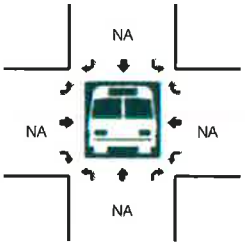












15-Min Count Period Beginning At	Westland Rd (Northbound)				Westland Rd (Southbound)				Triple M Truck Equip (Eastbound)				Triple M Truck Equip (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	4	
4:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	3	0	1	0	6	
4:30 PM	0	0	1	0	2	0	0	0	0	0	0	0	5	0	0	0	8	
4:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	2	0	0	0	4	22
5:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	3	21
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	3	0	5	20
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	2	0	3	0	6	14

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	4	0	0	0	0	0	0	0	8	0	12	0	24
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:53 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

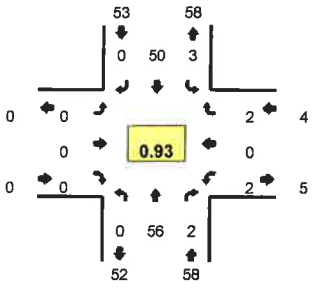
Type of peak hour being reported: User-Defined

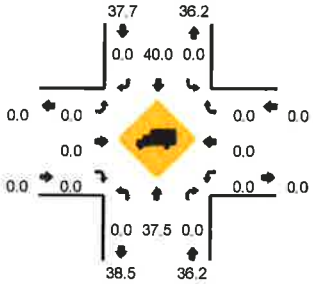
Method for determining peak hour: Total Entering Volume

LOCATION: Westland Rd -- NW Livestock Rd
CITY/STATE: Hermiston, OR

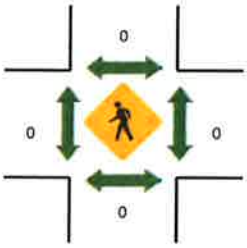
QC JOB #: 14079310
DATE: Tue, Dec 13 2016

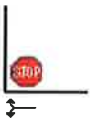
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

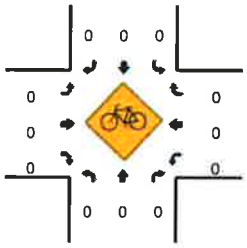


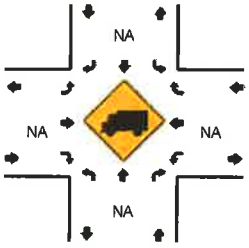


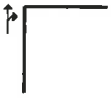
Quality Counts

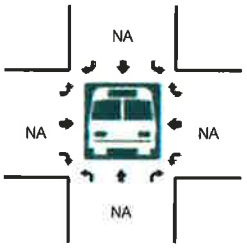












15-Min Count Period Beginning At	Westland Rd (Northbound)				Westland Rd (Southbound)				NW Livestock Rd (Eastbound)				NW Livestock Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	13	0	0	1	12	0	0	0	0	0	0	0	0	0	0	26	
4:15 PM	0	18	1	0	1	15	0	0	0	0	0	0	3	0	0	0	38	
4:30 PM	0	13	0	0	0	10	0	0	0	0	0	0	2	0	0	0	25	
4:45 PM	0	10	0	0	1	8	0	0	0	0	0	0	0	0	0	0	19	108
5:00 PM	0	10	2	0	1	15	0	0	0	0	0	0	1	0	2	0	31	113
5:15 PM	0	18	0	0	0	11	0	0	0	0	0	0	0	0	0	0	29	104
5:30 PM	0	18	0	0	2	10	0	0	0	0	0	0	1	0	0	0	31	110
5:45 PM	0	10	0	0	0	14	0	0	0	0	0	0	0	0	0	0	24	115

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	40	8	0	4	60	0	0	0	0	0	0	4	0	8	0	124
Heavy Trucks	0	16	0		0	16	0		0	0	0		0	0	0		32
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:53 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

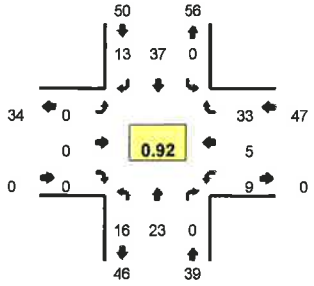
Type of peak hour being reported: User-Defined

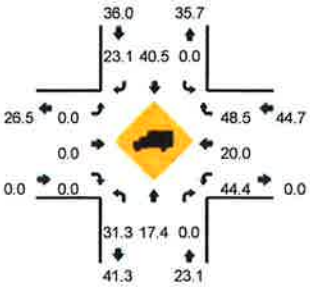
Method for determining peak hour: Total Entering Volume

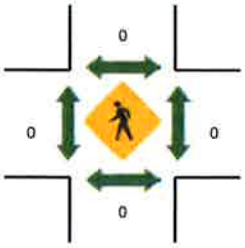
LOCATION: Westland Rd/County 1325 Rd -- I-84 WB Ramps
CITY/STATE: Hermiston, OR

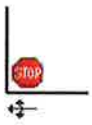
QC JOB #: 14079312
DATE: Tue, Dec 13 2016

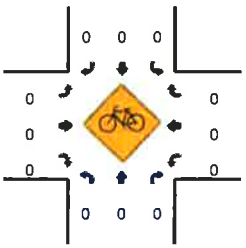
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

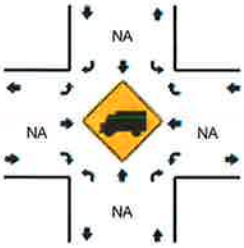


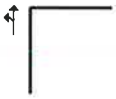


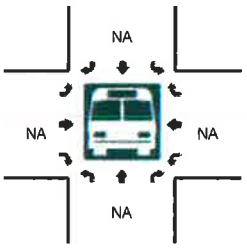












15-Min Count Period Beginning At	Westland Rd/County 1325 Rd (Northbound)				Westland Rd/County 1325 Rd (Southbound)				I-84 WB Ramps (Eastbound)				I-84 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	6	0	0	0	9	3	0	0	0	0	0	2	0	7	0	34	
4:15 PM	5	8	0	0	0	15	3	0	0	0	0	0	3	0	11	0	45	
4:30 PM	2	15	0	0	0	11	4	0	0	0	0	0	2	0	4	0	38	
4:45 PM	2	5	0	0	0	4	3	0	0	0	0	0	2	0	4	0	20	137
5:00 PM	4	5	0	0	0	15	1	0	0	0	0	0	3	2	7	0	37	140
5:15 PM	4	8	0	0	0	8	3	0	0	0	0	0	2	1	9	0	35	130
5:30 PM	1	7	0	0	0	5	5	0	0	0	0	0	3	2	10	0	33	125
5:45 PM	7	3	0	0	0	9	4	0	0	0	0	0	1	0	7	0	31	136

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	20	0	0	0	60	4	0	0	0	0	0	12	8	28	0	148
Heavy Trucks	8	4	0		0	16	0		0	0	0		4	0	12		44
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:53 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: Westland Rd/County 1325 Rd -- I-84 EB Ramps

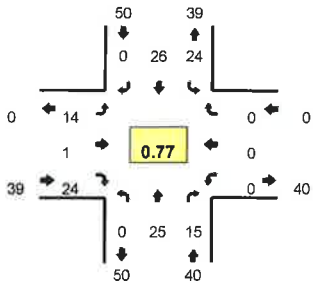
CITY/STATE: Hermiston, OR

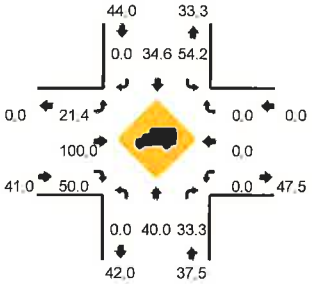
QC JOB #: 14079314

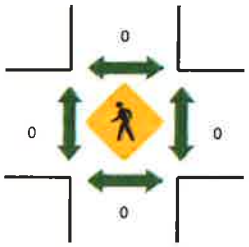
DATE: Tue, Dec 13 2016

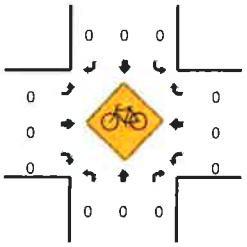
Peak-Hour: 5:00 PM -- 6:00 PM

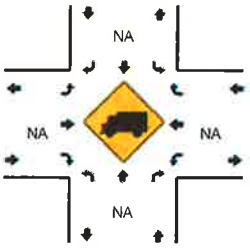
Peak 15-Min: 5:00 PM -- 5:15 PM

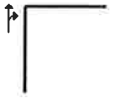


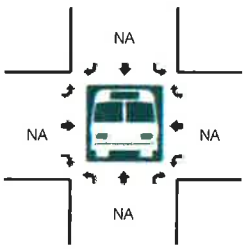












15-Min Count Period Beginning At	Westland Rd/County 1325 Rd (Northbound)				Westland Rd/County 1325 Rd (Southbound)				I-84 EB Ramps (Eastbound)				I-84 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	8	3	0	3	8	0	0	4	0	2	0	0	0	0	0	28	
4:15 PM	0	9	6	0	12	6	0	0	4	0	5	0	0	0	0	0	42	
4:30 PM	0	8	3	0	9	4	0	0	9	1	2	0	0	0	0	0	36	
4:45 PM	0	5	4	0	2	3	0	0	2	0	5	0	0	0	0	0	21	127
5:00 PM	0	6	4	0	9	10	0	0	3	0	10	0	0	0	0	0	42	141
5:15 PM	0	7	5	0	8	3	0	0	5	0	3	0	0	0	0	0	31	130
5:30 PM	0	6	2	0	2	7	0	0	5	1	6	0	0	0	0	0	29	123
5:45 PM	0	6	4	0	5	6	0	0	1	0	5	0	0	0	0	0	27	129

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	24	16	0	36	40	0	0	12	0	40	0	0	0	0	0	168
Heavy Trucks	0	8	4		12	8	0		4	0	16		0	0	0		52
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/23/2017 3:53 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Appendix B

Description of Level-of-Service Methods and Criteria

APPENDIX B LEVEL-OF-SERVICE CONCEPT

Level of service (LOS) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Six grades are used to denote the various level of service from "A" to "F".[1]

SIGNALIZED INTERSECTIONS

The six level-of-service grades are described qualitatively for signalized intersections in Table B1. Additionally, Table B2 identifies the relationship between level of service and average control delay per vehicle. Control delay is defined to include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Using this definition, Level of Service "D" is generally considered to represent the minimum acceptable design standard.

Table B1 Level-of-Service Definitions (Signalized Intersections)

Level of Service	Average Delay per Vehicle
A	Very low average control delay, less than 10 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Average control delay is greater than 10 seconds per vehicle and less than or equal to 20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for a level of service A, causing higher levels of average delay.
C	Average control delay is greater than 20 seconds per vehicle and less than or equal to 35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Average control delay is greater than 35 seconds per vehicle and less than or equal to 55 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Average control delay is greater than 55 seconds per vehicle and less than or equal to 80 seconds per vehicle. This is usually considered to be the limit of acceptable delay. These high delay values generally (but not always) indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.
F	Average control delay is in excess of 80 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation. It may also occur at high volume/capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such high delay values.

Table B2 Level-of-Service Criteria for Signalized Intersections

Level of Service	Average Control Delay per Vehicle (Seconds)
A	<10.0
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

[1] Most of the material in this appendix is adapted from the Transportation Research Board, Highway Capacity Manual, (2010).

UNSIGNALIZED INTERSECTIONS

Unsignalized intersections include two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections. The 2010 Highway Capacity Manual (HCM) provides models for estimating control delay at both TWSC and AWSC intersections. A qualitative description of the various service levels associated with an unsignalized intersection is presented in Table B3. A quantitative definition of level of service for unsignalized intersections is presented in Table B4. Using this definition, Level of Service "E" is generally considered to represent the minimum acceptable design standard.

Table B3 Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Average Delay per Vehicle to Minor Street
A	• Nearly all drivers find freedom of operation. • Very seldom is there more than one vehicle in queue.
B	• Some drivers begin to consider the delay an inconvenience. • Occasionally there is more than one vehicle in queue.
C	• Many times there is more than one vehicle in queue. • Most drivers feel restricted, but not objectionably so.
D	• Often there is more than one vehicle in queue. • Drivers feel quite restricted.
E	• Represents a condition in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement. • There is almost always more than one vehicle in queue. • Drivers find the delays approaching intolerable levels.
F	• Forced flow. • Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection.

Table B4 Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay per Vehicle (Seconds)
A	<10.0
B	>10.0 and ≤ 15.0
C	>15.0 and ≤ 25.0
D	>25.0 and ≤ 35.0
E	>35.0 and ≤ 50.0
F	>50.0

It should be noted that the level-of-service criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, there are a number of driver behavior considerations that combine to make delays at signalized intersections less galling than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, while drivers on the

minor street approaches to TWSC intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections than signalized intersections. For these reasons, it is considered that the control delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. While overall intersection level of service is calculated for AWSC intersections, level of service is only calculated for the minor approaches and the major street left turn movements at TWSC intersections. No delay is assumed to the major street through movements. For TWSC intersections, the overall intersection level of service remains undefined: level of service is only calculated for each minor street lane.

In the performance evaluation of TWSC intersections, it is important to consider other measures of effectiveness (MOEs) in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th-percentile queue lengths. By focusing on a single MOE for the worst movement only, such as delay for the minor-street left turn, users may make inappropriate traffic control decisions. The potential for making such inappropriate decisions is likely to be particularly pronounced when the HCM level-of-service thresholds are adopted as legal standards, as is the case in many public agencies.

Appendix C

Year 2016 Conditions

Level-of-Service Worksheets

HCM Unsignalized Intersection Capacity Analysis
1: Lamb Road & I-82 Southbound Off Ramp

1/10/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	124	0	0	0	0	0	42	1	0
Future Volume (Veh/h)	0	0	0	124	0	0	0	0	0	42	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	135	0	0	0	0	0	46	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			0			270	270	0	270	270	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			270	270	0	270	270	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			92			100	100	100	93	100	100
cM capacity (veh/h)	1623			1623			638	583	1085	639	583	1085

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	135	47
Volume Left	0	135	46
Volume Right	0	0	0
cSH	1700	1623	638
Volume to Capacity	0.00	0.08	0.07
Queue Length 95th (ft)	0	7	6
Control Delay (s)	0.0	7.4	11.1
Lane LOS		A	B
Approach Delay (s)	0.0	7.4	11.1
Approach LOS			B

Intersection Summary				
Average Delay	8.4			
Intersection Capacity Utilization	16.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			↔				
Traffic Vol, veh/h	0	42	0	0	120	25	4	0	133	0	0	0
Future Vol, veh/h	0	42	0	0	120	25	4	0	133	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	46	0	0	130	27	4	0	145	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	158	0	-	-	-	0	190	204	46
Stage 1	-	-	-	-	-	-	46	46	-
Stage 2	-	-	-	-	-	-	144	158	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1422	-	0	0	-	-	799	692	1023
Stage 1	-	-	0	0	-	-	976	857	-
Stage 2	-	-	0	0	-	-	883	767	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1422	-	-	-	-	-	799	0	1023
Mov Cap-2 Maneuver	-	-	-	-	-	-	799	0	-
Stage 1	-	-	-	-	-	-	976	0	-
Stage 2	-	-	-	-	-	-	883	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	1015	1422	-	-	-
HCM Lane V/C Ratio	0.147	-	-	-	-
HCM Control Delay (s)	9.2	0	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0.5	0	-	-	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	139	37	76	127	18	79
Future Volume (Veh/h)	139	37	76	127	18	79
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	151	40	83	138	20	86
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			191		455	151
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			191		455	151
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		96	90
cM capacity (veh/h)			1383		529	895

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	151	40	83	138	106
Volume Left	0	0	83	0	20
Volume Right	0	40	0	0	86
cSH	1700	1700	1383	1700	792
Volume to Capacity	0.09	0.02	0.06	0.08	0.13
Queue Length 95th (ft)	0	0	5	0	12
Control Delay (s)	0.0	0.0	7.8	0.0	10.2
Lane LOS			A		B
Approach Delay (s)	0.0		2.9		10.2
Approach LOS					B

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	27.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	0	58	4	8	79
Future Volume (Veh/h)	4	0	58	4	8	79
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	0	63	4	9	86
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	169	65			67	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	169	65			67	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	816	999			1535	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	4	67	95
Volume Left	4	0	9
Volume Right	0	4	0
cSH	816	1700	1535
Volume to Capacity	0.00	0.04	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	9.4	0.0	0.7
Lane LOS	A		A
Approach Delay (s)	9.4	0.0	0.7
Approach LOS	A		

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		20.8%	ICU Level of Service A
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	2	60	12	2	81
Future Volume (Veh/h)	6	2	60	12	2	81
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	2	65	13	2	88
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	164	72			78	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	164	72			78	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	826	991			1520	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	9	78	90
Volume Left	7	0	2
Volume Right	2	13	0
cSH	858	1700	1520
Volume to Capacity	0.01	0.05	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.2	0.0	0.2
Lane LOS	A		A
Approach Delay (s)	9.2	0.0	0.2
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	15.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	14	0	40	26	32	0	0	68	19
Future Vol, veh/h	0	0	0	14	0	40	26	32	0	0	68	19
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	15	0	43	28	35	0	0	74	21

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	175	186	35	95	0	-	-	-	0
Stage 1	91	91	-	-	-	-	-	-	-
Stage 2	84	95	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	815	708	1038	1499	-	0	0	-	-
Stage 1	933	820	-	-	-	0	0	-	-
Stage 2	939	816	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	800	0	1038	1499	-	-	-	-	-
Mov Cap-2 Maneuver	800	0	-	-	-	-	-	-	-
Stage 1	915	0	-	-	-	-	-	-	-
Stage 2	939	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	3.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1499	-	964	-	-
HCM Lane V/C Ratio	0.019	-	0.061	-	-
HCM Control Delay (s)	7.4	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔						↑			↑	
Traffic Vol, veh/h	28	0	25	0	0	0	0	30	15	46	35	0
Future Vol, veh/h	28	0	25	0	0	0	0	30	15	46	35	0
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	0	27	0	0	0	0	33	16	50	38	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	179	187	38	-	0	0	49	0	0
Stage 1	138	138	-	-	-	-	-	-	-
Stage 2	41	49	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	811	708	1034	0	-	-	1558	-	0
Stage 1	889	782	-	0	-	-	-	-	0
Stage 2	981	854	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	784	0	1034	-	-	-	1558	-	-
Mov Cap-2 Maneuver	784	0	-	-	-	-	-	-	-
Stage 1	860	0	-	-	-	-	-	-	-
Stage 2	981	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0	4.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	885	1558	-
HCM Lane V/C Ratio	-	-	0.065	0.032	-
HCM Control Delay (s)	-	-	9.4	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

HCM Unsignalized Intersection Capacity Analysis
1: Lamb Road & I-82 Southbound Off Ramp

1/10/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	142	0	0	0	0	0	25	3	0
Future Volume (Veh/h)	0	0	0	142	0	0	0	0	0	25	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	154	0	0	0	0	0	27	3	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			0			310	308	0	308	308	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			310	308	0	308	308	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			91			100	100	100	95	99	100
cM capacity (veh/h)	1623			1623			594	549	1085	598	549	1085

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	154	30
Volume Left	0	154	27
Volume Right	0	0	0
cSH	1700	1623	592
Volume to Capacity	0.00	0.09	0.05
Queue Length 95th (ft)	0	8	4
Control Delay (s)	0.0	7.5	11.4
Lane LOS		A	B
Approach Delay (s)	0.0	7.5	11.4
Approach LOS			B

Intersection Summary				
Average Delay	8.1			
Intersection Capacity Utilization	17.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	25	0	0	142	18	0	0	241	0	0	0
Future Vol, veh/h	0	25	0	0	142	18	0	0	241	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	27	0	0	154	20	0	0	262	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	174	0	-	-	-	0	191	201	27
Stage 1	-	-	-	-	-	-	27	27	-
Stage 2	-	-	-	-	-	-	164	174	-
Critical Hdwy	4.12	-	-	-	-	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1403	-	0	0	-	-	769	695	1048
Stage 1	-	-	0	0	-	-	990	873	-
Stage 2	-	-	0	0	-	-	838	755	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1403	-	-	-	-	-	769	695	1048
Mov Cap-2 Maneuver	-	-	-	-	-	-	769	695	-
Stage 1	-	-	-	-	-	-	990	873	-
Stage 2	-	-	-	-	-	-	838	755	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	1048	1403	-	-	-
HCM Lane V/C Ratio	0.25	-	-	-	-
HCM Control Delay (s)	9.6	0	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	1	0	-	-	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	245	20	68	143	16	86
Future Volume (Veh/h)	245	20	68	143	16	86
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	266	22	74	155	17	93
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			288		569	266
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			288		569	266
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		96	88
cM capacity (veh/h)			1274		456	773

