MID-WILLAMETTE VALLEY INTERMODAL FACILITY

TRAFFIC IMPACT ANALYSIS

(SITE #2)

August 30, 2018

160 Madison St, Suite A
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Traffic Impact Analysis

Intermodal Transfer Facility

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August 30, 2018

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project # 5718

BACKGROUND

Linn Economic Development Group is proposing the development of an Intermodal Transfer Facility (ITF) in Millersburg, Oregon on tax lot 400 of MAP 10S-03W-28. The site consists of approximately 131.91 acres and is mostly vacant. A 60,00 SF warehouse currently exists on site which is anticipated to remain and be repurposed for the ITF use.

The proposal is to use the site as an intermodal transfer facility where goods grown and produced in Oregon will be brought in on semi-trucks and loaded onto rail containers to be shipped via rail to ports and other shipping locations outside of the Willamette Valley.

This traffic analysis provides an evaluation of the impacts that the proposed transfer facility would have on the adjacent transportation system.

RECOMMENDATIONS

The following are the recommendations for transportation improvements as part of the ITF project.

Site access

It is recommended that the site utilize 3 of the existing access points to the site.

The southern access as would utilize an existing access onto Old Salem Road. This access is ingress only and allows for a significant amount of off-street queuing and storage. This access is already designed for truck movements. Once the new interchange is built, this access would likely no longer be necessary, and the trucks can access the site from the northern access.

The northern most existing access to the site should be developed as the primary truck access. The access should be developed to allow for full-movement access. This access will serve as the primary access with the existing interchange configuration and with the interchange that will be built just to the north minimizing the amount of time trucks will be on Old Salem Road. Until the new interchange is built, the north access will encourage trucks to/from I-5 north of the site to use the South Jefferson Interchange and not he Murder Creek Interchange since the time/distance traveled will be shorter.

A third access is recommended for use by employees and other passenger cards. It is recommended that this access aligns with Arthur Road. However, there are a significant amount of utilities within the recommended access location. The existing access location 350 feet to the south is a suitable alternative if relocating the utilities is not feasible. The site access should be designed for full truck access in the event it is needed.

Old Salem Road/Century

It is recommended that this intersection is reconfigured to a traditional intersection geometry and control. The revisions as recommended in this report will eliminate northbound left turning trucks from blocking southbound traffic and eastbound left turning trucks from blocking northbound left turning vehicles. The recommended intersection control and configuration is illustrated in Figure 16.

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1.0 BACKGROUND

Linn Economic Development Group is proposing the development of an Intermodal Transfer Facility (ITF) in Millersburg, Oregon on tax lot 400 of MAP 10S-03W-28. The site consists of approximately 131.91 acres and is mostly vacant. A 60,00 SF warehouse currently exists on site which is anticipated to remain and be repurposed for the ITF use.

The proposal is to use the site as an intermodal transfer facility where goods grown and produced in Oregon will be brought in on semi-trucks and loaded onto rail containers to be shipped via rail to ports and other shipping locations outside of the Willamette Valley.

This traffic analysis provides an evaluation of the impacts that the proposed transfer facility would have on the adjacent transportation system.

2.0 PROPOSED SITE USAGE

The site, tax lot 400 of map 10S-03W-28, contains approximately 131.91 acres and is zoned for Industrial use. Figure 1 illustrates the site location. The most recent use of the site was the former International Paper (IP) facility. The site was vacated in 2009, and most of the buildings on site were removed. A 60,000 sf warehouse building remains on site near the main entrance that will be used for the ITF. The former use of the site was a production facility with a high number of daily deliveries by semi-trucks (200+ daily) and a large number of employees (350 employees).

The proposed use of the site is a transfer station that will allow semi-trucks to offload goods produced within Oregon onto rail where the products/shipping containers will be shipped by rail to ports outside the Willamette Valley. It is anticipated that a majority of products shipped via rail will include straw, pulp, lumber and wood products, seeds and grain, potatoes, and nursery stock. These types of products are grown, harvested, and produced within Oregon and are typically shipped along Interstate 5 (I-5) and Interstate 5 (I-205) corridors throughout Oregon. The proposed transfer station will ultimately reduce truck traffic along the I-5 and I-205 corridors by shifting interstate shipping methods from solely semi-truck to shipping by rail.

The proposed usage of the site is anticipated to have up to 10 employees and approximately 180 trucks daily. This usage is below the level of traffic previously experienced from the IP site. Therefore, the intersectional and capacity impacts will be less than what was experienced from the previous use of this site. It is anticipated that there would be no more than 50 trucks accessing the site during the peak hour. With employee shift change the total vehicles using the site is less than 60 during the peak hour.

Major truck routes to/from the site will likely occur from Interstate-5 (I-5), Highway 99, and Highway 20 with occasional truck usage from local streets, such as Conser Road, connecting the rural areas to Millersburg. Site access to/from I-5 will be via the Murder Creek interchange (exit 235) and via the South Jefferson interchange (exit 238) as they are the closest full access interchanges. Access to/from the interchanges to the site will be from Old Salem Road. Figure 2 illustrates the anticipated truck routing to/from the site from the I-5 interchanges.

ODOT has recently prepared an evaluation of the I-5 Corridor between the South Jefferson Interchange and the US 20 Interchange. This study has identified the need to construct a new interchange, the "Millersburg Interchange," and the removal of the Murder Creek and Viewcrest Interchanges. The new Millersburg Interchange will provide more direct access to the site and will likely be the primary route for trucks to/from I-5 once completed. Figure 3 illustrates the truck routing with the new Millersburg Interchange.

While the exact specifics of the ITF operation are not known, the Environmental Feasibility Study[1] prepared by EcoNorthwest identifies several feasible operating scenarios. These potential scenarios are:

1. **Scenario 1: Short-Line Rain 3-Day/Week Service.** Under this scenario, a short-line rail carrier would haul 50 containers northbound per week, distributed across three train runs (approximately 17 containers per haul). From the Portland-Vancouver area, these containers would be hauled by a Class I carrier to the Ports of Seattle and Tacoma.

2. **Scenario 2: Short-Line Rail 5-Day/Week Service.** Under this scenario, a short-line rail carrier would haul 600 containers northbound per week, distributed across five train runs (approximately 120 containers per haul). From the Portland-Vancouver area, these trains would be hauled by a Class I carrier to the Ports of Seattle and Tacoma.

3. **Scenario 3: Class I Rail 1 Day/Week Service.** Under this scenario, Union Pacific Railroad would haul 200 containers northbound from the ITF each week on one 200-container (double stack) train, and an equal number of imports or empty containers south per week. This is the minimum frequency needed to feasibly accommodate shippers, and the minimum size train Union Pacific would operate.

4. **Scenario 4: Class I Rail 3-Day+/Week Service.** Under this scenario, Union Pacific Railroad would haul approximately 733 containers northbound from the ITS each week on three or more 200-container (double stack) trains, and an equal number of imports or empty containers south per week. This is the number of containers identified in the market analysis, spread over three trains, meeting Union Pacific's minimum train size per week. The service could operate either 3 trains per week with approximately 245 containers per train, or 4 trains per week with approximately 183 containers per train.

This traffic analysis evaluates the impacts under the maximum number of shipping containers being processed through the site at Scenario 4 levels of 3 trains per week for 38,170 exported containers/year.

[1] Feasibility of an Intermodal Transfer Facility in the Willamette Valley, Oregon; EcoNorthwest; December 14, 2016