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	266	22	74	155	110
Volume Left	0	0	74	0	17
Volume Right	0	22	0	0	93
cSH	1700	1700	1274	1700	698
Volume to Capacity	0.16	0.01	0.06	0.09	0.16
Queue Length 95th (ft)	0	0	5	0	14
Control Delay (s)	0.0	0.0	8.0	0.0	11.1
Lane LOS			A		B
Approach Delay (s)	0.0		2.6		11.1
Approach LOS					B

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	7	74	2	1	67
Future Volume (Veh/h)	4	7	74	2	1	67
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	8	80	2	1	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	156	81			82	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	156	81			82	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	835	979			1515	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	12	82	74
Volume Left	4	0	1
Volume Right	8	2	0
cSH	926	1700	1515
Volume to Capacity	0.01	0.05	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.9	0.0	0.1
Lane LOS	A		A
Approach Delay (s)	8.9	0.0	0.1
Approach LOS	A		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	2	74	2	3	68
Future Volume (Veh/h)	2	2	74	2	3	68
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	2	80	2	3	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	161	81			82	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	161	81			82	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	828	979			1515	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	4	82	77
Volume Left	2	0	3
Volume Right	2	2	0
cSH	897	1700	1515
Volume to Capacity	0.00	0.05	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	9.0	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	0.3
Approach LOS	A		

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		16.0%	ICU Level of Service A
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔			↑			↑	
Traffic Vol, veh/h	0	0	0	12	7	45	22	31	0	0	52	18
Future Vol, veh/h	0	0	0	12	7	45	22	31	0	0	52	18
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	13	8	49	24	34	0	0	57	20

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	148	158	34	76	0	-	-	-	0
Stage 1	82	82	-	-	-	-	-	-	-
Stage 2	66	76	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	844	734	1039	1523	-	0	0	-	-
Stage 1	941	827	-	-	-	0	0	-	-
Stage 2	957	832	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	830	0	1039	1523	-	-	-	-	-
Mov Cap-2 Maneuver	830	0	-	-	-	-	-	-	-
Stage 1	926	0	-	-	-	-	-	-	-
Stage 2	957	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	3.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1523	-	987	-	-
HCM Lane V/C Ratio	0.016	-	0.07	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection												
Int Delay, s/veh	4.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↱			↰	
Traffic Vol, veh/h	19	1	33	0	0	0	0	34	20	31	33	0
Future Vol, veh/h	19	1	33	0	0	0	0	34	20	31	33	0
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	1	36	0	0	0	0	37	22	34	36	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	151	162	36	-	0	0	59	0	0
Stage 1	103	103	-	-	-	-	-	-	-
Stage 2	48	59	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	841	730	1037	0	-	-	1545	-	0
Stage 1	921	810	-	0	-	-	-	-	0
Stage 2	974	846	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	822	0	1037	-	-	-	1545	-	-
Mov Cap-2 Maneuver	822	0	-	-	-	-	-	-	-
Stage 1	901	0	-	-	-	-	-	-	-
Stage 2	974	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	947	1545	-
HCM Lane V/C Ratio	-	-	0.061	0.022	-
HCM Control Delay (s)	-	-	9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Appendix D
Crash Data

CDS380 1/4/2017

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

070 MCNARY

I-82 McNary Highway (070) SB Ramps & Lamb Rd (01232)
January 1, 2010 through December 31, 2014

SER# / INVEST / UNLOC?	P E D	A L C	U G S	C H L	O R K	DATE / DAY/TIME / LAT/LONG	COUNTY / CITY / URBAN AREA	RD# / CMPT/MLG / MILEPNT / LRS	FC / FIRST STREET / SECOND STREET / INTERSECTION SEQ#	CONN #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CNTL	OFFRD / RNDBT / DRIVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
01042	N	N	N	N	N	12/08/2014	UMATILLA	1 07 2			INTER	CROSS	N	Y	CLD	FIX OBJ	01	NONE 0	TURN-L										092,043	26
STATE						Mon 7A		CN 0			W		STOP SIGN	N	WET	FIX		PRVTE	E S										007 092,043	26
								9.79			05	0		N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	18	F	NONE	080,081		080		00
No						45 48 21.88 -119 23 5.69		0070AI100S00																		OR<25					

I-84 (Hwy 006) EB Ramps & Westland Rd
January 1, 2010 through December 31, 2014

SER# INVEST UNLOC?	P E E D: E A L C; D R U G S; R S C H L; W O R K	DATE DAY/TIME LAT/LONG	COUNTY CITY URBAN AREA	RD# FC CMPT/MLG MILEPNT LRS	CONN # FIRST STREET SECOND STREET INTERSECTION SEQ#	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN EVENT	CAUSE
00727 COUNTY No	N N N N N	09/26/2011 Mon 1P 45 47 27.53 -119 22 22.69	UMATILLA	1 09 CN 0 180.46 0006AI100S00	2	INTER CN 03	CROSS 0	N STOP SIGN	N N N	CLR DRY DAY	ANGL-OTH ANGL INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT N S	01	DRVR	INJA	31	M	OR-Y OR<25		000	000 000	03 00 00
												02	NONE 0 PRVTE PSNGR CAR	STRGHT W E	01	DRVR	INJC	31	M	OTH-Y N-RES		021	015 000	00 03
00940 COUNTY No	N N N N N	12/23/2011 Fri 1P 45 47 27.53 -119 22 22.69	UMATILLA	1 09 CN 0 180.46 0006AI100S00	2	INTER CN 03	CROSS 0	N STOP SIGN	N N N	CLR DRY DAY	ANGL-OTH ANGL PDO	01	NONE 0 PRVTE PSNGR CAR	STRGHT W E	01	DRVR	NONE	21	M	OTH-Y N-RES		021	000 000	03 00 03
												02	NONE 0 PRVTE PSNGR CAR	STRGHT N S	01	DRVR	NONE	54	M	OR-Y OR<25		000	000 000	00 00

CDS380 12/23/2016

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
COUNTY ROAD CRASH LISTING

UMATILLA COUNTY

Westland Rd & Lamb Rd (#1232)

January 1, 2010 through December 31, 2014

SER# / INVEST / UNLOC?	SPE	ALC	DRS	SCH	WLK	DATE / DAY/TIME / LAT/LONG	MILEPNT / DIST FROM / INTERSECT	COUNTY ROADS FIRST STREET / SECOND STREET / INTERSECTION SEQ #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00268	N	N	N			4/25/2011	1.02	WESTLAND RD	INTER	CROSS	N		N	UNK	ANGL-OTH	01	NONE	0	TURN-R										03
NO RPT						Mon 10A			CN		STOP SIGN		N	UNK	TURN		PRVTE		W S									000	00
No						45 49 22.40 -119 22 20.67			03	0			N	DAY	PDO		UNKNOWN			01	DRVR	NONE	00	U	UNK UNK		021	000	03
																02	NONE	0	STRGHT										
																	PRVTE		N =									000	00
																	PSNGR CAR			01	DRVR	NONE	61	M	OR-Y OR<25	000	000	00

UMATILLA COUNTY

Westland Rd & Westport Rd

January 1, 2010 through December 31, 2014

SER# / INVEST / UNLOC?	S P E	A L D	U C S	S H L	W O R K	DATE / DAY/TIME / LAT/LONG	MILEPNT / DIST FROM / INTERSECT	COUNTY ROADS FIRST STREET / SECOND STREET / INTERSECTION SEQ #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LIENS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00441	N	N	N			7/1/2013	0.55	WESTLAND RD	INTER	3-LEG	N		N	CLR	O-1 L-TURN	01	NONE 1	STRGHT										02
NO RPT						Mon 6A			CN		STOP SIGN		N	DRY	TURN		PRVTE	N S										00
No						45 43 1.90 -119 22 20.96			01	0			N	DAY	PDO		SEMI TOW		01	DRVR	NONE	54	M	OR-Y		000	000		00
																									OR<25				
																02	NONE 0	TURN-L										00
																	PRVTE	S W										
																	PSNGR CAR		01	DRVR	NONE	20	M	NONE		004	000		02
																									OR<25				

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X W/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO.
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN,ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKING
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNED FROM WRONG LANE
007	TO WRONG	TURNED INTO WRONG LANE
008	ILLEG U	U-TURNED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHI
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN MAJOR COLLECTOR
18	URBAN MINOR COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO 5	NO INJURY - 0 TO 4 YEARS OF AGE

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY

PEDESTRIAN LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYA
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OB
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING

095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS
099	UNKNOWN	UNKNOWN OR NOT DEFINITE

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

Appendix E

Year 2018 Background Traffic
Level-of-Service Worksheets

HCM Unsignalized Intersection Capacity Analysis
1: Lamb Road & I-82 Southbound Off Ramp

1/10/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	129	0	0	0	0	0	45	1	0
Future Volume (Veh/h)	0	0	0	129	0	0	0	0	0	45	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	140	0	0	0	0	0	49	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			0			280	280	0	280	280	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			280	280	0	280	280	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			91			100	100	100	92	100	100
cM capacity (veh/h)	1623			1623			627	574	1085	628	574	1085

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	140	50
Volume Left	0	140	49
Volume Right	0	0	0
cSH	1700	1623	627
Volume to Capacity	0.00	0.09	0.08
Queue Length 95th (ft)	0	7	6
Control Delay (s)	0.0	7.4	11.2
Lane LOS		A	B
Approach Delay (s)	0.0	7.4	11.2
Approach LOS			B

Intersection Summary				
Average Delay	8.4			
Intersection Capacity Utilization	17.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	45	0	0	125	27	4	0	139	0	0	0
Future Vol, veh/h	0	45	0	0	125	27	4	0	139	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	49	0	0	136	29	4	0	151	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	165	0	-	-	-	0	200	214	49
Stage 1	-	-	-	-	-	-	49	49	-
Stage 2	-	-	-	-	-	-	151	165	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1413	-	0	0	-	-	789	684	1020
Stage 1	-	-	0	0	-	-	973	854	-
Stage 2	-	-	0	0	-	-	877	762	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1413	-	-	-	-	-	789	0	1020
Mov Cap-2 Maneuver	-	-	-	-	-	-	789	0	-
Stage 1	-	-	-	-	-	-	973	0	-
Stage 2	-	-	-	-	-	-	877	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	1012	1413	-	-	-
HCM Lane V/C Ratio	0.154	-	-	-	-
HCM Control Delay (s)	9.2	0	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0.5	0	-	-	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	145	39	81	132	19	84
Future Volume (Veh/h)	145	39	81	132	19	84
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	158	42	88	143	21	91
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			200		477	158
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			200		477	158
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		96	90
cM capacity (veh/h)			1372		512	887

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	158	42	88	143	112
Volume Left	0	0	88	0	21
Volume Right	0	42	0	0	91
cSH	1700	1700	1372	1700	780
Volume to Capacity	0.09	0.02	0.06	0.08	0.14
Queue Length 95th (ft)	0	0	5	0	12
Control Delay (s)	0.0	0.0	7.8	0.0	10.4
Lane LOS			A		B
Approach Delay (s)	0.0		3.0		10.4
Approach LOS					B

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	0	62	4	8	82
Future Volume (Veh/h)	4	0	62	4	8	82
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	0	67	4	9	89
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	176	69			71	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	176	69			71	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	809	994			1529	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	4	71	98
Volume Left	4	0	9
Volume Right	0	4	0
cSH	809	1700	1529
Volume to Capacity	0.00	0.04	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	9.5	0.0	0.7
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	0.7
Approach LOS	A		

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		21.0%	ICU Level of Service A
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	2	64	12	2	84
Future Volume (Veh/h)	6	2	64	12	2	84
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	2	70	13	2	91
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	172	76			83	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	172	76			83	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	818	985			1514	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	9	83	93
Volume Left	7	0	2
Volume Right	2	13	0
cSH	850	1700	1514
Volume to Capacity	0.01	0.05	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.3	0.0	0.2
Lane LOS	A		A
Approach Delay (s)	9.3	0.0	0.2
Approach LOS	A		

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		16.0%	ICU Level of Service A
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	14	0	43	27	33	0	0	71	20
Future Vol, veh/h	0	0	0	14	0	43	27	33	0	0	71	20
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	15	0	47	29	36	0	0	77	22

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	183	194	36	99	0	-	-	-	0
Stage 1	95	95	-	-	-	-	-	-	-
Stage 2	88	99	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	778	701	1037	1494	-	0	0	-	-
Stage 1	912	816	-	-	-	0	0	-	-
Stage 2	920	813	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	766	687	1037	1494	-	-	-	-	-
Mov Cap-2 Maneuver	766	687	-	-	-	-	-	-	-
Stage 1	894	800	-	-	-	-	-	-	-
Stage 2	920	813	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	3.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1494	-	954	-	-
HCM Lane V/C Ratio	0.02	-	0.065	-	-
HCM Control Delay (s)	7.5	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	0	26	0	0	0	0	32	16	49	36	0
Future Vol, veh/h	29	0	26	0	0	0	0	32	16	49	36	0
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	0	28	0	0	0	0	35	17	53	39	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	189	198	39	-	0	0	52	0	0
Stage 1	146	146	-	-	-	-	-	-	-
Stage 2	43	52	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	800	698	1033	0	-	-	1554	-	0
Stage 1	881	776	-	0	-	-	-	-	0
Stage 2	979	852	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	772	0	1033	-	-	-	1554	-	-
Mov Cap-2 Maneuver	772	0	-	-	-	-	-	-	-
Stage 1	850	0	-	-	-	-	-	-	-
Stage 2	979	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0	4.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	877	1554	-
HCM Lane V/C Ratio	-	-	0.068	0.034	-
HCM Control Delay (s)	-	-	9.4	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	147	0	0	0	0	0	27	3	0
Future Volume (Veh/h)	0	0	0	147	0	0	0	0	0	27	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	160	0	0	0	0	0	29	3	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			0			322	320	0	320	320	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			322	320	0	320	320	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			90			100	100	100	95	99	100
cM capacity (veh/h)	1636			1636			585	541	1091	589	541	1091

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	160	32
Volume Left	0	160	29
Volume Right	0	0	0
cSH	1700	1636	584
Volume to Capacity	0.00	0.10	0.05
Queue Length 95th (ft)	0	8	4
Control Delay (s)	0.0	7.4	11.5
Lane LOS		A	B
Approach Delay (s)	0.0	7.4	11.5
Approach LOS			B

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			↕				
Traffic Vol, veh/h	0	27	0	0	147	20	0	0	251	0	0	0
Future Vol, veh/h	0	27	0	0	147	20	0	0	251	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	29	0	0	160	22	0	0	273	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	182	0	-	-	-	0	200	211	29
Stage 1	-	-	-	-	-	-	29	29	-
Stage 2	-	-	-	-	-	-	171	182	-
Critical Hdwy	4.1	-	-	-	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1405	-	0	0	-	-	793	690	1052
Stage 1	-	-	0	0	-	-	999	875	-
Stage 2	-	-	0	0	-	-	864	753	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1405	-	-	-	-	-	793	0	1052
Mov Cap-2 Maneuver	-	-	-	-	-	-	793	0	-
Stage 1	-	-	-	-	-	-	999	0	-
Stage 2	-	-	-	-	-	-	864	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	1052	1405	-	-	-
HCM Lane V/C Ratio	0.259	-	-	-	-
HCM Control Delay (s)	9.6	0	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	1	0	-	-	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	255	22	73	149	19	93
Future Volume (Veh/h)	255	22	73	149	19	93
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	277	24	79	162	21	101
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			301		597	277
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			301		597	277
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		95	87
cM capacity (veh/h)			1272		440	767

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	277	24	79	162	122
Volume Left	0	0	79	0	21
Volume Right	0	24	0	0	101
cSH	1700	1700	1272	1700	680
Volume to Capacity	0.16	0.01	0.06	0.10	0.18
Queue Length 95th (ft)	0	0	5	0	16
Control Delay (s)	0.0	0.0	8.0	0.0	11.5
Lane LOS			A		B
Approach Delay (s)	0.0		2.6		11.5
Approach LOS					B

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	7	78	2	1	72
Future Volume (Veh/h)	4	7	78	2	1	72
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	8	85	2	1	78
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	166	86			87	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	166	86			87	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	829	978			1522	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	12	87	79
Volume Left	4	0	1
Volume Right	8	2	0
cSH	923	1700	1522
Volume to Capacity	0.01	0.05	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.0	0.0	0.1
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	0.1
Approach LOS	A		

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		14.6%	ICU Level of Service A
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	2	78	2	3	73
Future Volume (Veh/h)	2	2	78	2	3	73
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	2	85	2	3	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	171	86			87	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	171	86			87	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	822	978			1522	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	4	87	82
Volume Left	2	0	3
Volume Right	2	2	0
cSH	893	1700	1522
Volume to Capacity	0.00	0.05	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	9.0	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	0.3
Approach LOS	A		

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		16.3%	ICU Level of Service A
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	12	7	47	23	33	0	0	56	19
Future Vol, veh/h	0	0	0	12	7	47	23	33	0	0	56	19
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	13	8	51	25	36	0	0	61	21

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	157	168	36	82	0	-	-	-	0
Stage 1	86	86	-	-	-	-	-	-	-
Stage 2	71	82	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	4.1	-	-	-	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	839	728	1042	1528	-	0	0	-	-
Stage 1	942	827	-	-	-	0	0	-	-
Stage 2	957	831	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	825	0	1042	1528	-	-	-	-	-
Mov Cap-2 Maneuver	825	0	-	-	-	-	-	-	-
Stage 1	926	0	-	-	-	-	-	-	-
Stage 2	957	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1528	-	989	-	-
HCM Lane V/C Ratio	0.016	-	0.073	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	1	34	0	0	0	0	36	21	35	33	0
Future Vol, veh/h	20	1	34	0	0	0	0	36	21	35	33	0
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	22	1	37	0	0	0	0	39	23	38	36	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	163	174	36	-	0	0	62	0	0
Stage 1	112	112	-	-	-	-	-	-	-
Stage 2	51	62	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	832	723	1042	0	-	-	1554	-	0
Stage 1	918	807	-	0	-	-	-	-	0
Stage 2	977	847	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	811	0	1042	-	-	-	1554	-	-
Mov Cap-2 Maneuver	811	0	-	-	-	-	-	-	-
Stage 1	895	0	-	-	-	-	-	-	-
Stage 2	977	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0	3.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	943	1554	-
HCM Lane V/C Ratio	-	-	0.063	0.024	-
HCM Control Delay (s)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Appendix F

Year 2018 Total Traffic
Level-of-Service Worksheets

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	129	0	0	0	0	0	56	1	0
Future Vol, veh/h	0	0	0	129	0	0	0	0	0	56	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	67	67	67	67	67	67
Heavy Vehicles, %	0	0	0	6	0	0	0	0	0	34	100	0
Mvmt Flow	0	0	0	193	0	0	0	0	0	84	1	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	0	0	0	385	385	0
Stage 1	-	-	-	-	-	-	385	385	-
Stage 2	-	-	-	-	-	-	0	0	-
Critical Hdwy	-	-	-	4.16	-	-	6.74	7.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.74	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.74	6.5	-
Follow-up Hdwy	-	-	-	2.254	-	-	3.806	4.9	3.3
Pot Cap-1 Maneuver	0	-	-	-	-	0	560	423	-
Stage 1	0	-	-	-	-	0	623	471	-
Stage 2	0	-	-	-	-	0	-	-	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	-	-	-	560	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	560	0	-
Stage 1	-	-	-	-	-	-	623	0	-
Stage 2	-	-	-	-	-	-	-	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0		
HCM LOS			-

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			↰↱				
Traffic Vol, veh/h	0	56	0	0	125	37	4	0	139	0	0	0
Future Vol, veh/h	0	56	0	0	125	37	4	0	139	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	0	35	0	0	5	17	0	0	3	0	0	0
Mvmt Flow	0	77	0	0	171	51	5	0	190	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	222	0	-	-	-	0	274	299	77
Stage 1	-	-	-	-	-	-	77	77	-
Stage 2	-	-	-	-	-	-	197	222	-
Critical Hdwy	4.1	-	-	-	-	-	6.4	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.327
Pot Cap-1 Maneuver	1359	-	0	0	-	-	720	616	981
Stage 1	-	-	0	0	-	-	951	835	-
Stage 2	-	-	0	0	-	-	841	723	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1359	-	-	-	-	-	720	0	981
Mov Cap-2 Maneuver	-	-	-	-	-	-	720	0	-
Stage 1	-	-	-	-	-	-	951	0	-
Stage 2	-	-	-	-	-	-	841	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	971	1359	-	-	-
HCM Lane V/C Ratio	0.202	-	-	-	-
HCM Control Delay (s)	9.6	0	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0.8	0	-	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑	⋎	
Traffic Vol, veh/h	145	50	104	132	29	105
Future Vol, veh/h	145	50	104	132	29	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	275	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	3	33	7	7	0	2
Mvmt Flow	177	61	127	161	35	128