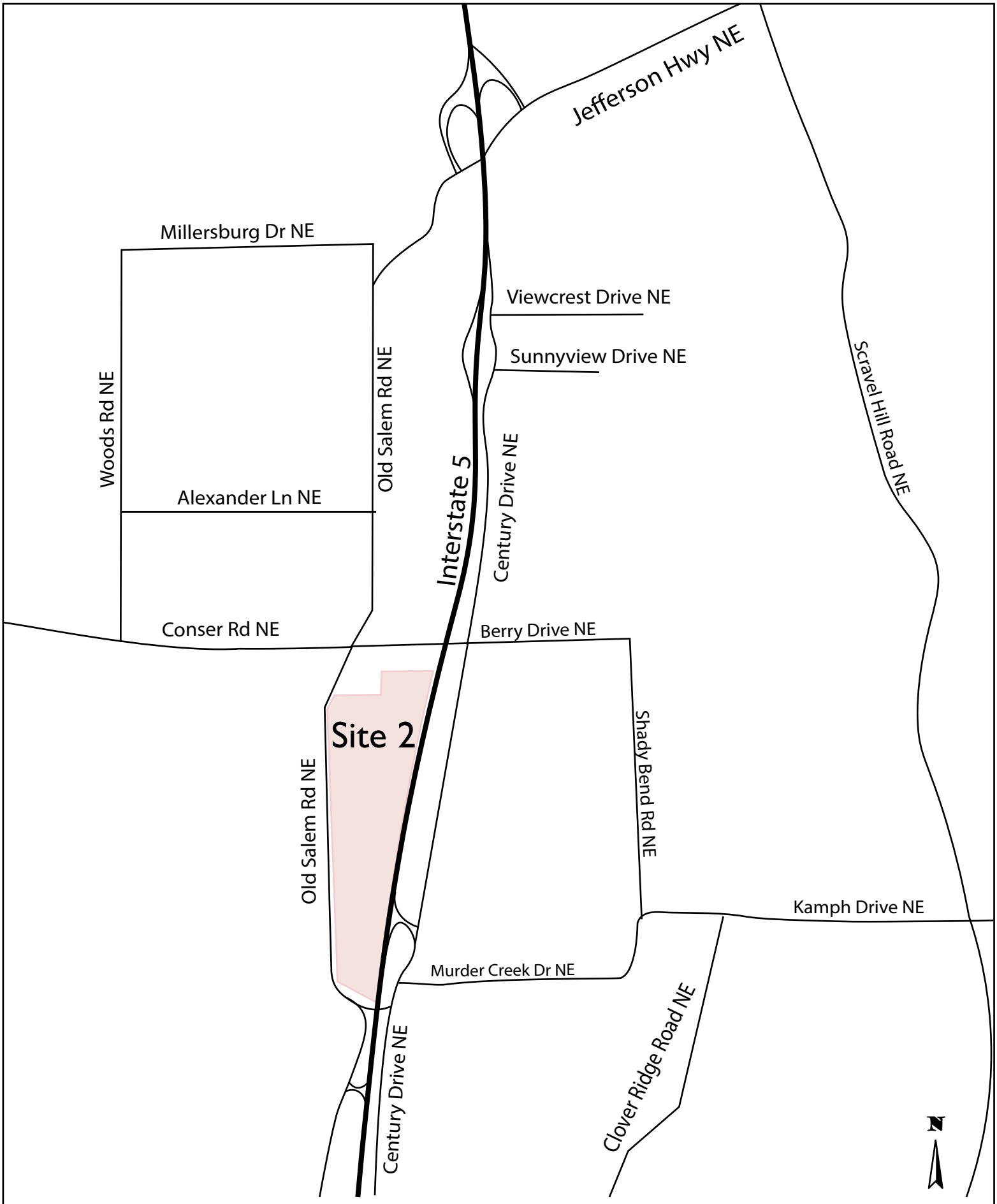

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Figure 1: Site Location

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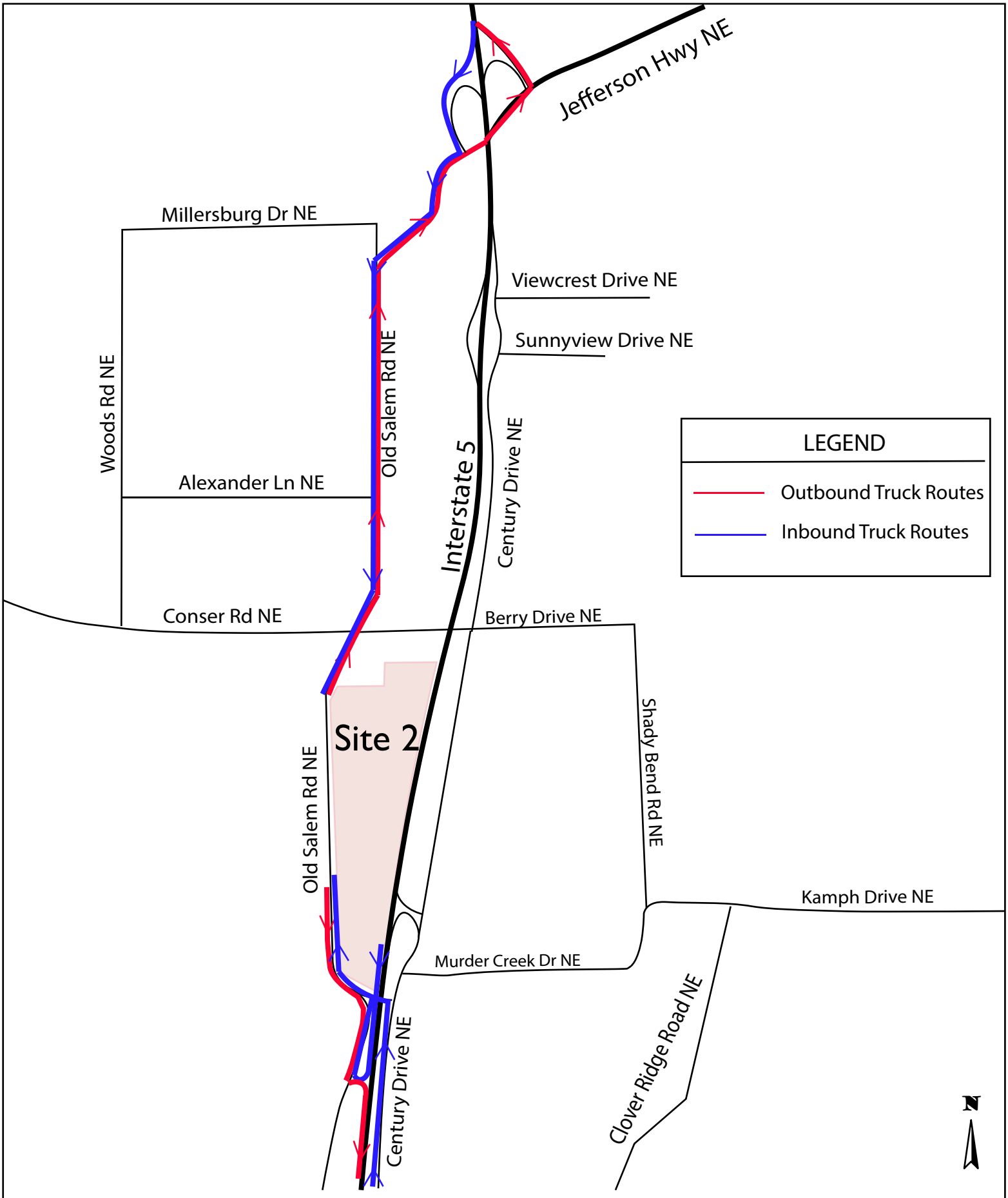

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Figure 2:Truck Routes With Existing Interchange

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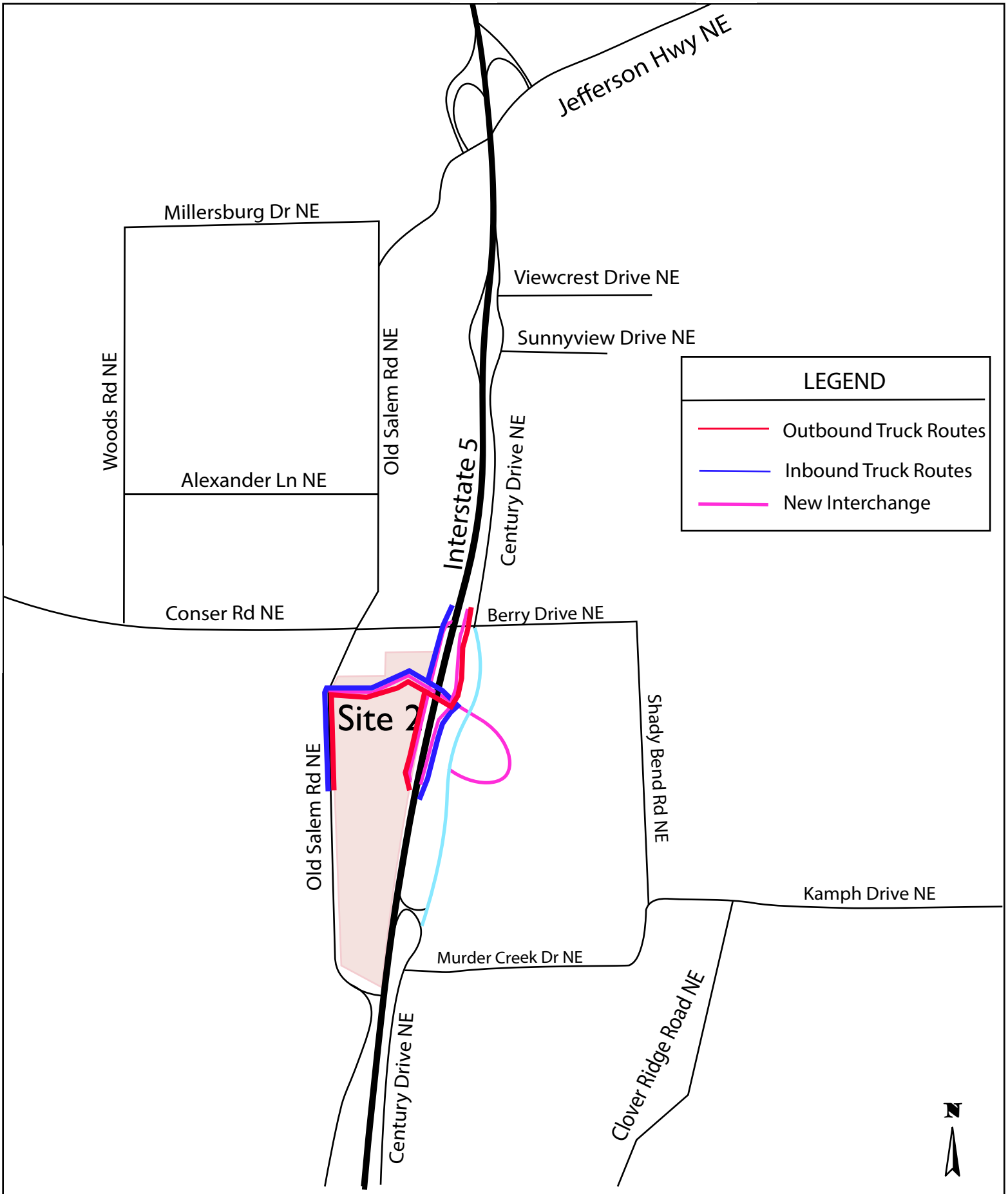

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Figure 3: Truck Routes with Interchange Improvements

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3.0 EXISTING INFRASTRUCTURE

The proposed site is located at Tax Lot 400 of map 10S-03W-28. The site is bordered by Old Salem Road to the West and South, Interstate 5 to the East, and Industrial lands to the North. Major roadways used by project traffic are Old Salem Road, Century Drive, and Interstate-5. The existing conditions for the roadways are described in the following.

Old Salem Road

The site fronts on and will take access from Old Salem Road. Old Salem Road will be the primary route for truck traffic between I-5, Highway 99, Highway 20, and the site. Old Salem Road is classified as an arterial street within Millersburg Transportation System Plan (TSP). Figure 4 illustrates the street classifications as per the City of Millersburg TSP. Old Salem Road consists of one lane in each direction, center turn lane, bike lanes, curb and gutter on both sides, and a sidewalk along the west side (north of the Willamette Memorial Park Cemetery). The street cross-section is 6' bike lanes, 12' travel lanes, and 14' center turn lane.

The site currently has multiple access points from Old Salem Road. Several of the access points have been specifically designed for truck movements and truck queuing to minimize the impacts to Old Salem Road.

Century Drive

Century Drive connects Old Salem Road to the Murder Creek Interchange northbound on/off ramps and Old Salem Road to Knox Butte Road/Knox Butte Interchange. Century Drive could also be used to serve Northbound truck traffic from the Knox Butte exit (exit 234). Century Drive is within ODOT's jurisdiction and is classified as a frontage road. Century Drive is one 12' travel lane in each direction with 3.5' shoulders on both sides and no sidewalks.

I-5 Murder Creek interchange

The closest interchange to the project site is the Murder Creek interchange. This interchange is full-movement allowing movements on/off for both North and Southbound traffic. There is easy access from Murder Creek interchange to the site via Old Salem Road. All movements at the interchange are stopped controlled before entering Old Salem Road and Century Drive.

I-5 South Jefferson interchange

South Jefferson interchange is located approximately 1.75 miles north of the site. The interchange is full access allowing the movements onto/off of I-5 in both northbound and southbound direction. Access to the site is via Old Salem Road. All movements at the interchange are stopped controlled before entering Old Salem Road,

Railroad

Union Pacific Railroad (UP) has a mainline rail between the site and I-5 with a spurs entering the site. Portland & Western (PW) has a mainline rail line less than a mile to the west. There is a spur that connects PW & UP rail lines. Figure 5 illustrates the location of the rail lines.

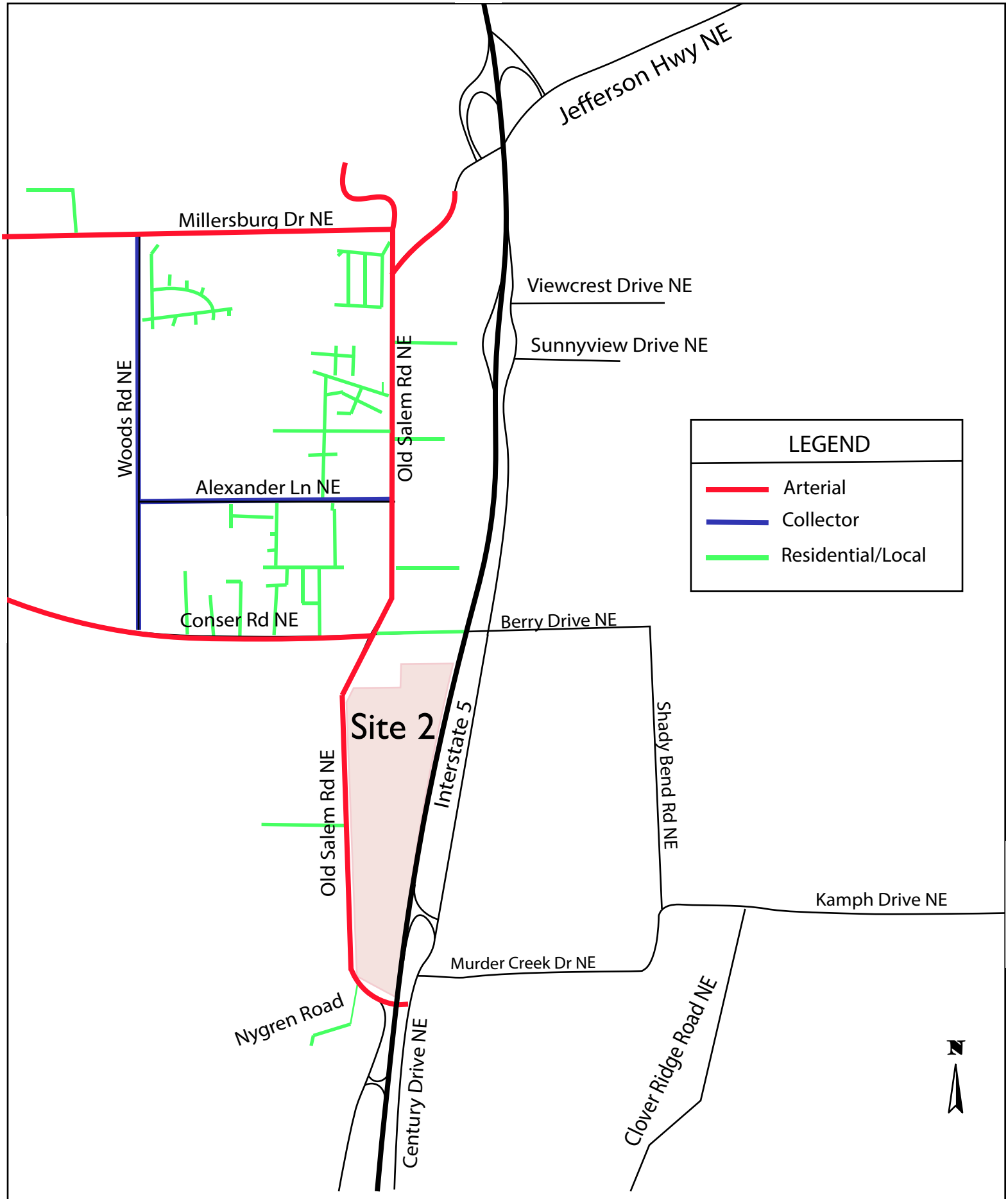

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Figure 4: Roadway Functional Classification

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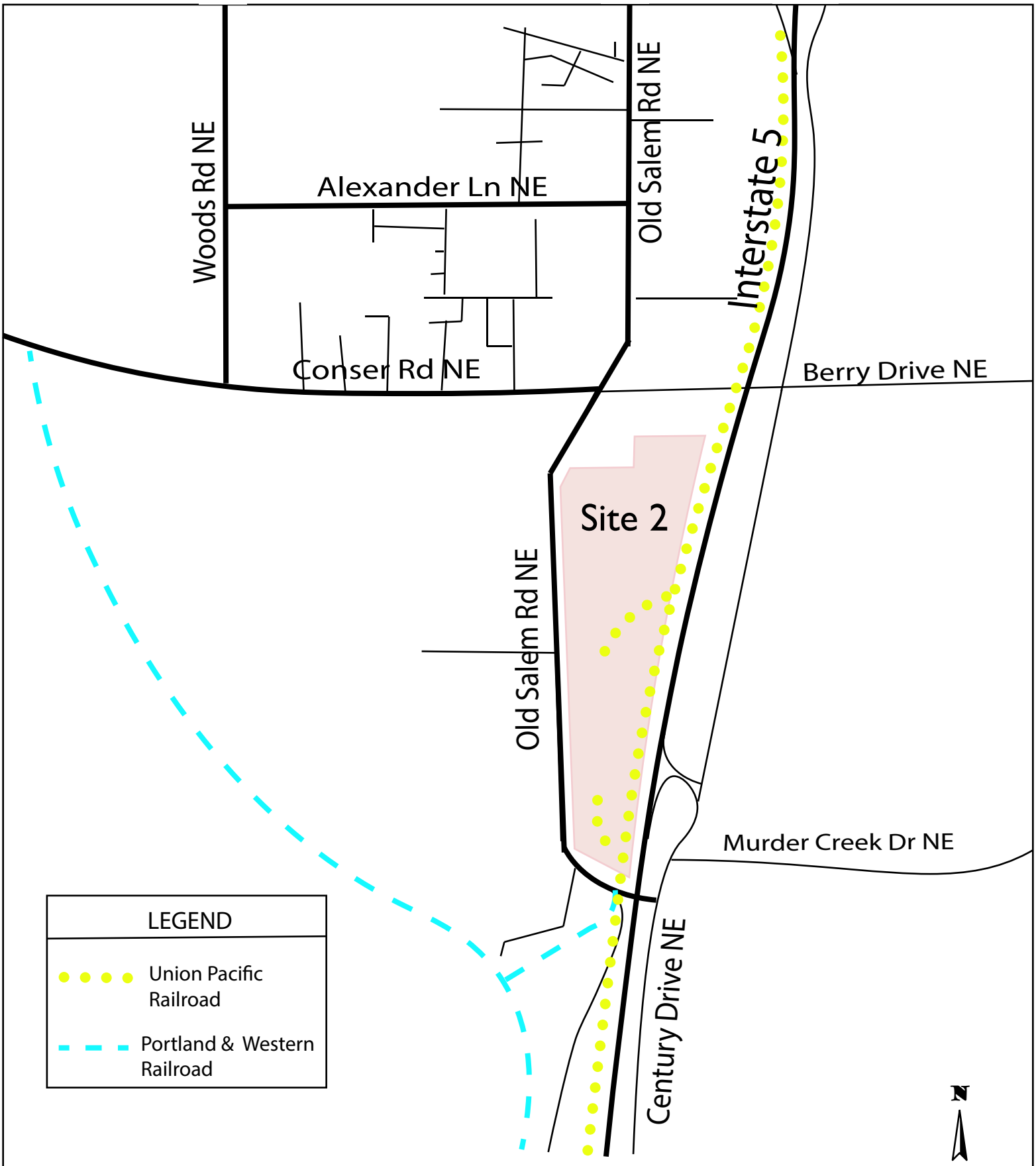

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Figure 5: Railway Map

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4.0 FUTURE BACKGROUND ROADWAY IMPROVEMENTS

The City of Millersburg, ODOT, and the recent Traffic Impact Analysis prepared for the Love's Travel Stop have identified several future roadway/transportation improvement projects to address current and future capacity and safety concerns. The following describes the planned improvement projects.