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	177	0	592	177
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	415	-
Critical Hdwy	-	-	4.17	-	6.4	6.22
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.263	-	3.5	3.318
Pot Cap-1 Maneuver	-	-	1369	-	472	866
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	671	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1369	-	428	866
Mov Cap-2 Maneuver	-	-	-	-	428	-
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	609	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.5	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	709	-	-	1369	-
HCM Lane V/C Ratio	0.23	-	-	0.093	-
HCM Control Delay (s)	11.6	-	-	7.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0.3	-

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	31	62	15	42	82
Future Vol, veh/h	14	31	62	15	42	82
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	67	67	67	67	67	67
Heavy Vehicles, %	50	0	0	50	0	0
Mvmt Flow	21	46	93	22	63	122

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	352	104	0	0	115	0
Stage 1	104	-	-	-	-	-
Stage 2	248	-	-	-	-	-
Critical Hdwy	6.9	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.95	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	560	956	-	-	1487	-
Stage 1	813	-	-	-	-	-
Stage 2	693	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	535	956	-	-	1487	-
Mov Cap-2 Maneuver	535	-	-	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	662	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	2.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	768	1487	-
HCM Lane V/C Ratio	-	-	0.087	0.042	-
HCM Control Delay (s)	-	-	10.1	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

202

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	2	75	12	2	94
Future Vol, veh/h	6	2	75	12	2	94
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	73	73	73	73	73	73
Heavy Vehicles, %	67	0	40	25	0	35
Mvmt Flow	8	3	103	16	3	129

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	245	111	0	0	119	0
Stage 1	111	-	-	-	-	-
Stage 2	134	-	-	-	-	-
Critical Hdwy	7.07	6.2	-	-	4.1	-
Critical Hdwy Stg 1	6.07	-	-	-	-	-
Critical Hdwy Stg 2	6.07	-	-	-	-	-
Follow-up Hdwy	4.103	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	622	948	-	-	1482	-
Stage 1	775	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	621	948	-	-	1482	-
Mov Cap-2 Maneuver	621	-	-	-	-	-
Stage 1	775	-	-	-	-	-
Stage 2	753	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	680	1482	-
HCM Lane V/C Ratio	-	-	0.016	0.002	-
HCM Control Delay (s)	-	-	10.4	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

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	14	0	52	27	35	0	0	79	22
Future Vol, veh/h	0	0	0	14	0	52	27	35	0	0	79	22
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	40	0	19	37	64	0	0	33	71
Mvmt Flow	0	0	0	18	0	68	35	45	0	0	103	29

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	233	247	45	131	0	-	-	-	0
Stage 1	116	116	-	-	-	-	-	-	-
Stage 2	117	131	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.39	4.47	-	-	-	-	-
Critical Hdwy Stg 1	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.86	4	3.471	2.533	-	-	-	-	-
Pot Cap-1 Maneuver	649	659	978	1264	-	0	0	-	-
Stage 1	804	803	-	-	-	0	0	-	-
Stage 2	803	792	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	635	641	978	1264	-	-	-	-	-
Mov Cap-2 Maneuver	635	641	-	-	-	-	-	-	-
Stage 1	781	781	-	-	-	-	-	-	-
Stage 2	803	792	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	3.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1264	-	877	-	-
HCM Lane V/C Ratio	0.028	-	0.098	-	-
HCM Control Delay (s)	7.9	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	0	26	0	0	0	0	32	16	57	36	0
Future Vol, veh/h	31	0	26	0	0	0	0	32	16	57	36	0
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	57	0	17	0	0	0	0	39	36	36	23	0
Mvmt Flow	39	0	33	0	0	0	0	40	20	71	45	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	238	248	45	-	0	0	60	0	0
Stage 1	188	188	-	-	-	-	-	-	-
Stage 2	50	60	-	-	-	-	-	-	-
Critical Hdwy	6.97	6.5	6.37	-	-	-	4.46	-	-
Critical Hdwy Stg 1	5.97	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.97	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.013	4	3.453	-	-	-	2.524	-	-
Pot Cap-1 Maneuver	644	658	984	0	-	-	1352	-	0
Stage 1	728	748	-	0	-	-	-	-	0
Stage 2	849	849	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	609	0	984	-	-	-	1352	-	-
Mov Cap-2 Maneuver	609	0	-	-	-	-	-	-	-
Stage 1	689	0	-	-	-	-	-	-	-
Stage 2	849	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0	4.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	737	1352	-
HCM Lane V/C Ratio	-	-	0.097	0.053	-
HCM Control Delay (s)	-	-	10.4	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Traffic Vol, veh/h	45	12	4	0	0	41
Future Vol, veh/h	45	12	4	0	0	41
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	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	180	48	16	0	0	164

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	16	0	-	0	424	16
Stage 1	-	-	-	-	16	-
Stage 2	-	-	-	-	408	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1615	-	-	-	591	1069
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1615	-	-	-	523	1069
Mov Cap-2 Maneuver	-	-	-	-	523	-
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	598	-

Approach	EB	WB	SB
HCM Control Delay, s	5.9	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1615	-	-	-	1069
HCM Lane V/C Ratio	0.111	-	-	-	0.153
HCM Control Delay (s)	7.5	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.4	-	-	-	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	129	0	0	0	0	0	56	1	0
Future Volume (Veh/h)	0	0	0	129	0	0	0	0	0	56	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	0	0	0	193	0	0	0	0	0	84	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			0			386	386	0	386	386	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			386	386	0	386	386	0
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.4	7.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.8	4.9	3.3
p0 queue free %	100			88			100	100	100	82	100	100
cM capacity (veh/h)	1636			1597			521	485	1091	471	372	1091

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	193	85
Volume Left	0	193	84
Volume Right	0	0	0
cSH	1700	1597	469
Volume to Capacity	0.00	0.12	0.18
Queue Length 95th (ft)	0	10	16
Control Delay (s)	0.0	7.6	14.4
Lane LOS		A	B
Approach Delay (s)	0.0	7.6	14.4
Approach LOS			B

Intersection Summary			
Average Delay	9.6		
Intersection Capacity Utilization	17.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	56	0	0	125	37	4	0	139	0	0	0
Future Volume (Veh/h)	0	56	0	0	125	37	4	0	139	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	0	77	0	0	171	51	5	0	190	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	222			77			274	299	77	464	274	196
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	222			77			274	299	77	464	274	196
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	81	100	100	100
cM capacity (veh/h)	1359			1535			683	616	981	413	637	850

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	77	222	195
Volume Left	0	0	5
Volume Right	0	51	190
cSH	1359	1700	970
Volume to Capacity	0.00	0.13	0.20
Queue Length 95th (ft)	0	0	19
Control Delay (s)	0.0	0.0	9.6
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.6
Approach LOS			A

Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	24.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	145	50	104	132	29	105
Future Volume (Veh/h)	145	50	104	132	29	105
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	177	61	127	161	35	128
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			238		592	177
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			238		592	177
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			90		92	85
cM capacity (veh/h)			1300		426	866

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	177	61	127	161	163
Volume Left	0	0	127	0	35
Volume Right	0	61	0	0	128
cSH	1700	1700	1300	1700	709
Volume to Capacity	0.10	0.04	0.10	0.09	0.23
Queue Length 95th (ft)	0	0	8	0	22
Control Delay (s)	0.0	0.0	8.1	0.0	11.6
Lane LOS			A		B
Approach Delay (s)	0.0		3.6		11.6
Approach LOS					B

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	31	62	15	42	82
Future Volume (Veh/h)	14	31	62	15	42	82
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	21	46	93	22	63	122
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	352	104			115	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	352	104			115	
tC, single (s)	6.9	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3			2.2	
p0 queue free %	96	95			96	
cM capacity (veh/h)	536	956			1487	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	67	115	185
Volume Left	21	0	63
Volume Right	46	22	0
cSH	768	1700	1487
Volume to Capacity	0.09	0.07	0.04
Queue Length 95th (ft)	7	0	3
Control Delay (s)	10.1	0.0	2.8
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	2.8
Approach LOS	B		

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	2	75	12	2	94
Future Volume (Veh/h)	6	2	75	12	2	94
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	8	3	103	16	3	129
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	246	111			119	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	246	111			119	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	619	948			1482	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	11	119	132
Volume Left	8	0	3
Volume Right	3	16	0
cSH	684	1700	1482
Volume to Capacity	0.02	0.07	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	10.3	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	10.3	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	14	0	52	27	35	0	0	79	22
Future Volume (Veh/h)	0	0	0	14	0	52	27	35	0	0	79	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	0	0	0	18	0	68	35	45	0	0	103	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	300	232	118	232	247	45	132			45		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	300	232	118	232	247	45	132			45		
tC, single (s)	7.1	6.5	6.2	7.5	6.5	6.4	4.5			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.9	4.0	3.5	2.5			2.2		
p0 queue free %	100	100	100	97	100	93	97			100		
cM capacity (veh/h)	597	653	940	635	641	978	1263			1576		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	86	80	132
Volume Left	18	35	0
Volume Right	68	0	29
cSH	879	1263	1700
Volume to Capacity	0.10	0.03	0.08
Queue Length 95th (ft)	8	2	0
Control Delay (s)	9.5	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	9.5	3.6	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	20.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	0	26	0	0	0	0	32	16	57	36	0
Future Volume (Veh/h)	31	0	26	0	0	0	0	32	16	57	36	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	39	0	33	0	0	0	0	40	20	71	45	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	237	247	45	270	237	50	45			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	237	247	45	270	237	50	45			60		
tC, single (s)	7.7	6.5	6.4	7.1	6.5	6.2	4.1			4.5		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.5	3.5	4.0	3.3	2.2			2.5		
p0 queue free %	93	100	97	100	100	100	100			95		
cM capacity (veh/h)	591	624	984	637	632	1024	1576			1352		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	72	60	116
Volume Left	39	0	71
Volume Right	33	20	0
cSH	724	1700	1352
Volume to Capacity	0.10	0.04	0.05
Queue Length 95th (ft)	8	0	4
Control Delay (s)	10.5	0.0	4.9
Lane LOS	B		A
Approach Delay (s)	10.5	0.0	4.9
Approach LOS	B		

Intersection Summary				
Average Delay	5.4			
Intersection Capacity Utilization	21.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	12	4	0	0	41
Future Volume (Veh/h)	45	12	4	0	0	41
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25
Hourly flow rate (vph)	180	48	16	0	0	164
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	16				424	16
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16				424	16
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				100	85
cM capacity (veh/h)	1615				525	1069

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	228	16	164
Volume Left	180	0	0
Volume Right	0	0	164
cSH	1615	1700	1069
Volume to Capacity	0.11	0.01	0.15
Queue Length 95th (ft)	9	0	14
Control Delay (s)	6.1	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	6.1	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	7.0		
Intersection Capacity Utilization	19.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	147	0	0	0	0	0	31	3	0
Future Vol, veh/h	0	0	0	147	0	0	0	0	0	31	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	6	0	0	0	0	0	56	50	0
Mvmt Flow	0	0	0	199	0	0	0	0	0	42	4	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	0	0	0	397	397	0
Stage 1	-	-	-	-	-	-	397	397	-
Stage 2	-	-	-	-	-	-	0	0	-
Critical Hdwy	-	-	-	4.16	-	-	6.96	7	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.96	6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.96	6	-
Follow-up Hdwy	-	-	-	2.254	-	-	4.004	4.45	3.3
Pot Cap-1 Maneuver	0	-	-	-	-	0	516	473	-
Stage 1	0	-	-	-	-	0	576	528	-
Stage 2	0	-	-	-	-	0	-	-	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	-	-	-	516	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	516	0	-
Stage 1	-	-	-	-	-	-	576	0	-
Stage 2	-	-	-	-	-	-	-	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0		
HCM LOS			-

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			↕				
Traffic Vol, veh/h	0	31	0	0	147	37	0	0	251	0	0	0
Future Vol, veh/h	0	31	0	0	147	37	0	0	251	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	56	0	0	4	31	0	0	7	0	0	0
Mvmt Flow	0	37	0	0	177	45	0	0	302	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	222	0	-	-	-	0	236	259	37
Stage 1	-	-	-	-	-	-	37	37	-
Stage 2	-	-	-	-	-	-	199	222	-
Critical Hdwy	4.1	-	-	-	-	-	6.4	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.363
Pot Cap-1 Maneuver	1359	-	0	0	-	-	757	649	1021
Stage 1	-	-	0	0	-	-	991	868	-
Stage 2	-	-	0	0	-	-	839	723	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1359	-	-	-	-	-	757	0	1021
Mov Cap-2 Maneuver	-	-	-	-	-	-	757	0	-
Stage 1	-	-	-	-	-	-	991	0	-
Stage 2	-	-	-	-	-	-	839	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	1021	1359	-	-	-
HCM Lane V/C Ratio	0.296	-	-	-	-
HCM Control Delay (s)	10	0	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	1.2	0	-	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑	⋎	
Traffic Vol, veh/h	255	26	82	149	36	127
Future Vol, veh/h	255	26	82	149	36	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	275	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	6	47	22	5	17	13
Mvmt Flow	283	29	91	166	40	141

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	283	0	631	283
Stage 1	-	-	-	-	283	-
Stage 2	-	-	-	-	348	-
Critical Hdwy	-	-	4.32	-	6.57	6.33
Critical Hdwy Stg 1	-	-	-	-	5.57	-
Critical Hdwy Stg 2	-	-	-	-	5.57	-
Follow-up Hdwy	-	-	2.398	-	3.653	3.417
Pot Cap-1 Maneuver	-	-	1173	-	422	730
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	683	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1173	-	389	730
Mov Cap-2 Maneuver	-	-	-	-	389	-
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	630	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	612	-	-	1173	-
HCM Lane V/C Ratio	0.296	-	-	0.078	-
HCM Control Delay (s)	13.3	-	-	8.3	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.2	-	-	0.3	-

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	58	78	7	18	72
Future Vol, veh/h	21	58	78	7	18	72
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	58	58	58	58	58	58
Heavy Vehicles, %	25	14	0	50	0	0
Mvmt Flow	36	100	134	12	31	124

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	327	141	0	0	147	0
Stage 1	141	-	-	-	-	-
Stage 2	186	-	-	-	-	-
Critical Hdwy	6.65	6.34	-	-	4.1	-
Critical Hdwy Stg 1	5.65	-	-	-	-	-
Critical Hdwy Stg 2	5.65	-	-	-	-	-
Follow-up Hdwy	3.725	3.426	-	-	2.2	-
Pot Cap-1 Maneuver	623	876	-	-	1447	-
Stage 1	832	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	609	876	-	-	1447	-
Mov Cap-2 Maneuver	609	-	-	-	-	-
Stage 1	832	-	-	-	-	-
Stage 2	775	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	785	1447	-
HCM Lane V/C Ratio	-	-	0.174	0.021	-
HCM Control Delay (s)	-	-	10.5	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	2	83	2	3	90
Future Vol, veh/h	2	2	83	2	3	90
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	78	78	78	78	78	78
Heavy Vehicles, %	0	0	38	0	0	40
Mvmt Flow	3	3	106	3	4	115

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	231	108	0	0	109	0
Stage 1	108	-	-	-	-	-
Stage 2	123	-	-	-	-	-
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	762	951	-	-	1494	-
Stage 1	921	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	760	951	-	-	1494	-
Mov Cap-2 Maneuver	760	-	-	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	904	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	845	1494	-
HCM Lane V/C Ratio	-	-	0.006	0.003	-
HCM Control Delay (s)	-	-	9.3	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	12	7	51	23	34	0	0	70	22
Future Vol, veh/h	0	0	0	12	7	51	23	34	0	0	70	22
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	44	20	48	31	17	0	0	41	23
Mvmt Flow	0	0	0	16	9	66	30	44	0	0	91	29

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	209	223	44	119	0	-	-	-	0
Stage 1	104	104	-	-	-	-	-	-	-
Stage 2	105	119	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.7	6.68	4.41	-	-	-	-	-
Critical Hdwy Stg 1	5.84	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3.896	4.18	3.732	2.479	-	-	-	-	-
Pot Cap-1 Maneuver	694	645	909	1307	-	0	0	-	-
Stage 1	825	775	-	-	-	0	0	-	-
Stage 2	824	764	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	677	0	909	1307	-	-	-	-	-
Mov Cap-2 Maneuver	677	0	-	-	-	-	-	-	-
Stage 1	805	0	-	-	-	-	-	-	-
Stage 2	824	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	3.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1307	-	853	-	-
HCM Lane V/C Ratio	0.023	-	0.107	-	-
HCM Control Delay (s)	7.8	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↳			↕	
Traffic Vol, veh/h	21	1	34	0	0	0	0	36	21	49	33	0
Future Vol, veh/h	21	1	34	0	0	0	0	36	21	49	33	0
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	21	100	50	0	0	0	0	40	33	54	35	0
Mvmt Flow	30	1	49	0	0	0	0	52	30	71	48	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	257	273	48	-	0	0	83	0	0
Stage 1	190	190	-	-	-	-	-	-	-
Stage 2	67	83	-	-	-	-	-	-	-
Critical Hdwy	6.61	7.5	6.7	-	-	-	4.64	-	-
Critical Hdwy Stg 1	5.61	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.61	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.689	4.9	3.75	-	-	-	2.686	-	-
Pot Cap-1 Maneuver	692	498	900	0	-	-	1242	-	0
Stage 1	799	592	-	0	-	-	-	-	0
Stage 2	910	669	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	651	0	900	-	-	-	1242	-	-
Mov Cap-2 Maneuver	651	0	-	-	-	-	-	-	-
Stage 1	752	0	-	-	-	-	-	-	-
Stage 2	910	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0	4.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	785	1242	-
HCM Lane V/C Ratio	-	-	0.103	0.057	-
HCM Control Delay (s)	-	-	10.1	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	3	11	0	0	68
Future Vol, veh/h	18	3	11	0	0	68
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	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	72	12	44	0	0	272

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	44	0	-	0	200	44
Stage 1	-	-	-	-	44	-
Stage 2	-	-	-	-	156	-
Critical Hdwy	4.1	-	-	-	7.1	6.2
Critical Hdwy Stg 1	-	-	-	-	6.1	-
Critical Hdwy Stg 2	-	-	-	-	6.1	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1577	-	-	-	763	1032
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	851	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1577	-	-	-	736	1032
Mov Cap-2 Maneuver	-	-	-	-	736	-
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	812	-

Approach	EB	WB	SB
HCM Control Delay, s	6.3	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1577	-	-	-	1032
HCM Lane V/C Ratio	0.046	-	-	-	0.264
HCM Control Delay (s)	7.4	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	147	0	0	0	0	0	31	3	0
Future Volume (Veh/h)	0	0	0	147	0	0	0	0	0	31	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	0	0	0	199	0	0	0	0	0	42	4	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			0			400	398	0	398	398	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			400	398	0	398	398	0
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.7	7.0	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	4.0	4.5	3.3
p0 queue free %	100			88			100	100	100	90	99	100
cM capacity (veh/h)	1636			1597			507	475	1091	432	414	1091

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	199	46
Volume Left	0	199	42
Volume Right	0	0	0
cSH	1700	1597	430
Volume to Capacity	0.00	0.12	0.11
Queue Length 95th (ft)	0	11	9
Control Delay (s)	0.0	7.6	14.4
Lane LOS		A	B
Approach Delay (s)	0.0	7.6	14.4
Approach LOS			B

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	31	0	0	147	37	0	0	251	0	0	0
Future Volume (Veh/h)	0	31	0	0	147	37	0	0	251	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	0	37	0	0	177	45	0	0	302	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	222			37			236	259	37	538	236	200
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	222			37			236	259	37	538	236	200
tC, single (s)	4.1			4.1			7.1	6.5	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			100			100	100	70	100	100	100
cM capacity (veh/h)	1359			1587			722	649	1021	322	668	847

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	37	222	302
Volume Left	0	0	0
Volume Right	0	45	302
cSH	1359	1700	1021
Volume to Capacity	0.00	0.13	0.30
Queue Length 95th (ft)	0	0	31
Control Delay (s)	0.0	0.0	10.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	10.0
Approach LOS			A