City of Millersburg Projects

The City of Millersburg 2016 Transportation System Plan (TSP) evaluated roadways and intersections within the UGB. The TSP has identified several projects to address existing and future deficiencies within the ITF travel area. Table 1 provides a list of the improvements and Figure 6 provides an illustration of the improvements.

TABLE 1: CITY OF MILLERSBURG PLANNED IMPROVEMENT PROJECTS

ID	Improvement
TSP FINANCIALLY CONSTRAINED PROJECTS	
B4	Old Salem Rd Shoulder Lanes (interim project)-widen shoulders for bike access
B5	Conser Rd Bicycle Lanes-extend bike lanes to city limits
P5	Conser Rd Sidewalks-extend sidewalks to city limits
P6	Old Salem Rd Sidewalks-construct new sidewalk along the west side
TSP ASPIRATIONAL IMPROVEMENTS	
S3	Reconstruct Old Salem Rd to arterial cross section
S9	Realign Conser Rd at Old Salem Rd
S10	Future I-5 Interchange Connection-add roadway from Old Salem Road to new Millersburg interchange
B1	Old Salem Rd Shared-Use Path-construct a 10-12 foot bicycle and pedestrian path parallel to Old Salem Rd
P3	"Four Lakes" Trail-construct path along the east side of the Willamette River

As depicted in Table 1 and Figure 6, the City of Millersburg has identified the need to extend the bike lanes and sidewalks along Conser Road west to the city limits. The city has also identified the need to realign Conser Road at Old Salem Road to a standard 4-way intersection.

The city has identified the need to reconstruct Old Salem Road to the current street standard as identified in the TSP and show in Figure 7 below. The projects for Old Salem Road include infilling of missing sidewalks and widening of the shoulders for bike use.

Additionally, the city has identified the need for a 10-12 foot multi-use path parallel to Old Salem Road. While the description of the project (T31) does not identify where in the right of way the multi-use path will be located, the map within the TSP depicts the path along the east side of Old Salem Highway.

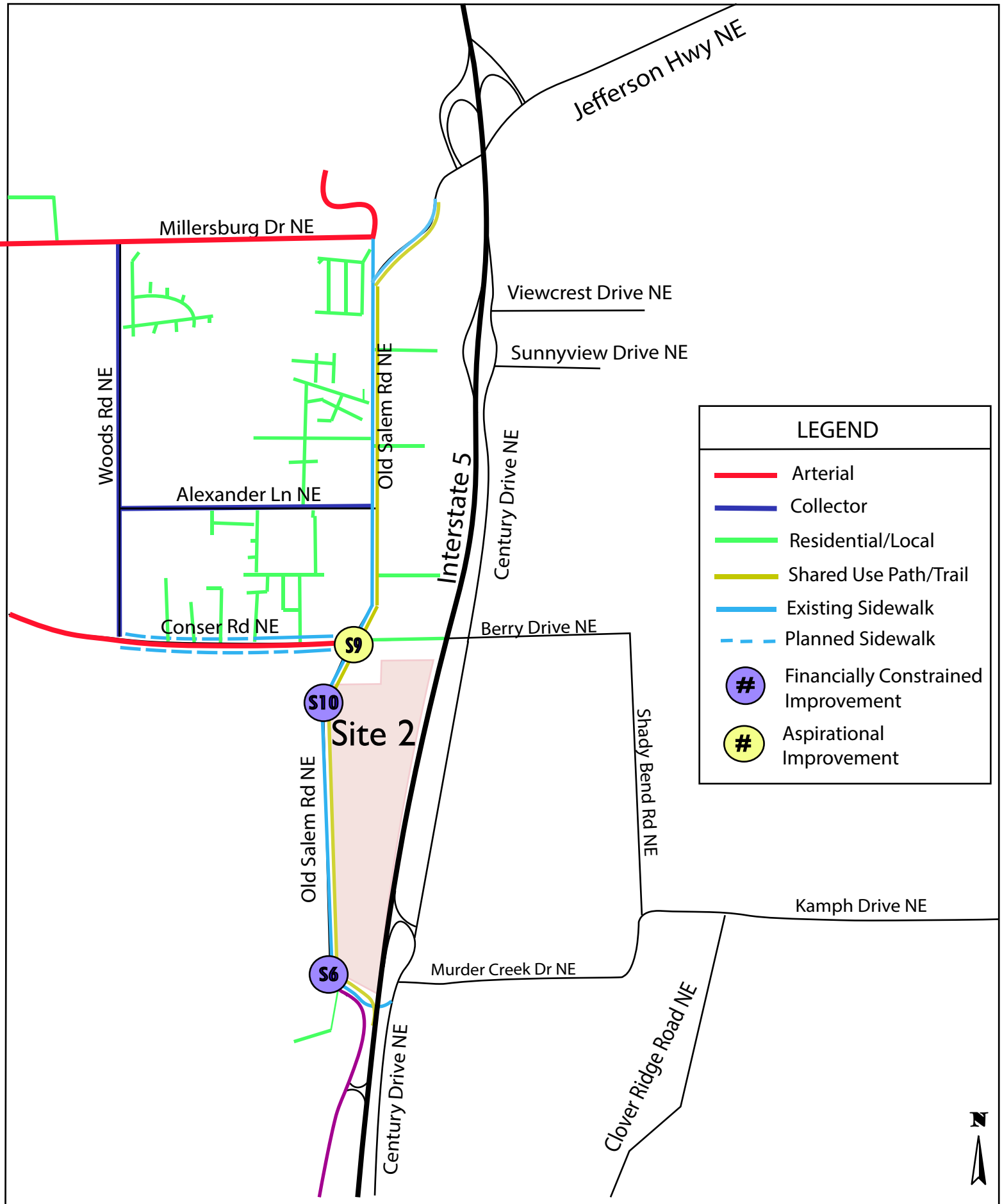

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Figure 6: City of Millserburg Future Roadway Improvements

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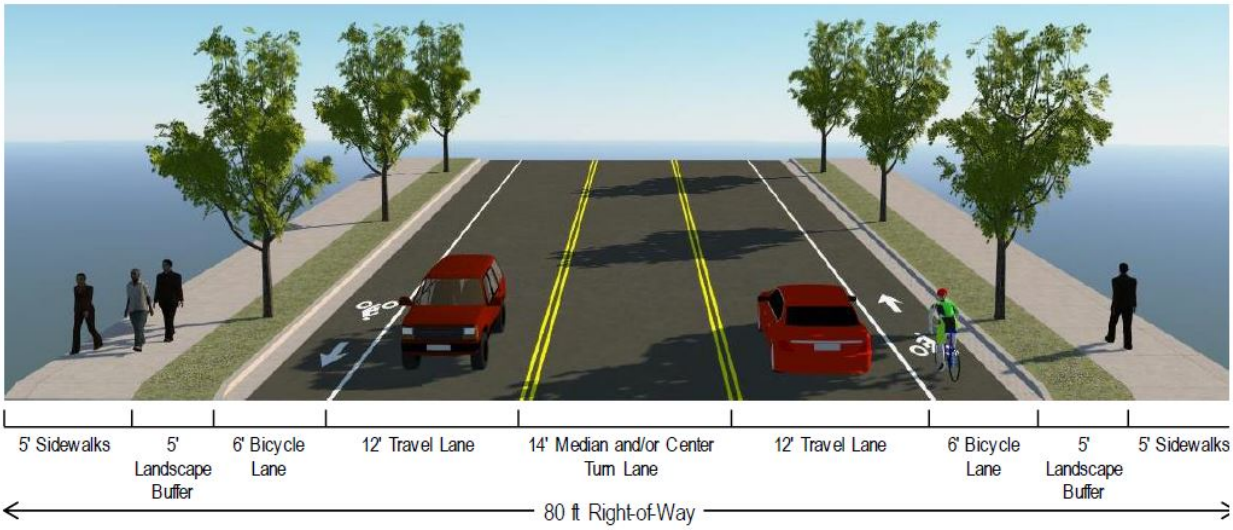
FIGURE 7: CITY OF MILLERSBURG ARTERIAL CROSS-SECTION



Development Driven Projects

The approved and in progress development of Love's Travel Stop (located just South of the South Jefferson Interchange) has identified the following mitigation needs to the system.

TABLE 2: DEVELOPMENT DRIVEN IMPROVEMENT PROJECTS

Location	Improvement
I-5 Northbound Ramp at Jefferson Highway	- Installation of all-way stop-control - Installation of Eastbound left-turn lane

From the traffic study, it would appear that the all-way stop-control is recommended for the year 2018 (year of opening), and the left turn lane is needed prior to the year 2040.

ODOT Projects

Recently ODOT has completed an evaluation of the interchange along I-5 between the South Jefferson Interchange (MP 238) and the US-20 interchange (MP 233.2). The evaluation identified that there are existing and future geometric deficiencies, safety concerns, and capacity constraints that are triggering the need for interchange improvements.

The following is a list of the recommended improvements as per the evaluation. Figure 8 illustrates the anticipated interchange improvements.

TABLE 3: ODOT INTERCHANGE IMPROVEMENTS

Improvement
- Add 1 additional travel lane on I-5 from MP 238 to MP 233
- Construct a new interchange at MP 236-“Millersburg Interchange”
- Close Viewcrest and Murder Creek interchange
- Improve Old Salem Road to current design standard
- Improve Century Drive to design standard
- New street connection from interchange to Old Salem Road

The study did not identify the timeline for improvements to the interchange, and the improvements are not listed in the 2018-2021 ODOT STIP.

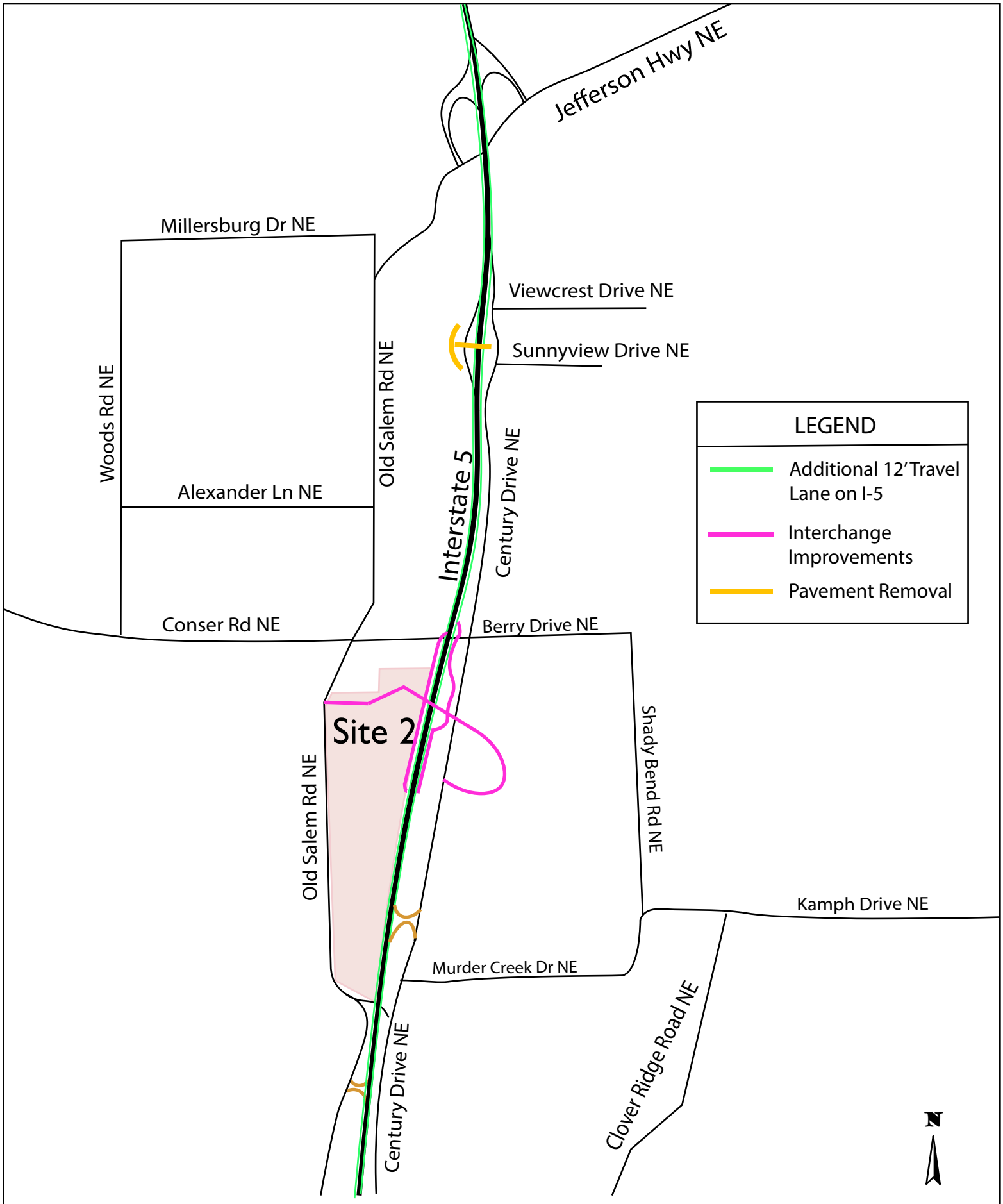


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Figure 8: ODOT Interchange Improvement Project

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5.0 TRANSFER FACILITY VEHICLE USAGE

The estimation of trips to/from the proposed ITF and routes of travel are described in the following.

5.1 TRIP GENERATION

The number of semi-truck trips and types of vehicles generated by the site will vary with the seasons, demand of products, and contracts with the shipping companies. However, EcoNortwest [2] provided a feasibility study of usage for a transfer site in the Willamette Valley. Within the study, it was determined that an ITF within the Willamette Valley could export 38,170 40-foot shipping containers each year. Additionally, the ITF could provide an import of goods to distribution centers of about 9,000 containers per year. The number of daily and peak hour truck and employee trips to the site are estimated using the operational data and expected shipping usage described in the EcoNorthwest feasibility study.

Daily Trips

The EcoNorthwest feasibility study determined that the site could export 38,170 shipping containers and import about 9,000 shipping containers per year. The feasibility study assumed the site would be operational for 5 days per week and would be operational for about 10 hours a day. Assuming for typical weekday holidays, there is an average of 261 working days per year. At 261 working days per year, the ITF would receive 150 trucks for exporting products and 35 trucks for the imported products daily. This is equal to 185 trucks accessing the site per day. As a conservative analysis, it is estimated that each container is one truck trip.

The EcoNorthwest assumed a minimal number of employees on site (2 employees). However, the traffic estimate was prepared assuming up to 10 employees during full operation.

The vehicle trip estimate is provided in Table 4.

[2] Feasibility of an Intermodal Transfer Facility in the Willamette Valley, Oregon; EcoNorthwest; December 14, 2016.

TABLE 4: DAILY SITE TRIP GENERATION

Import containers/year	38,170
Working days/year	261
Containers/day	150
Number of trucks/day *	150
Export containers/year	9,000
Working days/year	261
Containers/day	35
Number of trucks/day *	35
Number of Employees	10
Trips by trucks**	370
Employee trips***	20
Total daily trips	**390**

* Assume single trailer trucks- 1 container/truck

** Each truck has 2 trips- 1 in, 1 out

*** Each employee makes 2 trips- 1 in, 1 out

Peak Hour Trips

As per the EcoNorthwest feasibility study, the site is anticipated to run 10-hour shifts. For the purposes of the study, the 10 employees on shift at the start and end of the day are assumed to all enter during the AM period and exiting during the PM peak hour. While it is likely that the shift change will occur outside the peak hour, for the purpose of this study they were assumed to occur during the peak hours.

The truck traffic will deliver/pickup throughout the day based on trip logistics, seasonal fluctuations, and other factors. The ITE Trip Generation Manual provides an estimation for this type of land use (ITE Land Use Code-030 Intermodal Truck Terminal). The estimate peak hour trips during the AM and PM peak hour are illustrated in Table 5.

TABLE 5: PEAK HOUR TRIPS

Land Use	Size	Rate	Trips	In	Out
AM					
ITE LUC 030- Intermodal Truck Terminal	60 KSF	1.97	118	56	62
PM					
ITE LUC 030- Intermodal Truck Terminal	60 KSF	1.87	112	58	54

Trip Distribution

Trucks to/from the site are anticipated to be primarily from I-5. However, there will be some truck usage from Highway 99 and Highway 20.

The anticipated trip distribution is as follows:

- 10% to/from Highway 99 North
- 10% to/from Highway 99 South
- 10% to/from Highway 20 (east of I-5)
- 35% to/from I-5 North
- 35% to/from I-5 South

The estimated trip distribution for the AM Peak Hour is shown in Figure 9 and in Figure 10 for the PM Peak Hour. The trip distribution assumed truck routes based on the shortest path of travel for both distance and drive time.