Intersection Summary				
Average Delay	5.4			
Intersection Capacity Utilization	32.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	255	26	82	149	36	127
Future Volume (Veh/h)	255	26	82	149	36	127
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	283	29	91	166	40	141
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			312		631	283
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			312		631	283
tC, single (s)			4.3		6.6	6.3
tC, 2 stage (s)						
tF (s)			2.4		3.7	3.4
p0 queue free %			92		90	81
cM capacity (veh/h)			1143		388	730

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	283	29	91	166	181
Volume Left	0	0	91	0	40
Volume Right	0	29	0	0	141
cSH	1700	1700	1143	1700	611
Volume to Capacity	0.17	0.02	0.08	0.10	0.30
Queue Length 95th (ft)	0	0	6	0	31
Control Delay (s)	0.0	0.0	8.4	0.0	13.3
Lane LOS			A		B
Approach Delay (s)	0.0		3.0		13.3
Approach LOS					B

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	37.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	58	78	7	18	72
Future Volume (Veh/h)	21	58	78	7	18	72
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	36	100	134	12	31	124
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	326	140			146	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	326	140			146	
tC, single (s)	6.6	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.2	
p0 queue free %	94	89			98	
cM capacity (veh/h)	610	877			1448	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	136	146	155
Volume Left	36	0	31
Volume Right	100	12	0
cSH	786	1700	1448
Volume to Capacity	0.17	0.09	0.02
Queue Length 95th (ft)	16	0	2
Control Delay (s)	10.5	0.0	1.6
Lane LOS	B		A
Approach Delay (s)	10.5	0.0	1.6
Approach LOS	B		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	2	83	2	3	90
Future Volume (Veh/h)	2	2	83	2	3	90
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	3	3	106	3	4	115
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	230	108			109	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	230	108			109	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	760	952			1494	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	6	109	119
Volume Left	3	0	4
Volume Right	3	3	0
cSH	845	1700	1494
Volume to Capacity	0.01	0.06	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.3	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.3	0.0	0.3
Approach LOS	A		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	17.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	12	7	51	23	34	0	0	70	22
Future Volume (Veh/h)	0	0	0	12	7	51	23	34	0	0	70	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	0	0	0	16	9	66	30	44	0	0	91	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	280	210	106	210	224	44	120			44		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	280	210	106	210	224	44	120			44		
tC, single (s)	7.1	6.5	6.2	7.5	6.7	6.7	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.9	4.2	3.7	2.5			2.2		
p0 queue free %	100	100	100	98	99	93	98			100		
cM capacity (veh/h)	610	675	954	654	630	909	1306			1577		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	91	74	120
Volume Left	16	30	0
Volume Right	66	0	29
cSH	817	1306	1700
Volume to Capacity	0.11	0.02	0.07
Queue Length 95th (ft)	9	2	0
Control Delay (s)	10.0	3.3	0.0
Lane LOS	A	A	
Approach Delay (s)	10.0	3.3	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	20.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	1	34	0	0	0	0	36	21	49	33	0
Future Volume (Veh/h)	21	1	34	0	0	0	0	36	21	49	33	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	30	1	49	0	0	0	0	52	30	71	48	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	257	272	48	306	257	67	48			82		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	257	272	48	306	257	67	48			82		
tC, single (s)	7.3	7.5	6.7	7.1	6.5	6.2	4.1			4.6		
tC, 2 stage (s)												
tF (s)	3.7	4.9	3.8	3.5	4.0	3.3	2.2			2.7		
p0 queue free %	95	100	95	100	100	100	100			94		
cM capacity (veh/h)	630	470	900	587	613	1002	1572			1243		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	80	82	119
Volume Left	30	0	71
Volume Right	49	30	0
cSH	768	1700	1243
Volume to Capacity	0.10	0.05	0.06
Queue Length 95th (ft)	9	0	5
Control Delay (s)	10.2	0.0	5.0
Lane LOS	B		A
Approach Delay (s)	10.2	0.0	5.0
Approach LOS	B		

Intersection Summary				
Average Delay	5.0			
Intersection Capacity Utilization	21.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	3	11	0	0	68
Future Volume (Veh/h)	18	3	11	0	0	68
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25
Hourly flow rate (vph)	72	12	44	0	0	272
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	44				200	44
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44				200	44
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	74
cM capacity (veh/h)	1577				757	1032

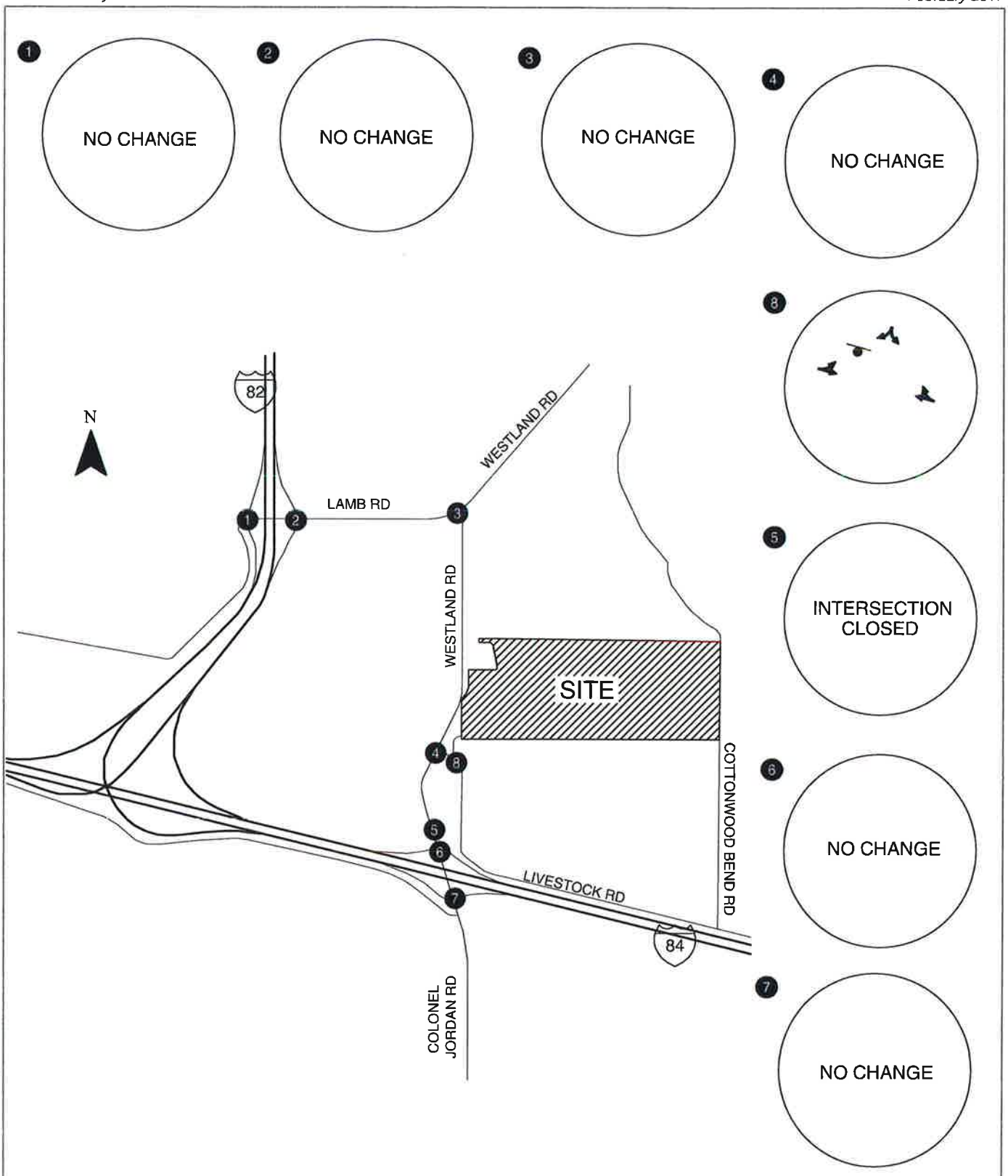
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	84	44	272
Volume Left	72	0	0
Volume Right	0	0	272
cSH	1577	1700	1032
Volume to Capacity	0.05	0.03	0.26
Queue Length 95th (ft)	4	0	27
Control Delay (s)	6.4	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	6.4	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	18.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix G

Livestock Road Realignment

Traffic Assignment



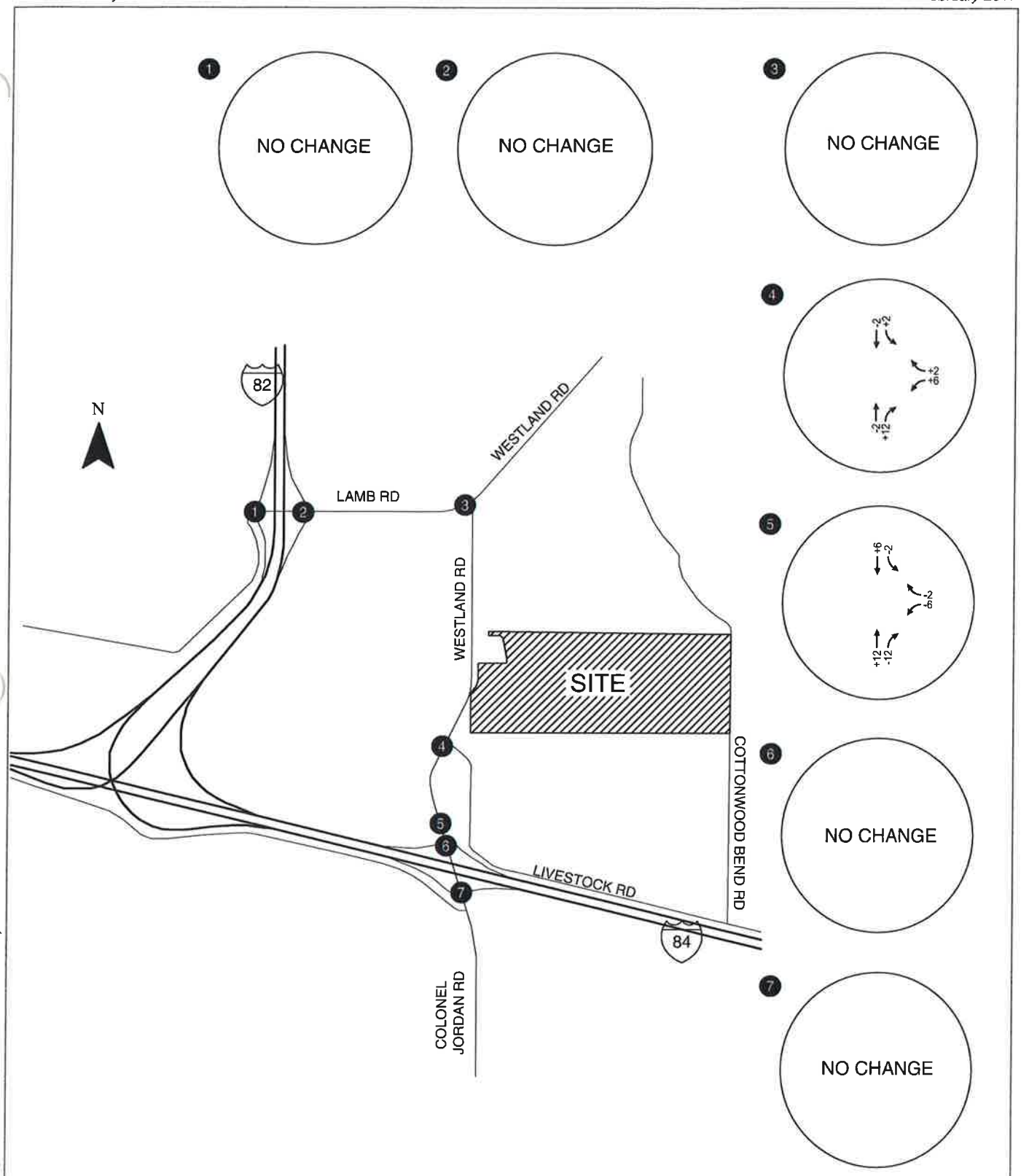
- STOP SIGN
- SITE IMPROVEMENT
- EXISTING

2031 Assumed Lane and Site Improvements with Livestock Road Realignment Umatilla County, Oregon

Figure G1

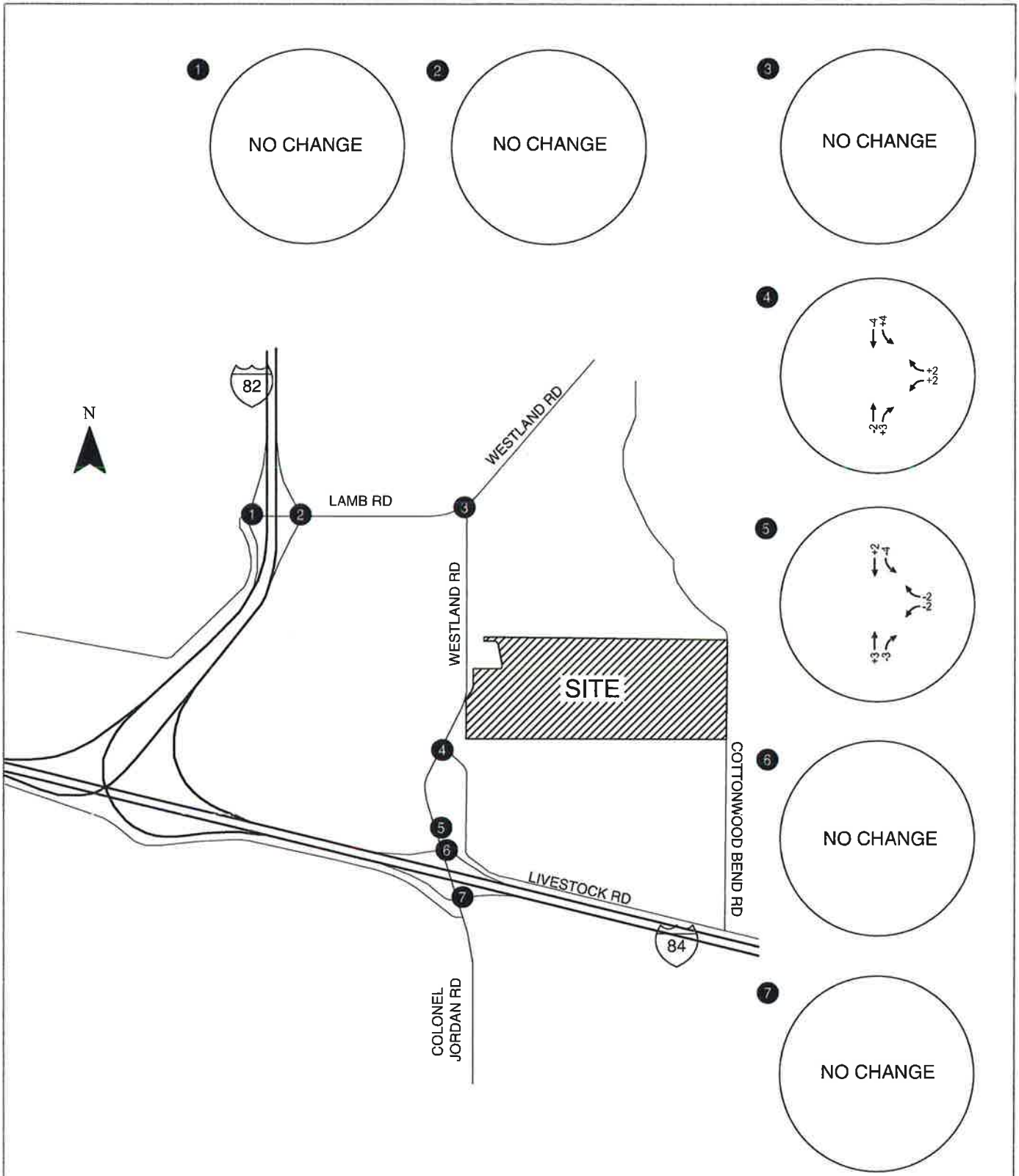
C:\Users\kcavness\Desktop\20656_FIGS.dwg Feb 22, 2017 - 2:16pm kcavness Layout Tab: G1

KITTELSON & ASSOCIATES



2031 AM Background Trip Rerouting with Livestock Road Realignment
Umatilla County, Oregon

Figure G2



2031 PM Background Trip Rerouting with Livestock Road Realignment
Umatilla County, Oregon

Figure G3

C:\Users\kcavness\Desktop\20856_FIGS.dwg Feb 22, 2017 - 2:18pm - kcavness Layout Tab: G3

KITTELSON & ASSOCIATES

Appendix H

Year 2031 Background Traffic
Level-of-Service Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	167	0	0	0	0	0	58	2	0
Future Volume (Veh/h)	0	0	0	167	0	0	0	0	0	58	2	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	182	0	0	0	0	0	63	2	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			0			365	364	0	364	364	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			365	364	0	364	364	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			89			100	100	100	88	100	100
cM capacity (veh/h)	1636			1636			543	504	1091	545	504	1091

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	182	65
Volume Left	0	182	63
Volume Right	0	0	0
cSH	1700	1636	544
Volume to Capacity	0.00	0.11	0.12
Queue Length 95th (ft)	0	9	10
Control Delay (s)	0.0	7.5	12.5
Lane LOS		A	B
Approach Delay (s)	0.0	7.5	12.5
Approach LOS			B

Intersection Summary				
Average Delay	8.8			
Intersection Capacity Utilization	19.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	58	0	0	161	34	5	0	180	0	0	0
Future Vol, veh/h	0	58	0	0	161	34	5	0	180	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	63	0	0	175	37	5	0	196	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	212	0	-	-	-	0	256	275	63
Stage 1	-	-	-	-	-	-	63	63	-
Stage 2	-	-	-	-	-	-	193	212	-
Critical Hdwy	4.1	-	-	-	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1370	-	0	0	-	-	737	636	1007
Stage 1	-	-	0	0	-	-	965	846	-
Stage 2	-	-	0	0	-	-	845	731	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1370	-	-	-	-	-	737	0	1007
Mov Cap-2 Maneuver	-	-	-	-	-	-	737	0	-
Stage 1	-	-	-	-	-	-	965	0	-
Stage 2	-	-	-	-	-	-	845	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	997	1370	-	-	-
HCM Lane V/C Ratio	0.202	-	-	-	-
HCM Control Delay (s)	9.5	0	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0.8	0	-	-	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	187	50	105	170	25	108
Future Volume (Veh/h)	187	50	105	170	25	108
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	203	54	114	185	27	117
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			257		616	203
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			257		616	203
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		94	86
cM capacity (veh/h)			1320		418	843

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	203	54	114	185	144
Volume Left	0	0	114	0	27
Volume Right	0	54	0	0	117
cSH	1700	1700	1320	1700	708
Volume to Capacity	0.12	0.03	0.09	0.11	0.20
Queue Length 95th (ft)	0	0	7	0	19
Control Delay (s)	0.0	0.0	8.0	0.0	11.4
Lane LOS			A		B
Approach Delay (s)	0.0		3.0		11.4
Approach LOS					B

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	2	76	22	15	104
Future Volume (Veh/h)	10	2	76	22	15	104
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	2	83	24	16	113
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	240	95			107	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	240	95			107	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			99	
cM capacity (veh/h)	745	967			1497	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	13	107	129
Volume Left	11	0	16
Volume Right	2	24	0
cSH	772	1700	1497
Volume to Capacity	0.02	0.06	0.01
Queue Length 95th (ft)	1	0	1
Control Delay (s)	9.7	0.0	1.0
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	1.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	18	0	55	35	43	0	0	88	26
Future Vol, veh/h	0	0	0	18	0	55	35	43	0	0	88	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	20	0	60	38	47	0	0	96	28

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	233	247	47	124	0	-	-	-	0
Stage 1	123	123	-	-	-	-	-	-	-
Stage 2	110	124	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	4.1	-	-	-	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	760	659	1028	1475	-	0	0	-	-
Stage 1	907	798	-	-	-	0	0	-	-
Stage 2	920	797	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	740	0	1028	1475	-	-	-	-	-
Mov Cap-2 Maneuver	740	0	-	-	-	-	-	-	-
Stage 1	883	0	-	-	-	-	-	-	-
Stage 2	920	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	3.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1475	-	938	-	-
HCM Lane V/C Ratio	0.026	-	0.085	-	-
HCM Control Delay (s)	7.5	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

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	37	0	33	0	0	0	0	41	20	63	44	0
Future Vol, veh/h	37	0	33	0	0	0	0	41	20	63	44	0
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	40	0	36	0	0	0	0	45	22	68	48	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	240	251	48	-	0	0	66	0	0
Stage 1	185	185	-	-	-	-	-	-	-
Stage 2	55	66	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	753	656	1027	0	-	-	1549	-	0
Stage 1	852	751	-	0	-	-	-	-	0
Stage 2	973	844	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	719	0	1027	-	-	-	1549	-	-
Mov Cap-2 Maneuver	719	0	-	-	-	-	-	-	-
Stage 1	814	0	-	-	-	-	-	-	-
Stage 2	973	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0	4.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	837	1549	-
HCM Lane V/C Ratio	-	-	0.091	0.044	-
HCM Control Delay (s)	-	-	9.7	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	191	0	0	0	0	0	34	4	0
Future Volume (Veh/h)	0	0	0	191	0	0	0	0	0	34	4	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	208	0	0	0	0	0	37	4	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			0			418	416	0	416	416	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			418	416	0	416	416	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			87			100	100	100	93	99	100
cM capacity (veh/h)	1636			1636			492	463	1091	497	463	1091

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	208	41
Volume Left	0	208	37
Volume Right	0	0	0
cSH	1700	1636	493
Volume to Capacity	0.00	0.13	0.08
Queue Length 95th (ft)	0	11	7
Control Delay (s)	0.0	7.5	13.0
Lane LOS		A	B
Approach Delay (s)	0.0	7.5	13.0
Approach LOS			B

Intersection Summary					
Average Delay	8.4				
Intersection Capacity Utilization	20.6%	ICU Level of Service		A	
Analysis Period (min)	15				

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	34	0	0	191	26	0	0	324	0	0	0
Future Vol, veh/h	0	34	0	0	191	26	0	0	324	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	37	0	0	208	28	0	0	352	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	236	0	-	-	-	0	259	273	37
Stage 1	-	-	-	-	-	-	37	37	-
Stage 2	-	-	-	-	-	-	222	236	-
Critical Hdwy	4.1	-	-	-	-	-	6.4	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1343	-	0	0	-	-	734	637	1041
Stage 1	-	-	0	0	-	-	991	868	-
Stage 2	-	-	0	0	-	-	820	713	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1343	-	-	-	-	-	734	0	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	734	0	-
Stage 1	-	-	-	-	-	-	991	0	-
Stage 2	-	-	-	-	-	-	820	0	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	1041	1343	-	-	-
HCM Lane V/C Ratio	0.338	-	-	-	-
HCM Control Delay (s)	10.2	0	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	1.5	0	-	-	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	330	28	94	192	24	119
Future Volume (Veh/h)	330	28	94	192	24	119
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	359	30	102	209	26	129
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			389		772	359
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			389		772	359
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		92	81
cM capacity (veh/h)			1181		339	690

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	359	30	102	209	155
Volume Left	0	0	102	0	26
Volume Right	0	30	0	0	129
cSH	1700	1700	1181	1700	588
Volume to Capacity	0.21	0.02	0.09	0.12	0.26
Queue Length 95th (ft)	0	0	7	0	26
Control Delay (s)	0.0	0.0	8.3	0.0	13.3
Lane LOS			A		B
Approach Delay (s)	0.0		2.7		13.3
Approach LOS					B

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	9	99	5	5	90
Future Volume (Veh/h)	6	9	99	5	5	90
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	10	108	5	5	98
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	218	110			113	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	218	110			113	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			100	
cM capacity (veh/h)	772	948			1489	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	113	103
Volume Left	7	0	5
Volume Right	10	5	0
cSH	867	1700	1489
Volume to Capacity	0.02	0.07	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	9.2	0.0	0.4
Lane LOS	A		A
Approach Delay (s)	9.2	0.0	0.4
Approach LOS	A		

Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		18.8%	ICU Level of Service A
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	16	9	62	29	42	0	0	72	24
Future Vol, veh/h	0	0	0	16	9	62	29	42	0	0	72	24
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	17	10	67	32	46	0	0	78	26

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	200	213	46	104	0	-	-	-	0
Stage 1	109	109	-	-	-	-	-	-	-
Stage 2	91	104	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	4.1	-	-	-	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	793	688	1029	1500	-	0	0	-	-
Stage 1	921	809	-	-	-	0	0	-	-
Stage 2	938	813	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	776	0	1029	1500	-	-	-	-	-
Mov Cap-2 Maneuver	776	0	-	-	-	-	-	-	-
Stage 1	901	0	-	-	-	-	-	-	-
Stage 2	938	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1500	-	964	-	-
HCM Lane V/C Ratio	0.021	-	0.098	-	-
HCM Control Delay (s)	7.5	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↳			↰	
Traffic Vol, veh/h	26	2	44	0	0	0	0	46	27	44	44	0
Future Vol, veh/h	26	2	44	0	0	0	0	46	27	44	44	0
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	28	2	48	0	0	0	0	50	29	48	48	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	208	222	48	-	0	0	79	0	0
Stage 1	143	143	-	-	-	-	-	-	-
Stage 2	65	79	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	785	680	1027	0	-	-	1532	-	0
Stage 1	889	782	-	0	-	-	-	-	0
Stage 2	963	833	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	760	0	1027	-	-	-	1532	-	-
Mov Cap-2 Maneuver	760	0	-	-	-	-	-	-	-
Stage 1	861	0	-	-	-	-	-	-	-
Stage 2	963	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	908	1532	-
HCM Lane V/C Ratio	-	-	0.086	0.031	-
HCM Control Delay (s)	-	-	9.3	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Appendix I

Year 2031 Total Traffic

Level-of-Service Worksheets

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	167	0	0	0	0	0	69	2	0
Future Vol, veh/h	0	0	0	167	0	0	0	0	0	69	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	67	67	67	67	67	67
Heavy Vehicles, %	0	0	0	6	0	0	0	0	0	34	100	0
Mvmt Flow	0	0	0	249	0	0	0	0	0	103	3	0

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	0	0	0	499	499	0
Stage 1	-	-	-	-	-	-	499	499	-
Stage 2	-	-	-	-	-	-	0	0	-
Critical Hdwy	-	-	-	4.16	-	-	6.74	7.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.74	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.74	6.5	-
Follow-up Hdwy	-	-	-	2.254	-	-	3.806	4.9	3.3
Pot Cap-1 Maneuver	0	-	-	-	-	0	478	358	-
Stage 1	0	-	-	-	-	0	549	411	-
Stage 2	0	-	-	-	-	0	-	-	-
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	-	-	-	478	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	478	0	-
Stage 1	-	-	-	-	-	-	549	0	-
Stage 2	-	-	-	-	-	-	-	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0		
HCM LOS			-

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			↔				
Traffic Vol, veh/h	0	69	0	0	161	44	5	0	180	0	0	0
Future Vol, veh/h	0	69	0	0	161	44	5	0	180	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	0	35	0	0	5	17	0	0	3	0	0	0
Mvmt Flow	0	95	0	0	221	60	7	0	247	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	281	0	-	-	-	0	346	376	95
Stage 1	-	-	-	-	-	-	95	95	-
Stage 2	-	-	-	-	-	-	251	281	-
Critical Hdwy	4.1	-	-	-	-	-	6.4	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.4	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.327
Pot Cap-1 Maneuver	1293	-	0	0	-	-	655	558	959
Stage 1	-	-	0	0	-	-	934	820	-
Stage 2	-	-	0	0	-	-	795	682	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1293	-	-	-	-	-	655	0	959
Mov Cap-2 Maneuver	-	-	-	-	-	-	655	0	-
Stage 1	-	-	-	-	-	-	934	0	-
Stage 2	-	-	-	-	-	-	795	0	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	947	1293	-	-	-
HCM Lane V/C Ratio	0.268	-	-	-	-
HCM Control Delay (s)	10.2	0	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	1.1	0	-	-	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑	↰↱	
Traffic Vol, veh/h	187	61	128	170	35	129
Future Vol, veh/h	187	61	128	170	35	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	275	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	3	33	7	7	0	2
Mvmt Flow	228	74	156	207	43	157

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	228	0	748	228
Stage 1	-	-	-	-	228	-
Stage 2	-	-	-	-	520	-
Critical Hdwy	-	-	4.17	-	6.4	6.22
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.263	-	3.5	3.318
Pot Cap-1 Maneuver	-	-	1311	-	383	811
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	601	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1311	-	337	811
Mov Cap-2 Maneuver	-	-	-	-	337	-
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	529	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.5	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	624	-	-	1311	-
HCM Lane V/C Ratio	0.321	-	-	0.119	-
HCM Control Delay (s)	13.5	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.4	-	-	0.4	-

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	33	76	33	49	104
Future Vol, veh/h	20	33	76	33	49	104
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	67	67	67	67	67	67
Heavy Vehicles, %	50	0	0	50	0	0
Mvmt Flow	30	49	113	49	73	155

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	439	138	0	0	163	0
Stage 1	138	-	-	-	-	-
Stage 2	301	-	-	-	-	-
Critical Hdwy	6.9	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.95	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	495	916	-	-	1428	-
Stage 1	783	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	467	916	-	-	1428	-
Mov Cap-2 Maneuver	467	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	616	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	672	1428	-
HCM Lane V/C Ratio	-	-	0.118	0.051	-
HCM Control Delay (s)	-	-	11.1	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	18	0	64	35	45	0	0	96	28
Future Vol, veh/h	0	0	0	18	0	64	35	45	0	0	96	28
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	40	0	19	37	64	0	0	33	71
Mvmt Flow	0	0	0	23	0	83	45	58	0	0	125	36

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	292	310	58	161	0	-	-	-	0
Stage 1	149	149	-	-	-	-	-	-	-
Stage 2	143	161	-	-	-	-	-	-	-
Critical Hdwy	6.8	6.5	6.39	4.47	-	-	-	-	-
Critical Hdwy Stg 1	5.8	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.8	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.86	4	3.471	2.533	-	-	-	-	-
Pot Cap-1 Maneuver	626	608	962	1231	-	0	0	-	-
Stage 1	794	778	-	-	-	0	0	-	-
Stage 2	799	769	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	602	0	962	1231	-	-	-	-	-
Mov Cap-2 Maneuver	602	0	-	-	-	-	-	-	-
Stage 1	764	0	-	-	-	-	-	-	-
Stage 2	799	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	3.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1231	-	850	-	-
HCM Lane V/C Ratio	0.037	-	0.125	-	-
HCM Control Delay (s)	8	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	0	33	0	0	0	0	41	20	71	44	0
Future Vol, veh/h	39	0	33	0	0	0	0	41	20	71	44	0
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	57	0	17	0	0	0	0	39	36	36	23	0
Mvmt Flow	49	0	41	0	0	0	0	51	25	89	55	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	297	309	55	-	0	0	76	0	0
Stage 1	233	233	-	-	-	-	-	-	-
Stage 2	64	76	-	-	-	-	-	-	-
Critical Hdwy	6.97	6.5	6.37	-	-	-	4.46	-	-
Critical Hdwy Stg 1	5.97	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.97	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.013	4	3.453	-	-	-	2.524	-	-
Pot Cap-1 Maneuver	593	609	971	0	-	-	1333	-	0
Stage 1	692	716	-	0	-	-	-	-	0
Stage 2	836	836	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	552	0	971	-	-	-	1333	-	-
Mov Cap-2 Maneuver	552	0	-	-	-	-	-	-	-
Stage 1	644	0	-	-	-	-	-	-	-
Stage 2	836	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0	4.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	688	1333	-
HCM Lane V/C Ratio	-	-	0.131	0.067	-
HCM Control Delay (s)	-	-	11	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Vol, veh/h	45	36	12	0	0	41
Future Vol, veh/h	45	36	12	0	0	41
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	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	180	144	48	0	0	164

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	48	0	-	0	552	48
Stage 1	-	-	-	-	48	-
Stage 2	-	-	-	-	504	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1572	-	-	-	498	1027
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	611	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1572	-	-	-	436	1027
Mov Cap-2 Maneuver	-	-	-	-	436	-
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	535	-

Approach	EB	WB	SB
HCM Control Delay, s	4.2	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1572	-	-	-	1027
HCM Lane V/C Ratio	0.115	-	-	-	0.16
HCM Control Delay (s)	7.6	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.4	-	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	167	0	0	0	0	0	69	2	0
Future Volume (Veh/h)	0	0	0	167	0	0	0	0	0	69	2	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	0	0	0	249	0	0	0	0	0	103	3	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			0			500	498	0	498	498	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			500	498	0	498	498	0
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.4	7.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.8	4.9	3.3
p0 queue free %	100			84			100	100	100	73	99	100
cM capacity (veh/h)	1636			1597			424	402	1091	383	303	1091

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	249	106
Volume Left	0	249	103
Volume Right	0	0	0
cSH	1700	1597	380
Volume to Capacity	0.00	0.16	0.28
Queue Length 95th (ft)	0	14	28
Control Delay (s)	0.0	7.7	18.1
Lane LOS		A	C
Approach Delay (s)	0.0	7.7	18.1
Approach LOS			C

Intersection Summary			
Average Delay	10.8		
Intersection Capacity Utilization	19.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	69	0	0	161	44	5	0	180	0	0	0
Future Volume (Veh/h)	0	69	0	0	161	44	5	0	180	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	0	95	0	0	221	60	7	0	247	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	281			95			346	376	95	593	346	251
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	281			95			346	376	95	593	346	251
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	74	100	100	100
cM capacity (veh/h)	1293			1512			612	558	959	312	580	793

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	95	281	254
Volume Left	0	0	7
Volume Right	0	60	247
cSH	1293	1700	944
Volume to Capacity	0.00	0.17	0.27
Queue Length 95th (ft)	0	0	27
Control Delay (s)	0.0	0.0	10.2
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.2
Approach LOS			B

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	29.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	187	61	128	170	35	129
Future Volume (Veh/h)	187	61	128	170	35	129
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	228	74	156	207	43	157
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			302		747	228
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			302		747	228
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			87		87	81
cM capacity (veh/h)			1231		335	811

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	228	74	156	207	200
Volume Left	0	0	156	0	43
Volume Right	0	74	0	0	157
cSH	1700	1700	1231	1700	621
Volume to Capacity	0.13	0.04	0.13	0.12	0.32
Queue Length 95th (ft)	0	0	11	0	35
Control Delay (s)	0.0	0.0	8.3	0.0	13.5
Lane LOS			A		B
Approach Delay (s)	0.0		3.6		13.5
Approach LOS					B

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	33	76	33	49	104
Future Volume (Veh/h)	20	33	76	33	49	104
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	30	49	113	49	73	155
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	438	138			162	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	438	138			162	
tC, single (s)	6.9	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3			2.2	
p0 queue free %	94	95			95	
cM capacity (veh/h)	470	916			1429	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	79	162	228
Volume Left	30	0	73
Volume Right	49	49	0
cSH	674	1700	1429
Volume to Capacity	0.12	0.10	0.05
Queue Length 95th (ft)	10	0	4
Control Delay (s)	11.1	0.0	2.7
Lane LOS	B		A
Approach Delay (s)	11.1	0.0	2.7
Approach LOS	B		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	24.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	18	0	64	35	45	0	0	96	28
Future Volume (Veh/h)	0	0	0	18	0	64	35	45	0	0	96	28
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	0	0	0	23	0	83	45	58	0	0	125	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	374	291	143	291	309	58	161			58		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	374	291	143	291	309	58	161			58		
tC, single (s)	7.1	6.5	6.2	7.5	6.5	6.4	4.5			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.9	4.0	3.5	2.5			2.2		
p0 queue free %	100	100	100	96	100	91	96			100		
cM capacity (veh/h)	521	600	910	576	586	962	1231			1559		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	106	103	161
Volume Left	23	45	0
Volume Right	83	0	36
cSH	840	1231	1700
Volume to Capacity	0.13	0.04	0.09
Queue Length 95th (ft)	11	3	0
Control Delay (s)	9.9	3.7	0.0
Lane LOS	A	A	
Approach Delay (s)	9.9	3.7	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	26.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	0	33	0	0	0	0	41	20	71	44	0
Future Volume (Veh/h)	39	0	33	0	0	0	0	41	20	71	44	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	49	0	41	0	0	0	0	51	25	89	55	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	296	309	55	338	296	64	55			76		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	296	309	55	338	296	64	55			76		
tC, single (s)	7.7	6.5	6.4	7.1	6.5	6.2	4.1			4.5		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.5	3.5	4.0	3.3	2.2			2.5		
p0 queue free %	91	100	96	100	100	100	100			93		
cM capacity (veh/h)	532	568	971	564	577	1007	1563			1333		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	90	76	144
Volume Left	49	0	89
Volume Right	41	25	0
cSH	670	1700	1333
Volume to Capacity	0.13	0.04	0.07
Queue Length 95th (ft)	12	0	5
Control Delay (s)	11.2	0.0	5.1
Lane LOS	B		A
Approach Delay (s)	11.2	0.0	5.1
Approach LOS	B		

Intersection Summary				
Average Delay	5.6			
Intersection Capacity Utilization	23.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	36	12	0	0	41
Future Volume (Veh/h)	45	36	12	0	0	41
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25
Hourly flow rate (vph)	180	144	48	0	0	164
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	48				552	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48				552	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				100	84
cM capacity (veh/h)	1572				441	1027

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	324	48	164
Volume Left	180	0	0
Volume Right	0	0	164
cSH	1572	1700	1027
Volume to Capacity	0.11	0.03	0.16
Queue Length 95th (ft)	10	0	14
Control Delay (s)	4.6	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	4.6	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	21.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	191	0	0	0	0	0	38	4	0
Future Vol, veh/h	0	0	0	191	0	0	0	0	0	38	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	6	0	0	0	0	0	56	50	0
Mvmt Flow	0	0	0	258	0	0	0	0	0	51	5	0

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	-	0	0	0	0	0				516	516	0
Stage 1	-	-	-	-	-	-				516	516	-
Stage 2	-	-	-	-	-	-				0	0	-
Critical Hdwy	-	-	-	4.16	-	-				6.96	7	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-				5.96	6	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.96	6	-
Follow-up Hdwy	-	-	-	2.254	-	-				4.004	4.45	3.3
Pot Cap-1 Maneuver	0	-	-	-	-	0				436	401	-
Stage 1	0	-	-	-	-	0				503	463	-
Stage 2	0	-	-	-	-	0				-	-	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	-	-	-				436	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-				436	0	-
Stage 1	-	-	-	-	-	-				503	0	-
Stage 2	-	-	-	-	-	-				-	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0		
HCM LOS			-

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			↔				
Traffic Vol, veh/h	0	38	0	0	191	43	0	0	324	0	0	0
Future Vol, veh/h	0	38	0	0	191	43	0	0	324	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	56	0	0	4	31	0	0	7	0	0	0
Mvmt Flow	0	46	0	0	230	52	0	0	390	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	282	0	-	-	-	0	302	328	46
Stage 1	-	-	-	-	-	-	46	46	-
Stage 2	-	-	-	-	-	-	256	282	-
Critical Hdwy	4.1	-	-	-	-	-	7.1	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.363
Pot Cap-1 Maneuver	1292	-	0	0	-	-	654	594	1009
Stage 1	-	-	0	0	-	-	973	861	-
Stage 2	-	-	0	0	-	-	753	681	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1292	-	-	-	-	-	654	594	1009
Mov Cap-2 Maneuver	-	-	-	-	-	-	654	594	-
Stage 1	-	-	-	-	-	-	973	861	-
Stage 2	-	-	-	-	-	-	753	681	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	1009	1292	-	-	-
HCM Lane V/C Ratio	0.387	-	-	-	-
HCM Control Delay (s)	10.8	0	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	1.8	0	-	-	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑	⋎	
Traffic Vol, veh/h	330	32	103	192	41	153
Future Vol, veh/h	330	32	103	192	41	153
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	275	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	6	47	22	5	17	13
Mvmt Flow	367	36	114	213	46	170

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	367	0	809	367
Stage 1	-	-	-	-	367	-
Stage 2	-	-	-	-	442	-
Critical Hdwy	-	-	4.32	-	6.57	6.33
Critical Hdwy Stg 1	-	-	-	-	5.57	-
Critical Hdwy Stg 2	-	-	-	-	5.57	-
Follow-up Hdwy	-	-	2.398	-	3.653	3.417
Pot Cap-1 Maneuver	-	-	1089	-	330	654
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	617	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1089	-	295	654
Mov Cap-2 Maneuver	-	-	-	-	295	-
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	552	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	16.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	520	-	-	1089	-
HCM Lane V/C Ratio	0.415	-	-	0.105	-
HCM Control Delay (s)	16.7	-	-	8.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	2	-	-	0.4	-