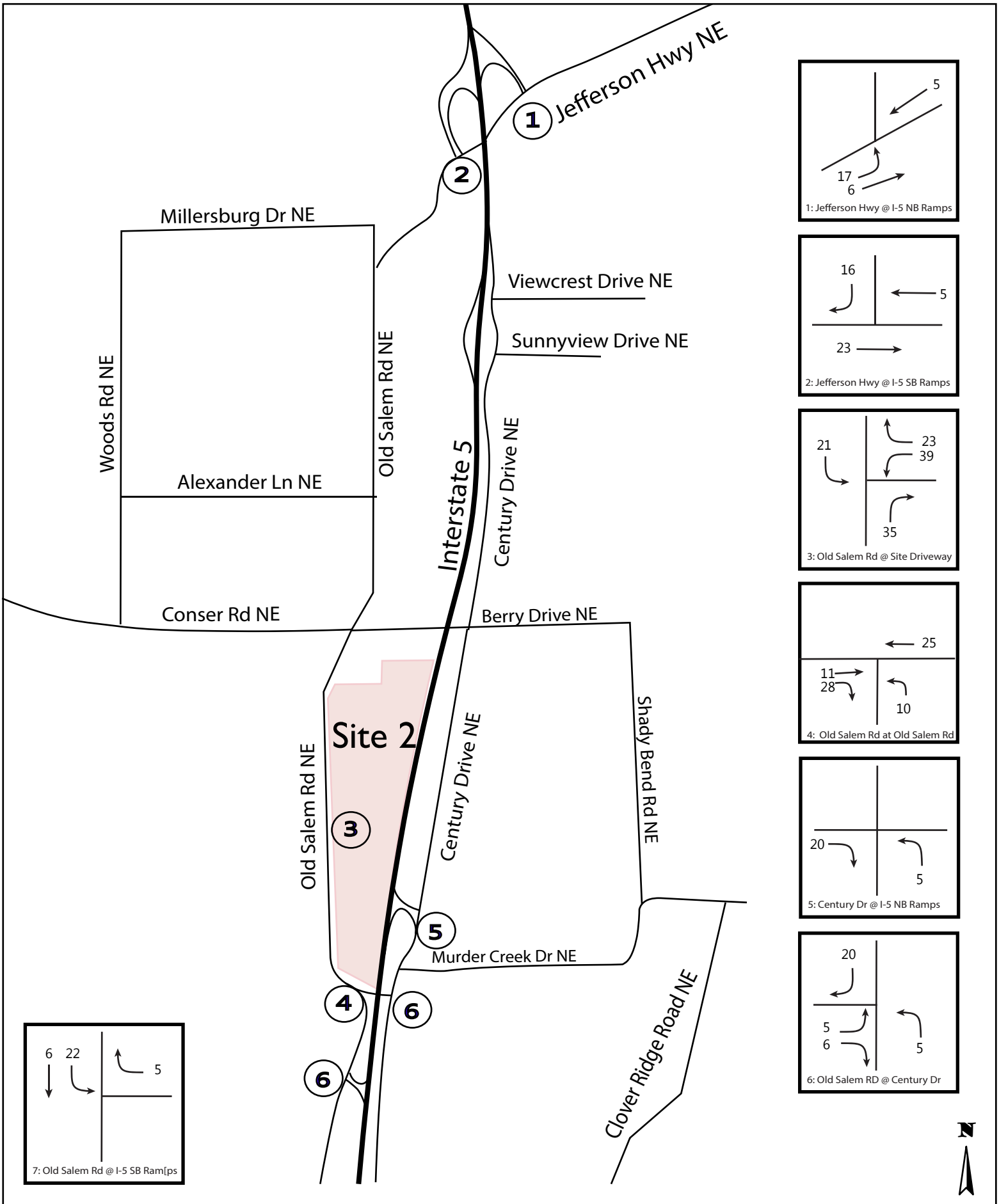

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Figure 9: AM Peak Hour Trips

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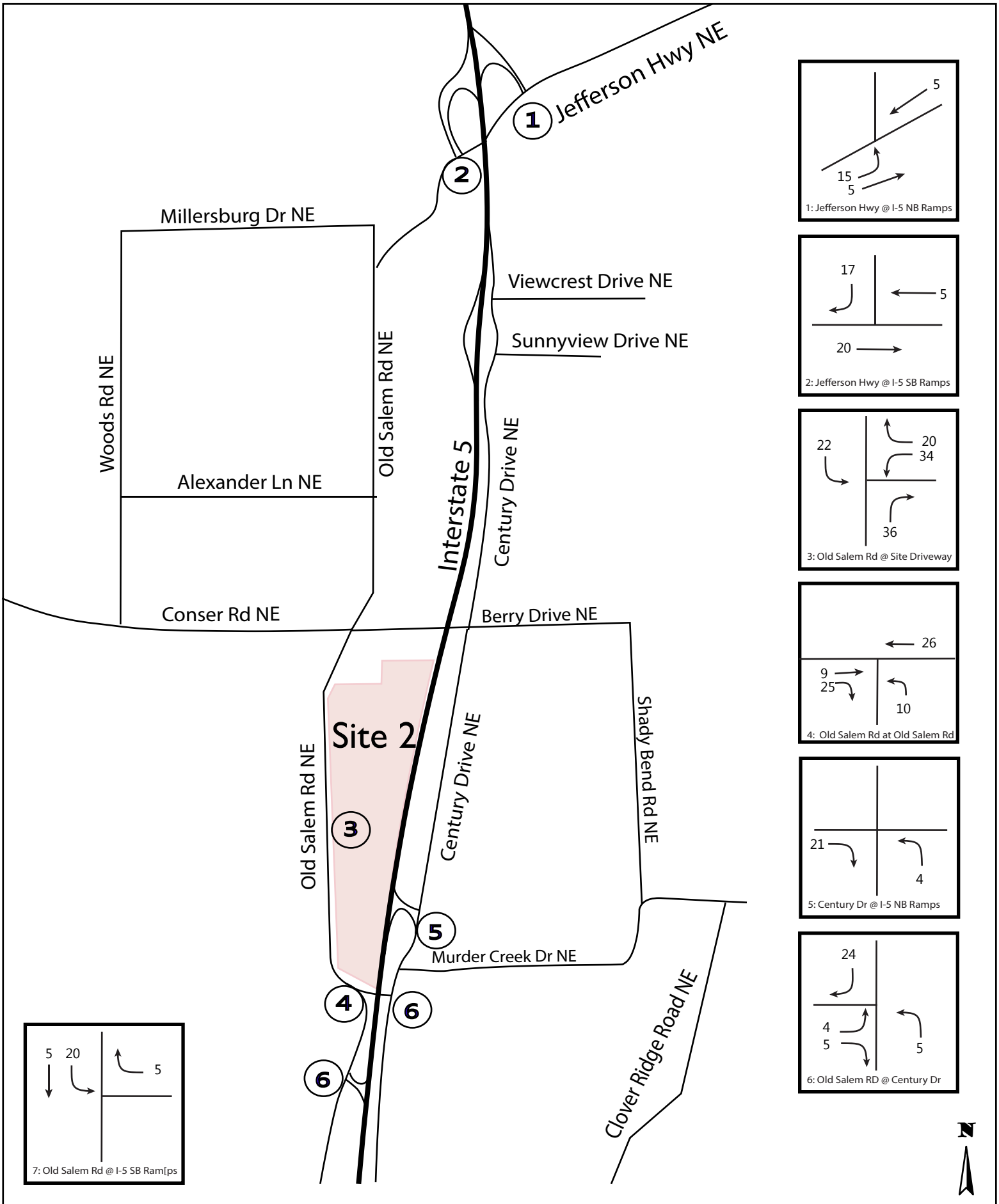

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Figure 9: AM Peak Hour Trips

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6.0 SITE ACCESS

The previous use of the site served a substantial number of employees and trucks. Therefore, multiple access points were developed. Figure 11 illustrates the location of the existing site access points.

While the site will need to continue to provide access for both trucks and employees, the need for so many access points is not necessary for this particular project. The recommendation is to remove/block all additional access points that are not specifically needed for daily operations of the site as described in the following.

The closest interchange/access to I-5 to the site is to the south at the Murder Creek interchange. Therefore, it is anticipated that a majority of the vehicles will access the site to/from the south via this interchange. However, once the Millersburg interchange is completed, truck access will be to/from the north via the new interchange. Therefore, the access location and design considers both the existing access to/from the south at the Murder Creek Interchange and the future access to/from the north at the Millersburg Interchange.

The site access was evaluated for truck turning movements, queuing for trucks, capacity, the location of adjacent driveways and roadways and safety considerations and recommends the following:

- **Utilization of the existing south access for truck traffic:** IP developed an access on the south end of the property that is currently designed to allow for truck movements into the access from both the north and south directions. The access has a large queuing area for trucks to queue off-site and off the roadway. Figure 12 illustrates the access location. Appendix A contains the truck turning templates. The access will serve as an entrance only. Once the new interchange is built, this access will likely not be utilized as frequently as the recommended north access as the north access will be the closest access to the new interchange.

- **Utilization of the existing north access for truck traffic:** The most northerly existing access will be the closest access to the new interchange, and therefore, could be the main entrance for truck traffic once the interchange is developed. The access should be developed for full movement allowing both ingress and egress of trucks. Figure 13 illustrates the proposed access location. Appendix A contains the truck templates. This access would be used for all exiting truck traffic.

- **Utilization of the existing main entrance for all traffic:** The existing main entrance to the site is designed to allow for truck movements into and out of the site. However, the site access is located about 350 feet south of Arnold Road. This distance is far enough away from the intersection that there would not be any turning movement conflicts and will not result in any adverse queuing or other operational conflicts. However, the ideal location would be the alignment of the access to Arnold Road. The access should be located to align with Arnold Road. However, there are a substantial amount of utilities at the location where the access is recommended. If the utilities cannot be reasonably located, then the existing main entrance 350

feet to the south will operate sufficiently. Either access location should be used for employee and other passenger vehicles. However, the access should be designed to allow for truck movements. Figure 14 illustrates the proposed access.

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Figure 11: Existing Access Locations

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Figure 12: South Access

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LEGEND

North Access

Existing Driveways

N

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Figure 13: North Access

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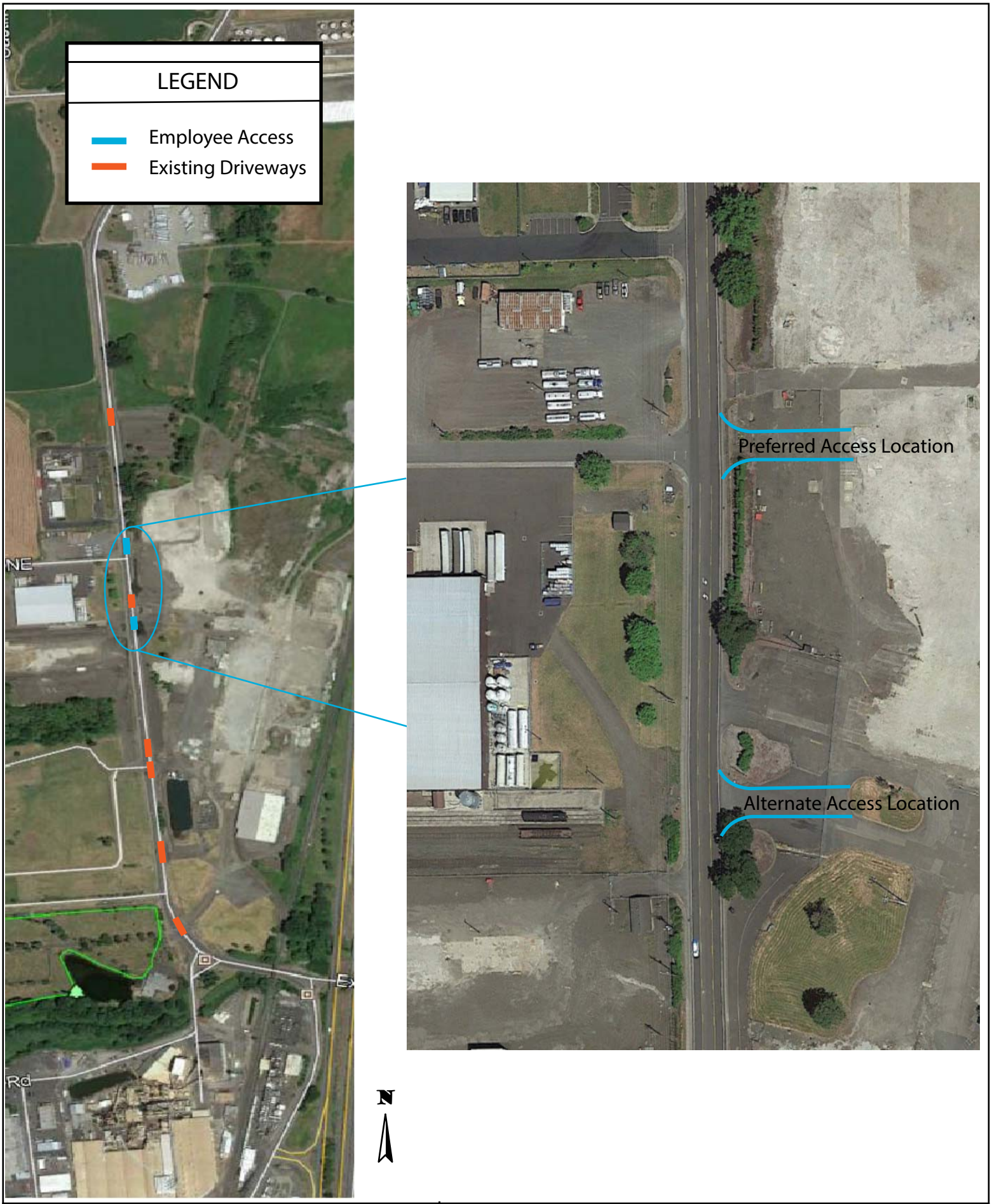

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Figure 14: Employee Access

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7.0 OFF-SITE IMPACTS

7.1 INTERSECTION CAPACITY

As shown in Section 5.0, the site is anticipated to generate 118 trips in the AM peak hour and 112 trips during the PM peak hour with full operation. Based on the estimated trip generation as illustrated in Figures 9 and 10. All of the intersections will receive less than 50 trips during either of the peak hours. The typical threshold for triggering an evaluation is the addition of more than 50 trips from a development. Therefore, the intersections fall below warranting a capacity evaluation.

Additionally, the previous use of the site facilitated 350 employees and heavy usage by truck traffic. The ITF proposal will generate less traffic on a daily and hourly basis than what was generated by the previous use of the IP site. Therefore, the impacts of the ITF on the adjacent system will be less than the impacts from the previous IP use.

The Loves Travel Stop TIA evaluated conditions at the northbound and southbound ramps at the South Jefferson Interchange. The TIA determined that the southbound ramps operate at a v/c 0.16 at the opening of the project and at a v/c 0.25 through the year 2040 with the completion of the project. There is sufficient capacity at the southbound ramp intersection to facility the small amount of additional traffic from the proposed ITF. The TIA determined that the northbound ramp would need an all-way stop-controlled configuration as well as an eastbound left turn lane. With the proposed mitigation from Love's Travel Stop, the northbound ramp intersection is projected to operate at a 0.77 through the year 2040. The mobility standard for this intersection is 0.85. There is sufficient capacity at this intersection for the additional low volume of traffic from the ITF site.

The ODOT I-5 South Jefferson to US 20 evaluation[3] and recommendations were prepared using traffic count data taken 2008 while the IP site was in full operation. The results of the analysis show that the intersection operation for Old Salem Road at Century Drive and Old Salem Road at Conser Road will operate at a LOS B through the year 2035. There is sufficient capacity at these intersections for the additional of traffic from the ITF site. Additionally, the ODOT report indicates that the intersections of Old Salem Road at Old Salem Road will operate at a LOS F in the year 2035 if the new interchange is not completed. The construction of the new interchange will improve the intersection operation to a LOS C. With the new interchange the truck traffic to/from the ITF site will be diverted to the north and very little will utilize this intersection. Therefore, it is anticipated that there will be no impact to this intersection by the ITF facility.

[3] I-5: South Jefferson Interchange to US 20 Interchange Design Baseline Evaluation; Oregon Department of Transportation; December 2015.

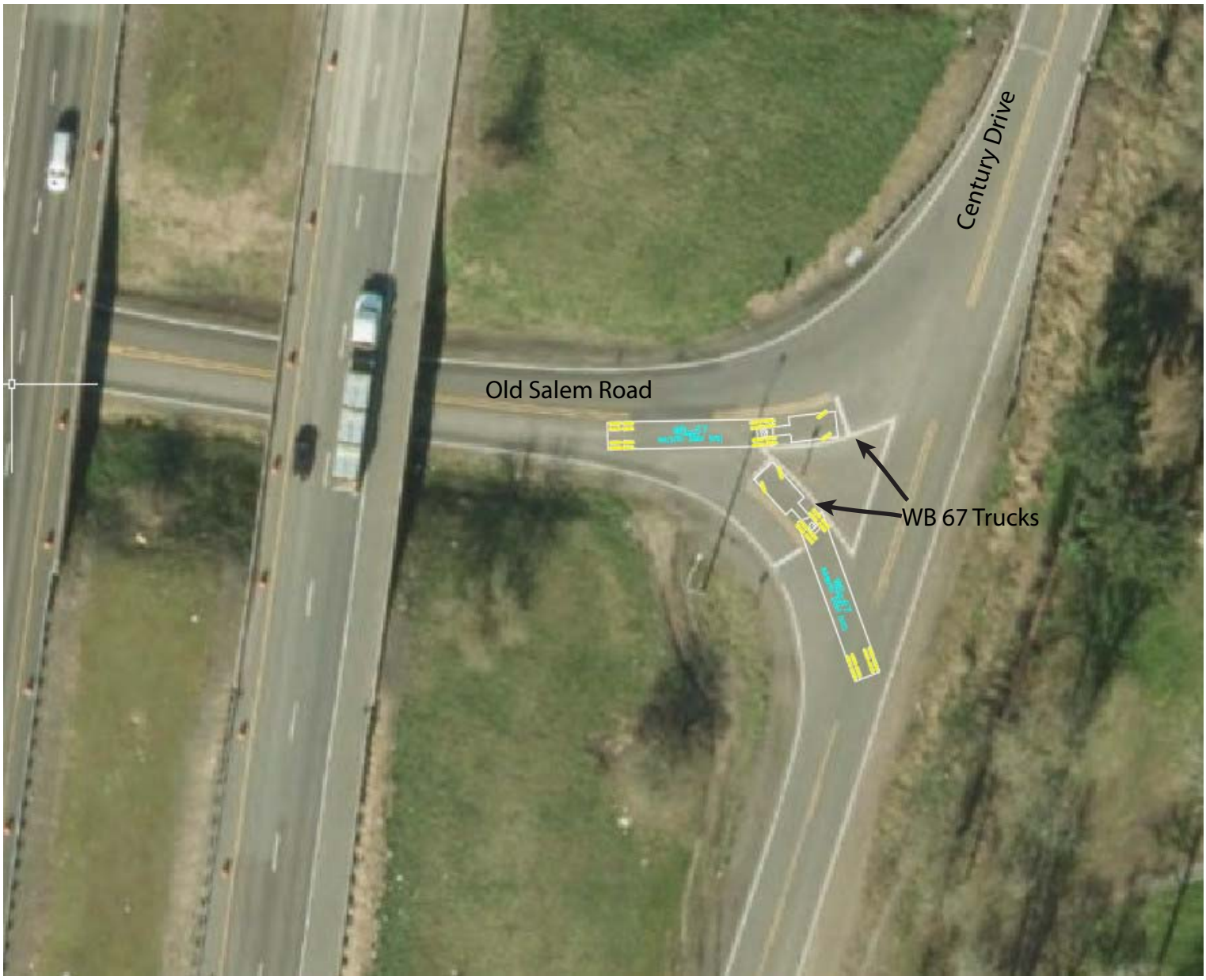
7.2 INTERSECTION GEOMETRY

The intersections within the study area were evaluated for geometric deficiencies and safety concerns. In general, all movements to and from the interchanges and at intersections between the interchanges and the site have acceptable intersection controls and geometry for the anticipated truck traffic. The intersection of Old Salem Road/Century Drive has a non-typical configuration that could be adversely impacted by the truck traffic. Appendix B contains the truck turning templates for the intersections.