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	60	99	10	22	90
Future Vol, veh/h	23	60	99	10	22	90
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	58	58	58	58	58	58
Heavy Vehicles, %	25	14	0	50	0	0
Mvmt Flow	40	103	171	17	38	155

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	410	179	0	0	188	0
Stage 1	179	-	-	-	-	-
Stage 2	231	-	-	-	-	-
Critical Hdwy	6.65	6.34	-	-	4.1	-
Critical Hdwy Stg 1	5.65	-	-	-	-	-
Critical Hdwy Stg 2	5.65	-	-	-	-	-
Follow-up Hdwy	3.725	3.426	-	-	2.2	-
Pot Cap-1 Maneuver	556	834	-	-	1398	-
Stage 1	799	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	539	834	-	-	1398	-
Mov Cap-2 Maneuver	539	-	-	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	733	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	724	1398	-
HCM Lane V/C Ratio	-	-	0.198	0.027	-
HCM Control Delay (s)	-	-	11.2	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	16	9	66	29	43	0	0	86	27
Future Vol, veh/h	0	0	0	16	9	66	29	43	0	0	86	27
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	44	20	48	31	17	0	0	41	23
Mvmt Flow	0	0	0	21	12	86	38	56	0	0	112	35

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	260	278	56	147	0	-	-	-	0
Stage 1	131	131	-	-	-	-	-	-	-
Stage 2	129	147	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.7	6.68	4.41	-	-	-	-	-
Critical Hdwy Stg 1	5.84	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3.896	4.18	3.732	2.479	-	-	-	-	-
Pot Cap-1 Maneuver	647	601	895	1275	-	0	0	-	-
Stage 1	801	754	-	-	-	0	0	-	-
Stage 2	803	742	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	627	0	895	1275	-	-	-	-	-
Mov Cap-2 Maneuver	627	0	-	-	-	-	-	-	-
Stage 1	776	0	-	-	-	-	-	-	-
Stage 2	803	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	3.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	SBT	SBR
Capacity (veh/h)	1275	-	826	-	-
HCM Lane V/C Ratio	0.03	-	0.143	-	-
HCM Control Delay (s)	7.9	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	2	44	0	0	0	0	46	27	58	44	0
Future Vol, veh/h	27	2	44	0	0	0	0	46	27	58	44	0
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, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	21	100	50	0	0	0	0	40	33	54	35	0
Mvmt Flow	39	3	64	0	0	0	0	67	39	84	64	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	318	338	64	-	0	0	106	0	0
Stage 1	232	232	-	-	-	-	-	-	-
Stage 2	86	106	-	-	-	-	-	-	-
Critical Hdwy	6.61	7.5	6.7	-	-	-	4.64	-	-
Critical Hdwy Stg 1	5.61	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.61	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.689	4.9	3.75	-	-	-	2.686	-	-
Pot Cap-1 Maneuver	638	453	881	0	-	-	1216	-	0
Stage 1	764	564	-	0	-	-	-	-	0
Stage 2	892	652	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	592	0	881	-	-	-	1216	-	-
Mov Cap-2 Maneuver	592	0	-	-	-	-	-	-	-
Stage 1	709	0	-	-	-	-	-	-	-
Stage 2	892	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0	4.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	743	1216	-
HCM Lane V/C Ratio	-	-	0.142	0.069	-
HCM Control Delay (s)	-	-	10.6	8.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	10	15	0	0	68
Future Vol, veh/h	18	10	15	0	0	68
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	25	25	25	25	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	72	40	60	0	0	272

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	60	0	-	0	244	60
Stage 1	-	-	-	-	60	-
Stage 2	-	-	-	-	184	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1556	-	-	-	749	1011
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	852	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1556	-	-	-	714	1011
Mov Cap-2 Maneuver	-	-	-	-	714	-
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	812	-

Approach	EB	WB	SB
HCM Control Delay, s	4.8	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1556	-	-	-	1011
HCM Lane V/C Ratio	0.046	-	-	-	0.269
HCM Control Delay (s)	7.4	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	191	0	0	0	0	0	38	4	0
Future Volume (Veh/h)	0	0	0	191	0	0	0	0	0	38	4	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	0	0	0	258	0	0	0	0	0	51	5	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			0			518	516	0	516	516	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			518	516	0	516	516	0
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.7	7.0	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	4.0	4.5	3.3
p0 queue free %	100			84			100	100	100	85	99	100
cM capacity (veh/h)	1636			1597			408	391	1091	345	336	1091

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	258	56
Volume Left	0	258	51
Volume Right	0	0	0
cSH	1700	1597	344
Volume to Capacity	0.00	0.16	0.16
Queue Length 95th (ft)	0	14	14
Control Delay (s)	0.0	7.7	17.5
Lane LOS		A	C
Approach Delay (s)	0.0	7.7	17.5
Approach LOS			C

Intersection Summary				
Average Delay	9.4			
Intersection Capacity Utilization	20.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	38	0	0	191	43	0	0	324	0	0	0
Future Volume (Veh/h)	0	38	0	0	191	43	0	0	324	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	0	46	0	0	230	52	0	0	390	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	282			46			302	328	46	692	302	256
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282			46			302	328	46	692	302	256
tC, single (s)	4.1			4.1			7.1	6.5	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			100			100	100	61	100	100	100
cM capacity (veh/h)	1292			1575			654	594	1009	221	614	788

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	46	282	390
Volume Left	0	0	0
Volume Right	0	52	390
cSH	1292	1700	1009
Volume to Capacity	0.00	0.17	0.39
Queue Length 95th (ft)	0	0	46
Control Delay (s)	0.0	0.0	10.8
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.8
Approach LOS			B

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	330	32	103	192	41	153
Future Volume (Veh/h)	330	32	103	192	41	153
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	367	36	114	213	46	170
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			403		808	367
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			403		808	367
tC, single (s)			4.3		6.6	6.3
tC, 2 stage (s)						
tF (s)			2.4		3.7	3.4
p0 queue free %			89		84	74
cM capacity (veh/h)			1055		295	654

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	367	36	114	213	216
Volume Left	0	0	114	0	46
Volume Right	0	36	0	0	170
cSH	1700	1700	1055	1700	519
Volume to Capacity	0.22	0.02	0.11	0.13	0.42
Queue Length 95th (ft)	0	0	9	0	51
Control Delay (s)	0.0	0.0	8.8	0.0	16.8
Lane LOS			A		C
Approach Delay (s)	0.0		3.1		16.8
Approach LOS					C

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	23	60	99	10	22	90
Future Volume (Veh/h)	23	60	99	10	22	90
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58
Hourly flow rate (vph)	40	103	171	17	38	155
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	410	180			188	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	410	180			188	
tC, single (s)	6.6	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.2	
p0 queue free %	93	88			97	
cM capacity (veh/h)	541	833			1398	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	143	188	193
Volume Left	40	0	38
Volume Right	103	17	0
cSH	724	1700	1398
Volume to Capacity	0.20	0.11	0.03
Queue Length 95th (ft)	18	0	2
Control Delay (s)	11.2	0.0	1.7
Lane LOS	B		A
Approach Delay (s)	11.2	0.0	1.7
Approach LOS	B		

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	16	9	66	29	43	0	0	86	27
Future Volume (Veh/h)	0	0	0	16	9	66	29	43	0	0	86	27
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	0	0	0	21	12	86	38	56	0	0	112	35
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	354	262	130	262	279	56	147			56		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	354	262	130	262	279	56	147			56		
tC, single (s)	7.1	6.5	6.2	7.5	6.7	6.7	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.9	4.2	3.7	2.5			2.2		
p0 queue free %	100	100	100	96	98	90	97			100		
cM capacity (veh/h)	526	628	926	600	582	895	1275			1562		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	119	94	147
Volume Left	21	38	0
Volume Right	86	0	35
cSH	784	1275	1700
Volume to Capacity	0.15	0.03	0.09
Queue Length 95th (ft)	13	2	0
Control Delay (s)	10.4	3.3	0.0
Lane LOS	B	A	
Approach Delay (s)	10.4	3.3	0.0
Approach LOS	B		

Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	22.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	2	44	0	0	0	0	46	27	58	44	0
Future Volume (Veh/h)	27	2	44	0	0	0	0	46	27	58	44	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	39	3	64	0	0	0	0	67	39	84	64	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	318	338	64	384	318	86	64			106		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	318	338	64	384	318	86	64			106		
tC, single (s)	7.3	7.5	6.7	7.1	6.5	6.2	4.1			4.6		
tC, 2 stage (s)												
tF (s)	3.7	4.9	3.8	3.5	4.0	3.3	2.2			2.7		
p0 queue free %	93	99	93	100	100	100	100			93		
cM capacity (veh/h)	567	422	881	505	560	978	1551			1216		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	106	106	148
Volume Left	39	0	84
Volume Right	64	39	0
cSH	714	1700	1216
Volume to Capacity	0.15	0.06	0.07
Queue Length 95th (ft)	13	0	6
Control Delay (s)	10.9	0.0	4.9
Lane LOS	B		A
Approach Delay (s)	10.9	0.0	4.9
Approach LOS	B		

Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	23.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	10	15	0	0	68
Future Volume (Veh/h)	18	10	15	0	0	68
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25
Hourly flow rate (vph)	72	40	60	0	0	272
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	60				244	60
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60				244	60
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	73
cM capacity (veh/h)	1556				714	1011

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	112	60	272
Volume Left	72	0	0
Volume Right	0	0	272
cSH	1556	1700	1011
Volume to Capacity	0.05	0.04	0.27
Queue Length 95th (ft)	4	0	27
Control Delay (s)	4.9	0.0	9.9
Lane LOS	A		A
Approach Delay (s)	4.9	0.0	9.9
Approach LOS			A

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

276

February 27, 2017

Mr. Brandon Seitz
Assistant Planner
Department of Land Use Planning
216 SE 4th Street
Pendleton, OR 97801

Dear Brandon,
I am the Real Estate Development Manager for the applicant. In this capacity, I am managing the site evaluation, selection, and development for this data center project. The purpose of this letter is to summarize the site selection process and the proposed development of this site.

Proposed Development:
Customer demand requires the VAData operation to expand our physical infrastructure. VAData currently has operations in Umatilla County, located within the jurisdiction of the City of Umatilla on Beach Access Road. We currently have three facilities in operation and have the fourth of five potential buildings on that campus under construction. Beyond the fifth building we will have reached the capacity of that site in terms of both physical land as well as the power capacity. The proposed new site will serve our physical expansion needs as we continue to have customer demand beyond the capacity of the Beach Access Road site.

In the process of evaluating site options, we considered sites throughout Umatilla County including within the Hermiston Urban Growth Boundary. No other site offered the combination of location, size and proximity to the quantity of utilities required to serve our needs.

Site Evaluation and Selection:
When looking for expansion sites for the VAData in the Umatilla/Morrow county area there are many criteria that make a site viable for our operation. The following are the primary factors for site location consideration.

- **Size:** 100+ acres.
- **Power:** The VAData operation uses a significant amount of power. In order to reduce cost, we seek to locate as close as possible to existing high-voltage (HV) 115kV+ transmission power lines. The cost of extending HV transmission is approximately $1M - $1.5M/mile.
    - The Westland Road site is directly adjacent (0.2 miles) to the Hermiston Generation power plant which has transmission (230kV) to their site. The cost of extending the Umatilla Electric (UEC) transmission from the Hermiston Generation substation to the Westland Road site was the least cost alternative of any site in Umatilla County.

- The closest realistically developable industrial zoned land of 100+ acres is located along Feedville Road, adjacent to the west of the Walmart distribution facility. The 115kV UEC transmission line along Feedville Road is not large enough to support our projected power load and would have needed to be "reconductored" (upsizing the physical wire) at a distance of approximately 4-miles, at a significantly greater cost.

- **Water Supply:** The VAData operation uses greater than 400 Gallons Per Minute (GPM) at peak flow per building of water to cool the interior environment. Access to a high flow of water is required for our operation. The Regional Water System (RWS) provides water from Columbia River to the adjacent Hermiston Generation power plant and has additional capacity in their underground infrastructure and water right. The RWS and VAData have an agreed Letter of Intent outlining the capital and operating expenses in order to provide VAData adequate water to suit our cooling requirements. While there are industrial zoned parcels near the RWS underground supply path, the only location where the adequate water and power meets is the subject site.
- **Water Discharge:** While the VAData operation uses a significant amount of supply water, the operation also discharges a significant amount of non-contact cooling water. The subject site offers multiple potential options for water discharge including working with the Hermiston Generation plant and their neighbor Lamb Weston utilizing their water discharge infrastructure. Other options include the adjacent Westland Irrigation Canal, as well as aquifer recharge. These options are unique to this site and not available at any other industrially zoned land nearby.

Region Benefits:
At our existing facilities in Umatilla County, each building we develop drives approximately 40 direct jobs at an average salary of $68,000 per year and approximately 50-75 vendor positions. In addition at any given time we typically have 100+ construction workers involved at the site as we are either building new buildings or building out the interior of our existing buildings. The proposed new site would represent continued growth of our operations in Umatilla County. The master site planned buildings for the subject site will have an approximately 1/3 larger footprint and will correspondingly employ a similar increase in employees. In an effort to hire and recruit talent, VAData has partnered with the Blue Mountain Community College where VAData employees teach technical courses related to the positions in the greater Hermiston region.

Offsite Impacts:
Our facilities are relatively low impact to the neighboring businesses and communities in terms of noise, dust, smoke, odor, or storm water runoff. While we do use a significant amount of power, we have developed an excellent working relationship with Umatilla Electric. We also use and dispose of a reasonable amount of water in order to cool our facilities when the outside air temperature rises above

70 degrees Fahrenheit. This timing coincides with the growing season and we are working on partnering with the neighboring property owners of Hermiston Generation and Lamb Weston to utilize their underground process waste water infrastructure which would send our non-contact cooling water out for agricultural re-use application.

Thank you for your consideration of this application.

Kind Regards,

Jim Footh
VAData Real Estate Development Manager

HERMISTON
OREGON

Administrative Offices

February 24, 2017

George Murdock, Chair
Umatilla County Board of Commissioners
Umatilla County Courthouse
216 SE 4th Street
Pendleton, OR 97801

Re: Land Use Applications by Vadata, Inc.
County File Nos. T-17-072, Z-311-17, and P-119-17
Letter in Support

Dear Chair Murdock and Commissioners:

I am writing to express support for the land use applications submitted by Vadata, Inc. to amend the Umatilla County Comprehensive Plan and Zoning Map and allow industrial development on approximately 120 acres off Westland Road (County File Nos. T-17-072, Z-311-17, and P-119-17). Approval of these applications will facilitate job growth for the Umatilla/Morrow County region.

Allowing light industrial development on this land, adjacent to existing industrial development and near the interchange of I-82 and I-84, seems to be a good use of this land.

I encourage you to approve these applications. Thank you for your consideration of this testimony.

Sincerely,

Byron D. Smith
City Manager

180 NE 2nd Street, Hermiston, OR 97838 | (541) 567-5521 PHONE | (541) 567-5530 FAX

hermiston.or.us

City of Umatilla

700 6th Street, PO Box 130, Umatilla, OR 97882
City Hall (541) 922-3226 Fax (541) 922-5758

February 27, 2017

George Murdock, Chair
Umatilla County Board of Commissioners
Umatilla County Courthouse
216 SE 4th Street
Pendleton, OR 97801

RE: Land Use Applications by Vadata, Inc.
County File Nos. T-17-072, Z-311-17, and P-119-17
Letter in Support

Dear Chair Murdock and Commissioners:

I am writing to express the City of Umatilla's support for the land use application submitted by Vadata, Inc to amend the Comprehensive Plan and Zoning Map and allow industrial development on approximately 120 acres off Westland Road (County File Nos. T-17-072, Z-311-17, and P-119-17). Approval of these applications will facilitate economic development and job growth for the region and will not reduce the supply of significant agricultural lands. Further, development of this property in the manner proposed by the applications should not adversely affect the City's ability to deliver services to its residents.

It simply makes sense to allow light industrial development on this land, which is adjacent to existing industrial development and near the interchange of I-82 and I-84.

The City urges Umatilla County to approve the applications. Thank you for your consideration of this testimony.

Sincerely,

Russell W. Pelleberg
City Manager
City of Umatilla, OR 97882
541-922-3226

PERKINSCOIE

1120 NW Couch Street
10th Floor
Portland, OR 97209-4128

+1.503.727.2000
+1.503.727.2222
PerkinsCoie.com

March 14, 2017

Seth J. King
sking@perkinscoie.com
D. +1.503.727.2024
F. +1.503.346.2024

VIA EMAIL ONLY

Mr. Brandon Seitz
Assistant Planner
Department of Land Use Planning
Umatilla County
216 SE 4th Street
Pendleton, OR 97801

Re: Application for Comprehensive Plan Map Amendment, Zoning Map Amendment, and Reasons Exceptions to Statewide Planning Goals 3 and 14
Umatilla County File Nos. T-17-071, Z-311-17, and P-119-17
Applicant's Second Supplemental Submittal in Support of Applications

Dear Brandon:

This office represents Vadata, Inc. ("Applicant"), the applicant requesting approval of applications for a comprehensive plan map amendment, zoning map amendment, and reasons exceptions to Statewide Planning Goals 3 and 14 for the real property identified as Map No. 4N 28E 30 Tax Lot 1100 (Umatilla County File Nos. T-17-072, Z-311-17, and P-119-17) ("Applications").

1. Supplemental Materials in Support of Applications.

Enclosed with this letter please find the following materials offered in support of the Applications:

- Letter dated March 14, 2017 from Applicant's Real Estate Development Manager explaining an additional essential and necessary siting criterion for Applicant's use, that the site allow for redundancy and risk aversion in business operations, and why this means that alternative locations cannot reasonably accommodate the use

- Letter dated February 28, 2017 from the Regional Water System ("RWS") system engineer stating that there is adequate capacity in RWS to serve the subject property and existing users, together with the engineer's C.V.
- Letter dated March 13, 2017 from the owner of the subject property explaining that the property lacks water rights, has low-quality soils for agricultural purposes, and is not conducive to operating a financially viable farming enterprise
- Map from Oregon Water Resources Department website depicting no water rights appurtenant to the subject property

Please place a copy of these materials in the official record for the Applications, and please consider them before rendering a decision on the Applications.

2. Response to March 8, 2017 Letter from Department of Land Conservation and Development ("DLCD").

DLCD raised two issues in its March 8, 2017, letter. First, DLCD requested clarification of the uses that would be allowed on the subject property if the Applications are approved. Applicant is only requesting approval of the uses and intensities identified on the Conceptual Development Plan included with the Applications. Specifically, these uses consist of data centers and related accessory uses as follows:

- Four data center buildings (approximately 853,600 square feet total)
- Logistics/warehouse building (approximately 80,000 square feet)
- Administration/office building (approximately 25,000 square feet)
- Future electrical substation (depicted on plan)

Second, DLCD requests additional explanation to support the conclusion that the proposed use cannot be accommodated in or through expansion of an existing urban growth boundary. Applicant's Real Estate Development Manager, Jim Footh, has submitted two letters into the record (one attached hereto) that addresses Applicant's site selection criteria and procedure. In the first letter (dated February 27, 2017), Mr.

Footh explained that, in order to accommodate applicant's use, a site must be at least 100 acres in size; be located as close as possible to the use's unique and necessary infrastructure components, including high-voltage (115kV+) transmission power lines and a high flow of water; and allow for re-use of the significant water discharge generated by the use. Mr. Footh supervised the site selection and evaluation process. He explained that, through this process, Applicant concluded that no alternative site could accommodate all of these necessary and essential elements of Applicant's use, other than the subject site. Mr. Footh also explained that Applicant's existing data center campuses in the area are at capacity and cannot accommodate the use.

In the second letter (dated March 14, 2017), Mr. Footh identified an additional characteristic of the use that affects site selection. That characteristic is the need to develop multiple, smaller-scale data center campuses in order to create redundancy and risk aversion. Mr. Footh explained that this redundancy and risk aversion cannot be achieved by developing a single, super-sized data center campus; instead, the campuses must be located at least a few miles apart. As a result, although Applicant is considering developing a new data center campus on land inside an urban growth boundary, that site would be for a separate, stand-alone data center campus and could not accommodate the use identified for the subject site, including the required redundancy and risk aversion factors. Based upon this testimony, the County should find that there are no other alternative sites that meet the necessary and essential characteristics of applicant's use, and thus, the use cannot be reasonably accommodated in or through expansion of an existing urban growth boundary.

If you have any questions, do not hesitate to contact me. Thank you for your courtesies.

Very truly yours,

Seth J. King

SJK:rsr

Enclosures

cc: Ms. Tamra Mabbott (via email) (w/encls.)
Mr. Jon Jinings (via email) (w/encls.)
Mr. Jim Footh (via email) (w/encls.)
Ms. Sarah Tyerman (via email) (w/encls.)
Ms. Marnina Cherkin (via email) (w/encls.)

March 14, 2017

Mr. Brandon Seitz
Assistant Planner
Department of Land Use Planning
216 SE 4th Street
Pendleton, OR 97801

Dear Brandon,
I am the Real Estate Development Manager for the applicant. In this capacity, I am managing the site evaluation, selection, and development for this data center project. The purpose of this letter is a follow up to the letter I drafted dated February 27, 2017 in support of the rezone application, with specific regard to the geographic parameters required as part of our site selection.

The VAData operation relies upon developing data centers to serve our customers. It is a necessary and essential element of our business to develop multiple, smaller-scale data center campuses in order to create redundancy and risk aversion into our system, such that if one campus suffered catastrophic failure due to utility (power, water, sewer) outage/earthquake/flood, etc, the customer data is still available at the other campuses. We cannot create that redundancy and risk aversion by developing a single, super-sized data center campus. Rather, to achieve redundancy and risk aversion, our campuses must be located a few miles apart.

Within the Umatilla/Morrow region, we are creating this needed redundancy and risk aversion by proposing to develop three new geographically separated data center campuses, including the subject site. Although one of the potential sites we are considering is located in an urban growth boundary (UGB), that location would be a separate, stand-alone data center campus from the subject site. For the reasons explained above, we cannot develop a super-sized data center campus at that UGB site (that would obviate the need for the subject data center campus) because it does not offer the needed redundancy and risk aversion that our system requires. Further, for the reasons explained in my letter dated February 27, 2017, there were no other non-resource or existing exception sites or sites in or through expansion of UGBs that met our other site selection criteria and could accommodate the use, other than the subject site. Thank you for your consideration of this application.

Kind Regards,

Jim Footh, VAData Real Estate Development Manager

MWH now part of Stantec

MWH
727 E Riverpark Lane, Ste. 150
Boise, ID 83706

February 28, 2017
File: **10501255/3.0**

Attention: Mr. George Murdock
Umatilla County Board of Commissioners
Umatilla County Courthouse
216 SE 4th Street
Pendleton, OR 97801

Reference: Land Use Applications by Vadata, Inc.
County File Nos. T-17-072, Z-311-17, and P-119-17
Letter in Support

Dear Chair Murdock and Commissioners:

I am writing to express my professional opinion as the Regional Water System's system engineer that there is adequate capacity both within the Port of Umatilla water right as well as the system infrastructure, with agreed infrastructure upgrades funded by the applicant, to serve the subject property without compromising the ability to serve other users on the system.

Thank you for your consideration of this testimony.

Regards,

MWH, now part of Stantec

Nick Smith

Nick Smith
Project Management & Commercial Leader
727 E. Riverpark Lane, Suite 150
Boise, Idaho 83706
208-345-5865
Nickolas.smith@stantec.com

Nickolas (Nick) Smith
Project Management and Commercial Leader

MWH OFFICE LOCATION:
Boise

YEARS WITH MWH:
15

TOTAL YEARS OF EXPERIENCE:
15

EDUCATION:
BS/BSc, Finance/Marketing, Oregon State University, Eugene, Oregon, 0
BS/BSc, Environmental Engineering, Oregon State University, 0

LICENSES/REGISTRATIONS:

Professional Engineer (Civil) – ID, MT, OR

Project Management Professional (PMP)

PROJECT EXPERIENCE:

Project Manager, Nampa WWTP Primary Digester No. 3 and Related Facilities Design/Services During Construction Project, City of Nampa, ID
Nick was the project manager and one of the lead designers for the design and services during construction of a new primary digester (PD3), emergency diesel fueled backup generator system for the WWTP, fuel storage tank system, two pump stations including a sludge pump station and digester mixing pumps in a new digester control building, new boilers in a biogas fired boiler room, new MCCs and miscellaneous site work and yard piping. This project had a high degree of complexity due to the coordination with the significant improvements within operating facility which required well-coordinated shutdown, tie-in and switch over efforts. The project bid in January 2009 and the services during construction work included Nick as project manager to coordinate the review of submittals, questions during construction, change orders, inspections and meeting with the contractor and City.

Project Manager, Headworks Projects at San José-Santa Clara Regional Wastewater Facility (RWF), City of San José, CA
Nick was project manager for three separate but related headworks projects (New Headworks Project, Headworks Improvements Project and Headworks Critical Improvements Project) as part of the $1.4B, MWH-led RWF Capital Improvements Program (CIP). The New Headworks Project included a new headworks to replace the old deteriorated duty headworks. The Headworks Improvements Project included improvements to an underperforming wet weather headworks for handling peak wet weather flows. The Headworks Critical Improvements included installation of two new Duperon flex rake screens and some safety and maintenance improvements. The construction costs for the three projects was estimated at approximately $100M.

Challenges with these projects included determining and projecting future peak flows (potentially up to 450 mgd), ensuring surcharges in collection system are avoided, considerations for maintaining operations of the existing facilities during construction, coordinating sub-consultants and providing defensible and documented reasoning and decision making. Additional challenges included coordinating with multiple City departments, regional tributary agencies, City Council, and RWF operations. The projects were maintained within the Project Delivery Model framework which has been implemented throughout the CIP Program. Nick was also instrumental in performing evaluations for project delivery alternatives for the three projects where it was determined the New Headworks and Headworks Improvements project were determined to use progressive design-build delivery, while the Headworks Critical Improvements used a standard design-bid-build delivery.

Project Engineer/Project Manager, Nampa WWTP 2009 Facilities Plan, City of Nampa, ID
Nick was involved in the preparation of the 2009 Draft Nampa WWTP Facilities Plan and was the project manager and responsible engineer for the 2011 revision and finalization of the Facilities Plan. The plan included evaluations of several alternatives for long term WWTP planning including recommendations for reuse, tertiary treatment, solids handling, phosphorus removal and UV. The Facilities Plan included existing facilities evaluation, future flows and loadings analysis, future NPDES limit projections, alternatives evaluation and cost analysis.

Project Manager, Nampa WWTP Primary Digester No. 4 (PD4) Final Design, City of Nampa, ID
Nick is the project manager for the postponed final design of the fourth primary digester at the Nampa WWTP. The digester project includes design of PD4 which is a new 900,000-gallon pump mixed concrete anaerobic digester. The digester is the fourth digester in a series of digester improvements at the WWTP that began from a Preliminary Design Report produced by MWH in 2007, managed by Nick. The PD4 project also includes an

expanded pump mixing system and associated piping, struvite mitigation review, digester gas compressor modifications, yard piping and bidding services. MWH was selected as the final design engineers as part of a program for overall significant upgrades to the WWTP to meet new National Pollution Discharge Elimination System (NPDES) permit limits. Nick is responsible for coordinating the MWH design team, coordinating with the program management team and City, along with providing technical assistance to the design. In addition, Nick performs standard project management duties including scheduling, budgeting, scoping, and quality control coordination for the design. The final design of this project has been postponed until 2017 due to City budgetary constraints.

Project Manager / Project Engineer, Caldwell WWTP Improvements Phase 3, City of Caldwell, ID
This project included the design and services during construction of a new headworks facility, anaerobic digester, digester control building, yard piping, waste gas flare, and other miscellaneous associated appurtenances. The headworks facility included new Archimedes screw lift pumps, step screens and washer/compactor system, vortex grit chambers, grit classification system enclosed by a concrete/CMU building. Nick was involved in the design and significantly involved in the services during construction for this project. The construction services included handling submittals, on-site inspections, coordinating and responding to contractor questions, change orders, clarifications, and producing O&M Manual and record drawings.

Adams County Landfill

Worked as project manager to assist owner with permit conditions for continued use of the existing landfill, design ultimate closure of the existing landfill and leachatae collection system, and provide run-on/runoff control plan for the existing site per DEQ requirements.

Nampa Sludge and Gas Piping Evaluation

Managed the review and inspection of the existing biogas handling, sludge transfer piping and gas handling equipment within the Gas Compressor Room for simplification and continued use of the system. Testing included pipe integrity testing, review of record drawings, inspection and investigation of maintenance records and staff concerns. Evaluation included replacement recommendations and 3D piping layout.

Nampa Compressor Room Upgrades

Managed code evaluation and recommendations for simplification of biogas handling equipment and piping for compressor system that feeds biogas to boiler system.

City of Hermiston RWS Upgrades

Managed design, bidding and construction oversight of improvements to Intake Pump Station at the Port of Umatilla to increase capacity of the Regional Water System (RWS) which feeds various industrial users, City of Hermiston Water Treatment Plant and Oregon State University agricultural experimentation station. Assistance to the City also included providing information and oversight to prove the claim of beneficial use to confirm the RWS water rights. Improvements also included storage lagoon and other improvements to the distribution system.

Eagle Sewer District Palmer Lane Upgrades

Currently assisting Eagle Sewer District with the evaluation, design, bidding and construction oversight of new pumps and mechanical improvement to the Palmer Lane Lift Station.

Clark County Water Reclamation District West Facility Filters Phase 3&4

Provided multiple quality reviews of operation manuals for filters, UV, backwash, chemical feed and feed pump systems for the CCWRD.

Project Manager, Nampa WWTP Primary Digester Retrofit Project, City of Nampa, ID
Nick's involvement included work as project manager and coordination of the civil and mechanical design for the retrofit of existing Primary Digesters No. 1 and No. 2. The project also included new sludge mixing yard piping, interior mixing piping, a new cover for Primary Digester No. 1, new hatches for the digesters, a new overhead walkway, new boiler building roof, new lighting, and miscellaneous paving and site work.

Project Manager, WWTP Nitrification Basin Retrofit Project Construction, City of Nampa, ID
Nick's involvement included work as project engineer during the design and project manager of the services during construction phase. The project included retrofitting the nitrification basins with new fine bubble diffusers to improve aeration efficiency. In addition, the City of Nampa was awarded $250,000 from Idaho Power for the power savings they would recognize with this retrofit. The engineering services during construction included submittal coordination, coordinated Request for Clarifications (RFC's) from the contractor, worked on change orders, invoice review, coordinating construction inspections and performing project closeout functions.

Project Manager, Hermiston NPPS-2 Non-potable Water Upgrades, City of Hermiston, OR
Nick was the project manager for this project which provides non-potable irrigation water to J.R. Simplot Inc. (Simplot) and Oregon State University Agriculture Experimentation Station (OSU) facilities. The project included upgrading the pumping system to provide 2,000 gpm and 1,500 gpm pumps and flows to Simplot and OSU respectively, providing pump suction connections to the irrigation water wet well, performing hydraulic calculations,

preparing bid documents, installation of four miles of conveyance piping, and the various instrumentation and electrical improvements. Nick also coordinated with the City, presenting at City Council meetings, coordinating the various stakeholders and performing standard project management duties such as schedule, budget, and scoping management.

Enlozada WWTP Design, Arequipa Peru
Mr. Smith assisted with the design of a new wastewater treatment plant for nearly one million inhabitants of the City of Arequipa Peru and for the mining company Freeport McMoRan. The new WWTP will treat municipal waste and will be discharged to local waterways and be sent to the Cerro Verde Mine for process water. Work included assisting with various mechanical equipment and specifications, piping and equipment designs and equipment submittal reviews.

Eagle Sewer District, (ESD) Headworks and Landscape Buffer Projects, Eagle, Idaho
Mr. Smith managed the conditional use permit and an overall effort to coordinate the visual buffer between residents of the City of Eagle and the new headworks facility for ESD. Mr. Smith managed the design and construction oversight for the landscape buffer and the associated irrigation system and permitting. He also assisted with the design and inspections of the headworks facility which included a wet well with non-clog centrifugal pumps, step screen with washer/compactor system, electrical system and a vortex grit removal and classifier system. In addition, the design accommodated strict architectural standards dictated by the City. The district currently discharges the headworks effluent to the City of Boise for secondary treatment.

Project Engineer, Pocatello WPCF Headworks Facility, City of Pocatello, ID
Nick assisted the City with code review, inspection and recommendations for the headworks facility, primarily for additional HVAC and building potential expansions. The headworks facility includes fine screens, grit removal, primary sludge pumps and an electrical room. MWH designed and oversaw the construction of the headworks in 2003 and Nick has been assisting the City periodically with questions or concerns with the headworks as needed.

Project Manager, Pocatello WPCF Digester No. 3 Gasholder Cover Rehabilitation
Mr. Smith worked as project manager for the rehabilitation of the Primary Digester No. 3 floating gasholder cover. The project included removal of the existing cover for recoating, removal and replacement of the slide guides, and miscellaneous site improvements. The project also included the installation of new generator control panels for the biogas fueled generators

Nampa WWTP Interim Capacity Analysis, City of Nampa, Idaho
Mr. Smith performed a capacity analysis for the City regarding the Nampa WWTP. The analysis focused on TMDL permit parameters; however, other parameters were included as well. This study was performed in the interim while a large scale capacity study was being developed.

Lake Powell Pipeline Project, Utah Division of Water Resources
Mr. Smith authored Air Quality, Noise, and Transportation Resource Plans for the Lake Powell Pipeline project. The pipeline project included the construction of nearly 200 miles of piping and the related facilities need to convey water from Lake Powell to near St. George and Cedar City, Utah. The project was in the environmental permitting phase and these plans along with numerous others were critical to meeting the requirements to begin full design of the pipeline and related facilities. The plans included analysis of baseline conditions and what the expectations would be from construction and operations events.

Eielson Air Force Base Phase III and V Utilidor Projects, United States Army Corps of Engineers
Designed the replacement of water utilities within the utilidors of the Air Force Base for a design build construction project. Design considerations included pipe expansion due to large temperature swings, corrosion protection, pipe supports, groundwater, coordination with steam and condensate piping, possible contaminated soils and limited space within the utilidors. Worked closely with office AutoCad specialists to finalize drawing for construction. Schedule was extremely tight on the projects due to limited construction season. Performed various construction oversight, clarifications and as-built functions. Phase III was constructed within schedule and budget. Phase V is currently under construction and set to be completed before October 2005.

Allison Creek Raw Water Intake Project, Alyeska Pipeline Service Company
Managed water intake system and pumphouse design near the Valdez Marine Terminal. Project was originally scoped as refurbishing the existing intake system. Upon inspection, the feasible method was found to be construction of a new intake system. This value engineering by the team saved the client money, provided for easier construction and a redundant system. Project design performed within budget and schedule.

False Pass Water System Improvements Project, Aleutian East Borough
Team member in the construction oversight for the water main installation, water storage tank construction and water treatment plant in rural Alaska community. Project was performed to the satisfaction of the client, within

budget and schedule.

Unalakleet Lift Station Improvements, City of Unalakleet
Designed improvements to a lift station and prepared engineers estimate to successfully stay within a tight construction budget and limited construction schedule in rural northwestern Alaska town. New pumps, piping, controls and housing over the wells were installed. Worked with contractor and public utilities manager to ensure constructability. Project came within budget and the city was appreciative of the design efforts.

Unalakleet Master Plans, City of Unalakleet
Investigated City utilities and prepared master plans for water, sewer and solid waste systems. Gathered city financial information and prepared a Utility Rate Study report to aid in community utility decisions. Prepared cost estimates for numerous water, sewer, solid waste, and landfill improvement options.

Eek Master Plans, City of Eek/ANTHC
Met with rural native community to develop master plans for the water, sewer and solid waste utility systems. Worked with Alaska Native Tribal Health Consortium who administers the funds for projects to benefit Alaska natives. Community currently operates on a honey bucket sewage collection system with only one potable watering point. Prepared construction cost estimates for sewage lagoons, landfill improvements, water distribution system and household plumbing improvements. Design challenges include permafrost, frost jacking, poor groundwater quality, limited borrow material and high soils silt content.

Midas Gold Inc, NPDES Permitting and SWPPP Plans, Stibnite Idaho
Mr. Smith is the project manager on an effort to obtain a National Pollution Discharge Elimination System (NPDES) permit for eventual mine process water discharge into the South East Fork South Fork of the Salmon River in Idaho. This effort includes the review of existing water quality and comparing this water with the potential loadings from mining dewatering, surface water contributions and processing effluent. This comparison included the estimation of what pollutant levels would be allowed in the mine effluent and what types of technologies and treatment would be needed to obtain these low levels of pollutants. In addition, this process includes meeting with agencies to coordinate expected limits, performing bench scale testing on expected process waste and producing an All Known Available and Reasonable Technologies (AKART) report. The NPDES permitting effort is currently ongoing. Mr. Smith also assisted Midas Gold with an MSGP stormwater permit, SPCC plan and EPCRA compliance plans for Midas Gold Inc. for the exploration, camp and future operations of the Golden Meadows Mine outside of Yellow Pine, Idaho.

Dale Hollow National Fish Hatchery – Fish Raceway Cleaning Wastewater Project, U.S. Fish and Wildlife Services
This project included the Design/Build of the cleaning of the fishery washdown water through a microscreen system prior to discharge into a nearby creek. The microscreen backwash was to be treated in a solids lagoon prior to discharge in a creek. In addition, minor creek stabilization was designed as assisted by Mr. Smith. Mr. Smith assisted with the design of the system, coordinated the construction submittals, and assisted with field questions.

Bureau of Reclamation
2005 project to perform the analysis on the efficiency and effectiveness of the debris removal process in Franklin Roosevelt Reservoir in Washington State. The analysis included site visits to determine if the current contractor operations were efficient and or if the contractor was overcharging the Bureau and whether placing the annual operation out to bid was prudent and whether it could save the bureau money.

Skagway River 10 Flood Protection Project, City of Skagway
Evaluated models and other information regarding the river and worked with the city, agencies and property owners to design river dike construction for flood protection. Estimated materials and construction efforts needed. Overcame roadblocks to obtain fisheries, Corps of Engineers, and state permits allowing construction to begin in the fall of 2005.

Matanuska River Erosion Control Study, USNRCS
Worked to spearhead efforts to study erosion along the river near Palmer, Alaska that was endangering property interests and utilities in the area. Protection methods considered include riverbed excavation, bank revetment, and establishment of buffer zones. Used hydraulic and sediment transport modeling, economic, constructability and social conditions analysis to prepare a report comparing the protection methods, including economic impacts and cost estimates for all of these options. Report has been used for launching of bank protection projects.

Allison Creek Raw Water Intake Project, Alyeska Pipeline Service Company
Developed creek assessment to determine water intake restrictions, profiles for subsurface intake system, flood levels for pumphouse design and effect on anadromous fish during construction within creek.

Creekside Town Center Stream Enhancement, USNRCS
Member of design team for reconstruction of a channeled waterway to become aesthetically pleasing with riffles, pools, bank restoration and revegetation. Considerations to aquatic habitat were essential due to anadromous fish. Project was featured in Anchorage media and applauded by local authorities.

Minnesota Water Quality Enhancement Pond, Anchorage Department of Public Works
Supported project manager in a design of a more effective sedimentation pond for stormwater system. Designed gravity fed treatment system, overland/wetland treatment, sedimentation basins and reconstruction of outfall structure into Campbell Creek. Prepared documentation to obtain various permits for construction of the upgraded sedimentation pond. Used soils exploration, water monitoring wells and water quality data to determine most effective design. Produced engineers estimate for use during construction bidding.

Fish Passage Survey, City of Salem
Surveyed, analyzed, and compiled data on local waterways within the city for natural and manmade barriers to fish passage through the watersheds. Managed survey crew, prepared report and presented findings to local and state officials. Study received local media attention as step one in an effort to re-establish the area fish populations.

Lime Village Washeteria Design/Construction Oversight, Lime Village Traditional Council/ANTHC
Team member of multi-discipline design for community washeteria replacement project. Washeteria project involved septic tank and drainfield, well investigation and installation, fuel storage tank, and building construction. The washeteria building included laundry and restroom facilities, shower, watering point, pressure tanks, boilers and other mechanical items. Helped the village receive a preferable ruling on local borrow source arguing it was above ordinary high water, allowing it to remain in local control versus State. Estimated construction costs for bidding purposes. Worked with native community and state agencies to design, permit and oversee the construction of the project. Project was within budget and constructed ahead of schedule.

Port Heiden On-Site Improvements, City of Port Heiden/Village Safe Water
Investigated residential on-site septic and water well systems for native Alaskan community. Made recommendations for improvements using capacity testing and physical inspection results. Performed percolation tests and soil profiles to determine drainfield capacities. Procured materials and oversaw logistics. Mr. Smith oversaw construction, which was funded through the city and state native agencies.

Midas Gold Inc, SPCC and SWPPP Plans, Stibnite Idaho
Mr. Smith worked to produce SPCC planning and EPCRA compliance plans for Midas Gold Inc. for the exploration, camp and future operations of the Golden Meadows Mine outside of Yellow Pine, Idaho. The plans were updated annually with Mr. Smith preparing and approving of the updates. The fuel containment on-site included approximately 50,000 gallons of diesel for vehicle use and power generation.

Nampa WWTP, 3000-gallon AST SPCC
Mr. Smith prepared and coordinated with the City a SPCC plan for the new 3,000-gallon aboveground diesel storage tank (AST). The AST was to be used to fuel the backup generators and dispense fuel to WWTP vehicles.

FAA Various Sites SPCC Plan Updates
Worked with Alaska FAA personnel to travel to remote locations to review site conditions and update the SPCC plans as necessary. Tasks included review of existing regulations and rewriting the SPCC plans to comply with current regulations. The sites included Kenai, King Salmon, Nikiski, Johnstone Point, Minchumina Lake, and Bethel.

AFCEE SPCC Plan Updates
This project included taking three separate SPCC plans and integrating them into one plan that encompassed the three locations. These locations included remote Alaskan Air Stations Eareckson, King Salmon and Galena. The integration of these plans was intended to help the client save money and time with future plan updates.

LIBERATED L & E, LLC

2229 East Avenue Q
Palmdale, California 93550
(661) 273-1336 Phone
(661) 273-8839 Fax

March 13, 2017

Mr. Brandon Seitz
Assistant Planner
Department of Land Use Planning
Umatilla County
216 SE 4th Street
Pendleton, OR 97801

Reference: Land Use Applications by Vadata, Inc.
County File Nos. T-17-072, Z-311-17 and P-119-17
Farming Status and History of Map No. 4N 28E 30 Tax Lot 1100

Dear Mr. Seitz:

I am a member of Liberated L & E, LLC ("Owner"), which is the owner of the property identified as Map No. 4N 28E 30 Tax Lot 1100, located off Westland Road in Umatilla County ("Property"). The Property is the subject of land use applications filed by Vadata, Inc., referred to as County File Nos. T-17-072, Z-311-17 and P-119-17 ("Applications"). The purpose of this letter is to address the farm status and history of the Property. Please accept this letter into the record for the Applications.

The Property consists of soils that are classified as low-quality for agricultural purposes, and the Property does not have any current water rights issued by the State of Oregon or the Westland Irrigation District. Further, the area is subject to groundwater restrictions and limited rainfall. As a result, the Property is not currently utilized for, and has not been recently utilized for growing crops. Owner has utilized the Property for limited grazing of livestock. However, even in this capacity, the Property has not yielded significant economic returns and is not conducive to operating a financially viable farming enterprise.

I am happy to answer any questions. Thank you for your consideration of this testimony.

Sincerely,

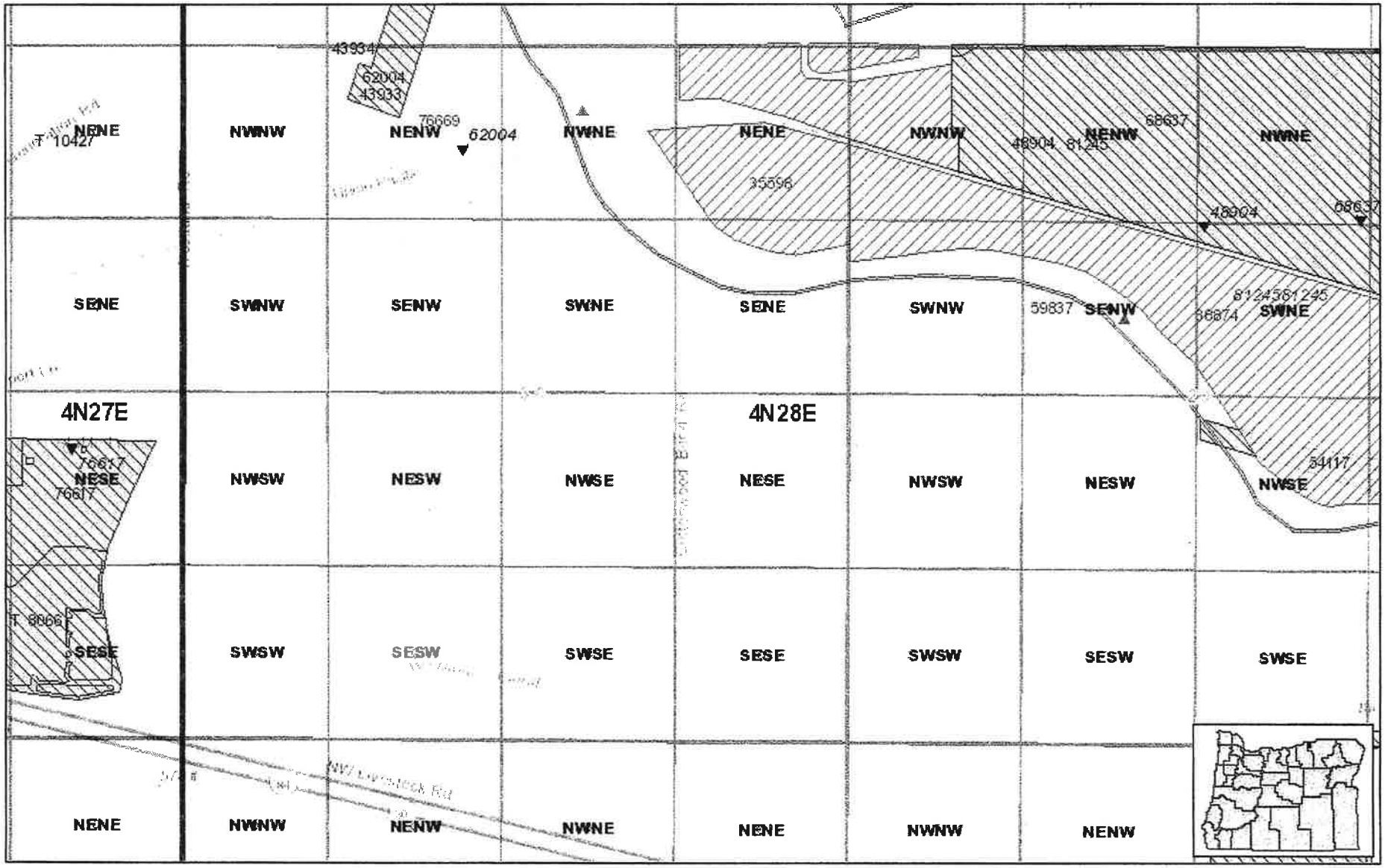
LIBERATED L & E, LLC.

Robert Joseph Zamrzla
Member

Oregon Water Rights Map

March 14, 2017

Oregon Water Resources Department
725 Summer St NE, Suite A, Salem, OR 97301
(503)986-0900



Disclaim p://www.oregon.gov/owrd/pages/MAPS/index.aspx#Disclaimer

Oregon
Kate Brown, Governor

Department of Land Conservation and Development
Colorado Terrace Building
1011 SW Emkay Drive, Ste. 108
Bend, Oregon 97702
(541) 318-7820
Web Address: http://www.oregon.gov/LCD

March 8, 2017

Brandon Seitz
Umatilla County Department of Land Use Planning
216 S.E. 4th Street
Pendleton, Oregon 97801

RE: Local File(s) T-17-072, Z-311-17 & P-119-17.
DLCD File: Umatilla County 001-17.

Mr. Seitz:

The department would like to thank Umatilla County for the opportunity to review and comment on the land use proposal referenced above. The applicant in this case is requesting to convert about 120+/- acres from a North County Agriculture Plan Designation and Exclusive Farm Use Zoning District to an Industrial Plan Designation and an Industrial Zoning District with a Limited Use Overlay.

It is our understanding that the subject property is a portion of a tract of contiguous parcels totaling about 203-acres located in the northeast quadrant of the intersection of I-84 and I-82. Other contiguous parcels owned by the applicant would retain the current exclusive farm use designation. If the proposal is approved the subject property, also described as 4N28E30 tax lot 1100, is expected to be developed as a data center with multiple buildings and ancillary facilities.

It is also our understanding that the applicant in this case currently operates one facility located within the urban growth boundary of the city of Umatilla and is entering the entitlement process for a second facility, also within the urban growth boundary of the city of Umatilla.

Goal 3 Exception

Information included in the applicant's submittal shows the property as being predominantly comprised of class VII soil and that no irrigation rights are associated with the property. The applicant's submittal also indicates that the subject property has no history of agricultural production. Based on this information the department accepts that it may not be necessary to protect the subject property for farming and ranching activities under Statewide Planning Goal 3 (*Agricultural Lands*).

Goal 14 Exception

The applicant is also pursuing an exception to Statewide Planning Goal 14 (*Urbanization*) in order to allow an urban use outside of an urban growth boundary. Although the application presumes to be for a data center, the materials provided for our review repeatedly describes the proposal as justifying "light industrial uses, including data centers..." We request that the applicant clarify the specific use or uses being proposed. Only those uses justified in the exception may be allowed on the subject property. While application of a Limited Use Overlay is identified several times we have been unable to locate the actual text of the proposed district(s). This may be an oversight on our part and we would appreciate being pointed in the right direction or having an electronic copy provided.

Two opportunities for a Goal 14 exception are found at OAR Chapter 660, Division 14. We agree with the applicant that the provisions of OAR 660-014-0040 are most applicable to this proposal.

Among other things, an applicant for a Goal 14 exception must show:

> (3)(a) That Goal 2, Part II (c)(1) and (c)(2) are met by showing that the proposed urban development cannot be reasonably accommodated in or through expansion of existing urban growth boundaries or by intensification of development in existing rural communities;

The material submitted for our review indicates that the applicant has addressed this criteria by referring to the response to OAR 660-004-0020(3)(c), which basically says additional information will be provided prior to the hearing. Please feel free to share this additional information when it becomes available. It will be necessary for the applicant to clearly explain why a data center and other light industrial uses (if applicable) cannot be accommodated in or through expansion of an existing urban growth boundary

Conclusion

The department is working diligently to understand the circumstances surrounding the subject property and the siting needs of the applicant. We believe the applicant must identify the specific use or uses requested in the exception and demonstrate how the implementing zoning provision will limit development on the subject property to only uses justified in the exceptions. Furthermore, a greater level of detail is needed to describe why alternative site that do not require an exception, including lands within existing urban growth boundaries, as well as, how existing urban growth boundaries cannot be expanded to accommodate the use. If the county is able to find that the applicable provisions of law are satisfied, we support placing the subject property in a designation authorizing the development of a data center and ancillary uses.

Brandon Seitz
March 8, 2016
RE: File No. T-17-072, Z-311-17 & P-119-17

Thank you for this opportunity to comment. We request that this letter be entered into the record of these proceedings and that we receive a copy of the decision. If additional information is provided at the hearing, we ask that the hearing be continued, pursuant to ORS 197.763(4)(b), to allow us time to review the new information and respond if necessary. If you have any questions please contact me at (541) 318-7920.

Respectfully,

Jon Jinings
Community Services Specialist

Cc: Tamra Mabbott, Umatilla County Planning Director
Seth King, Perkins Coie LLP

<DLCD: Edelman, Hogue, Murphy>

March 22, 2017

Umatilla County Planning Department
Attn: Tamra Mabbott, Planning Director
Umatilla County Courthouse
216 SE 4th St.
Pendleton, OR 97801

HERMISTON OREGON

Administrative Offices

RE: Comprehensive Plan Text/Map, and Zone Map Amendments- VADATA, Inc.

Director Mabbott,

The City of Hermiston strongly supports the Comprehensive Plan Text and Map amendments, as well as the Zone Amendment, proposed by VADATA, Inc. Although the proposed project will not be located within the Hermiston City Limits, the City of Hermiston will see a number of benefits as a result of the development including substantial local job creation, stabilization of rates in the Regional Water System (RWS), and helping to ensure long-term viability of our crucial RWS by growing and diversifying its customer base. Additionally, the City of Hermiston will see no negative impact to our municipal water system.

1. "City Water" vs. "Regional Water"- The City of Hermiston, and Port of Umatilla, are co-owners of the Regional Water System (RWS). The RWS is operated by City of Hermiston Water Department crews, and it draws its water from a Port of Umatilla water right out of the Columbia River. Although City crews operate the system, and the City has an allocation of potable water from the RWS, this proposed development would have absolutely no impact on the City of Hermiston's municipal water supply, however it may improve the City's ability to purchase water from the RWS.

The only physical connection between the two systems is through a potable water line which can be used to supplement the City's municipal system with water; however the City does not currently utilize this option. The City does not currently utilize this option because, since the RWS is a separate entity with a separate water allocation, the City must pay the RWS for any water it uses. Currently the City of Hermiston can produce our own water at a much lower cost than purchasing it from the RWS.

The Port of Umatilla's Water Right could accommodate up to 27,000 gallons per minute (GPM) of water usage. The City of Hermiston is guaranteed the ability to use up to 7,000GPM of that capacity if we wish. The Port of Umatilla has 9,400GPM of undeveloped capacity in the RWS. VADATA's water will come from the Port's capacity. This is why it can be said that the VADATA project will, legally, have no impact on the City of Hermiston's water supply.

2. Diversification & Long-Term Viability- The RWS is in perfectly sound financial shape. However, as with any business, diversification and customer growth are vital to ensure long-term viability, and that is true of public utilities also. For example, when Boise Cascade closed major parts of their operation in St. Helens, Oregon in 2009, the City of St. Helens lost more than 50% of their Water Department's revenue overnight. This obviously created major hardships and price increases on St. Helens' remaining water users. Currently, there are four major users of the RWS; two power plants, a potato processor, and a potato grower. The addition of VADATA as another large user of the RWS will greatly help diversify our customer base, and ensure that this crucial economic development infrastructure can weather whatever the next economic downturn throws our way.

3. RWS Rate Stabilization- Adding VADATA as another large user to the RWS will help stabilize costs to all current and potential future users. The finances of the RWS operate independently of the City of Hermiston, despite the City operating the system. The RWS pays the City for all personnel costs associated with operating the RWS. Therefore, the rates in the RWS can be more volatile than a traditional water utility, because any cost increases can only be spread over four users. One of the other main cost-drivers in the RWS is power to drive the many large pumps throughout the system. Adding another large user will help stabilize the RWS rates by increasing the economies of scale achieved, as the various fixed-costs will be spread over more units of production.

Rate stabilization in the RWS has a major impact on all of the communities in Umatilla County. The two power plants receiving water from the RWS are easily two of the largest individual property tax payers in Umatilla County. Not only will rate stabilization help ensure continued long-term viability and success of these two facilities, but stabilization will also help continue to make the RWS an attractive asset for other future large-scale development projects which will expand Umatilla County's tax base.

4. Port of Umatilla Water Right- The City of Hermiston, Port of Umatilla, Northeast Oregon Water Association, and Governor Brown's Regional Solutions Team have been working together over the past several years to fully certificate the Port of Umatilla's Columbia River Water Right. This project has been funded by an approximately $800,000 Regional Solutions grant. This right is being certificated in increments, and will be fully certificated within the next several years. Although this water right was already very well protected, this additional work to certificate the right ensures that this water is always legally available.

For these, and many other reasons, I encourage the Umatilla County Planning Commission to approve VADATA's requests.

Sincerely,

Mark Morgan

Mark Morgan, MPA
Assistant City Manager

Welcome to Umatilla County

Brandon Seitz <brandon.seitz@umatillacounty.net>

RE: Umatilla County Traffic Study

WISE Jeff <Jeff.WISE@odot.state.or.us> Thu, Mar 23, 2017 at 3:56 PM
To: "brandon.seitz@umatillacounty.net" <brandon.seitz@umatillacounty.net>
Cc: JARVIS-SMITH Cheryl <Cheryl.JARVIS-SMITH@odot.state.or.us>, HOLT Marilyn M <Marilyn.M.HOLT@odot.state.or.us>, Matt Hughart <MHUGHART@kittelson.com>, Diego Arguea <darguea@kittelson.com>, "tamra.mabbott@umatillacounty.net" <tamra.mabbott@umatillacounty.net>

Hi Brandon

I am forwarding our response to Kittelson on the Vadata Inc. project off Westland Rd for your consideration.

Jeff Wise PE
3012 Island Ave
La Grande, OR 97850-9497
541-963-1902

From: Diego Arguea [mailto:darguea@kittelson.com]
Sent: Thursday, March 23, 2017 12:10 PM
To: WISE Jeff
Cc: JARVIS-SMITH Cheryl; HOLT Marilyn M; Matt Hughart
Subject: RE: Umatilla County Traffic Study

HI Jeff,

Thanks for your email. Would you be comfortable preparing a similar email (or just forwarding the one below) and sending to the planner assigned to our project? I believe the planner is Brandon Seitz (brandon.seitz@umatillacounty.net) and you could also cc Tamra Mabbott (tamra.mabbott@umatillacounty.net). Thanks in advance!

-Diego

Diego Arguea, P.E. | Senior Engineer | Kittelson & Associates, Inc.
d: 503.535.7462 | o: 503.228.5230 | c: 503.334.3183

From: WISE Jeff [mailto:Jeff.WISE@odot.state.or.us]
Sent: Wednesday, March 22, 2017 9:49 AM
To: Diego Arguea
Cc: JARVIS-SMITH Cheryl; HOLT Marilyn M
Subject: RE: Umatilla County Traffic Study
300

Hi Diego,

After looking at the traffic study for the Vadata Inc. site off Westland Road it looks like the site access point is far enough away from the interchange that it is not a concern for us. Therefore we do not have any traffic issues with the proposed development.

Jeff Wise PE
3012 Island Ave
La Grande, OR 97850-9497
541-963-1902

From: Diego Arguea [mailto:darguea@kittelson.com]
Sent: Tuesday, March 21, 2017 2:25 PM
To: WISE Jeff
Cc: Matt Hughart
Subject: RE: Umatilla County Traffic Study

Hi Jeff—have you had a chance to review the TIA? Our hearing is on Thursday and we don't anticipate any traffic issues for discussion but just wanted to confirm with you ahead of time.

Thanks,

Diego

Diego Arguea, P.E. | Senior Engineer | Kittelson & Associates, Inc.
d: 503.535.7462 | o: 503.228.5230 | c: 503.334.3183

From: Diego Arguea
Sent: Thursday, March 16, 2017 5:07 PM
To: 'WISE Jeff'
Cc: Matt Hughart
Subject: RE: Umatilla County Traffic Study

Thanks Jeff. I ended up reducing the file size. I think it serves the intent, though some of the text on certain graphics may be fuzzier than the original. However, it should all still be very legible. Thanks!

Diego Arguea, P.E. | Senior Engineer | Kittelson & Associates, Inc.
d: 503.535.7462 | o: 503.228.5230 | c: 503.334.3183

From: WISE Jeff [mailto:Jeff.WISE@odot.state.or.us]
Sent: Thursday, March 16, 2017 8:04 AM
To: Diego Arguea
Subject: RE: Umatilla County Traffic Study

Morning Diego,

I checked my e-mail and I did not see the 8MB file but I did get the 2MB version. Thank You

Jeff Wise PE
3012 Island Ave
La Grande, OR 97850-9497
541-963-1902

From: Diego Arguea [mailto:darguea@kittelson.com]
Sent: Wednesday, March 15, 2017 6:44 PM
To: WISE Jeff
Cc: Matt Hughart
Subject: RE: Umatilla County Traffic Study

Jeff—in a previous email I sent you an 8MB file with the email below. Please confirm you received it (file size issues). Thanks!

Diego Arguea, P.E. | Senior Engineer | Kittelson & Associates, Inc.
d: 503.535.7462 | o: 503.228.5230 | c: 503.334.3183

From: Diego Arguea
Sent: Wednesday, March 15, 2017 6:42 PM
To: WISE Jeff (Jeff.WISE@odot.state.or.us)
Cc: Matt Hughart
Subject: RE: Umatilla County Traffic Study

Hi Jeff,

Please see attached traffic study for the proposed data center development located in Umatilla County. Matt Hughart asked that I forward you the report for your review.

Thanks,

Diego

302

Diego Arguea, P.E.
Senior Engineer

Kittelson & Associates, Inc.
Transportation Engineering / Planning
610 SW Alder St, Suite 700
Portland, Oregon 97205
503.228.5230
503.535.7462 (direct)
503.334.3183 (mobile)

Streetwise Twitter Facebook