Old Salem Road/Century Drive:

Due to the geometry and stop control configuration at the intersection of Old Salem Road/Century Drive truck movements have the potential to cause a safety concern. The intersection of Old Salem Road/Century Drive is a T-intersection where the eastbound traffic is stop-controlled as it enters Century Drive. What is potentially problematic, is the northbound left turn has a stop sign about halfway through the turn. Any truck larger than a WB 40 stopped at this stop sign will have the rear of the truck overhang into the southbound lane of Century Drive. Additionally, the eastbound left turn overlaps the northbound left turn movements. A truck stopped to make an eastbound left turn will block the movement for a northbound left turn. Figure 15 illustrates the existing intersection geometry and intersection control.

It is recommended that this intersection be reconfigured to a traditional intersection geometry and control. The recommended intersection control and configuration is illustrated in Figure 16.



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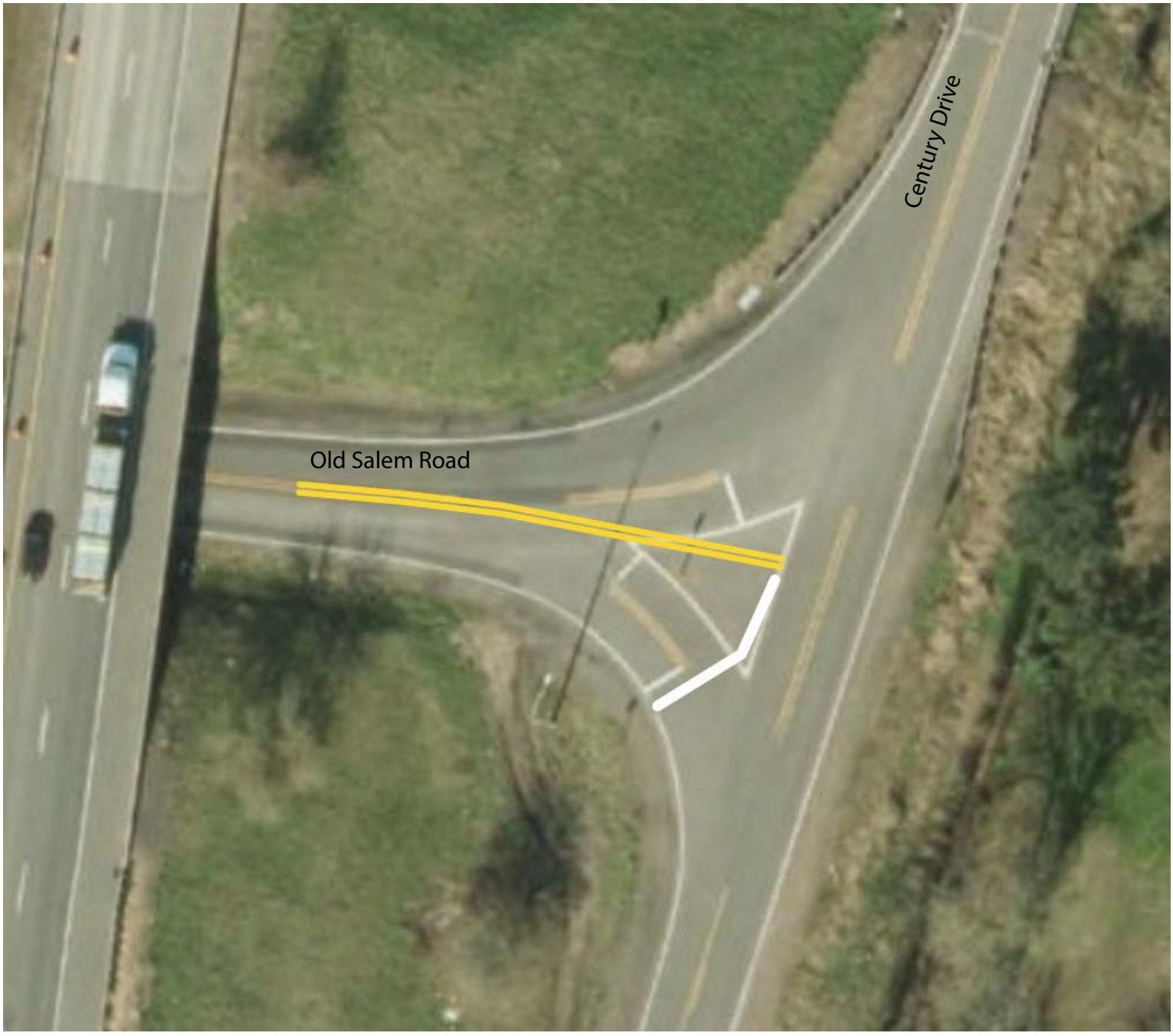
Mid-Willamette Valley Intermodal Facility

Figure 15: Existing Intersection Configuration_Old Salem Road at Century Drive



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Mid-Willamette Valley Intermodal Facility

Figure 16: Proposed Intersection Configuration_Old Salem Road at Century Drive

7.2 RECOMMENDATIONS

The following are the recommendations for transportation improvements as part of the ITF project.

Site access

It is recommended that the site utilize 3 of the existing access points to the site.

The southern access as shown in Figure 12 would utilize an existing south access onto Old Salem Road. This access is ingress only and allows for a significant amount of off-street queuing and storage. This access is already designed for truck movements. Once the new interchange is built, this access would likely no longer be necessary, and the trucks can access the site from the northern access.

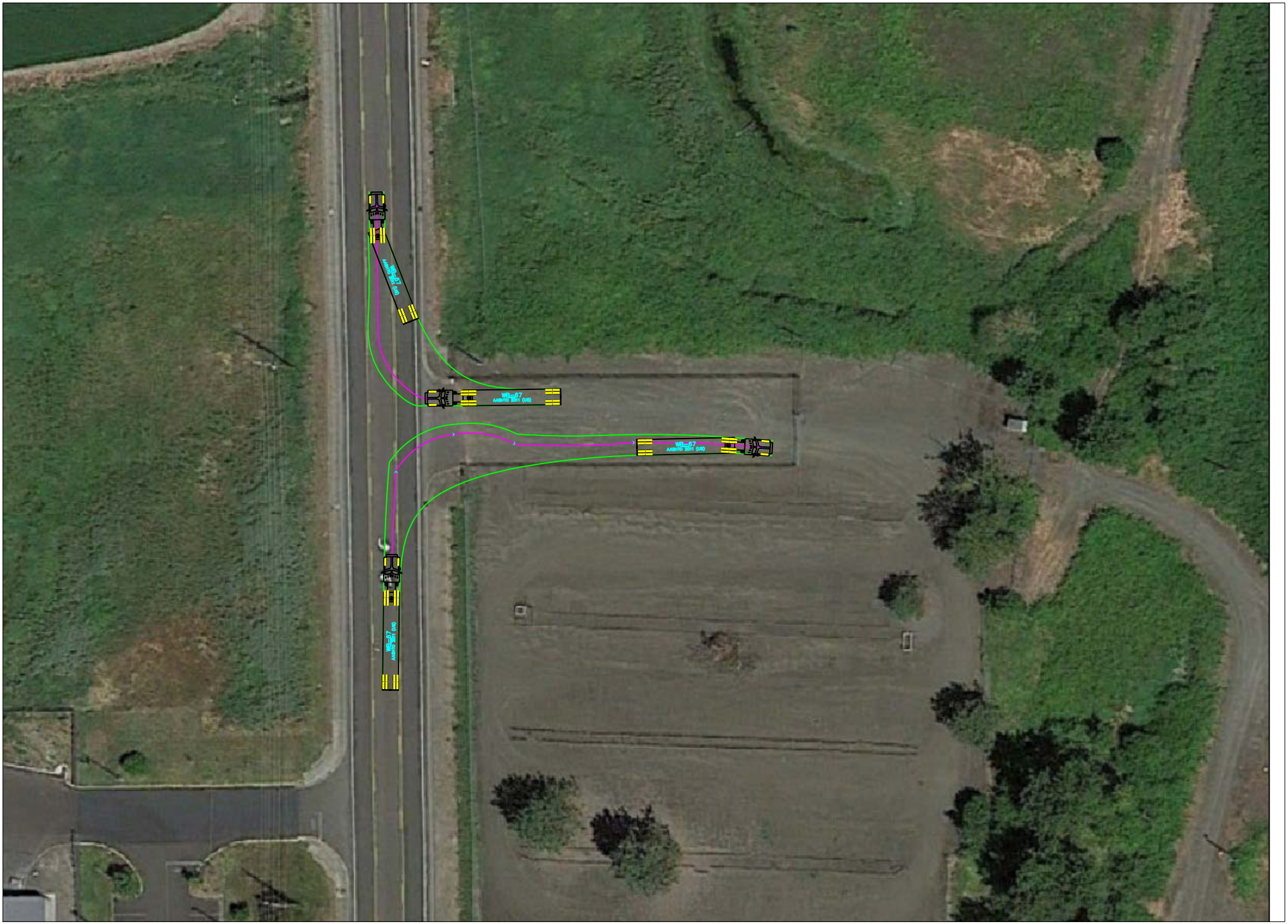
The northern most existing access to the site should be developed as the primary truck access. Figure 13 illustrates the site access. The access should be developed to allow for full-movement access. This access will server as the primary access with the existing interchange configuration and with the interchange that will be built just to the north minimizing the amount of time trucks will be on Old Salem Road. Until the new interchange is built, the north access will encourage trucks to/from I-5 north of the site to use the South Jefferson Interchange and not he Murder Creek Interchange since the time/distance traveled will be shorter.

A third access is recommended for use by employees and other passenger cards. It is recommended that this access aligns with Arthur Road. However, there are a significant amount of utilities within the recommended access location. The existing access location 350 feet to the south is a suitable alternative if relocating the utilities is not feasible. The site access should be designed for full truck access in the event it is needed. Figure 14 illustrates the proposed location.

Old Salem Road/Century

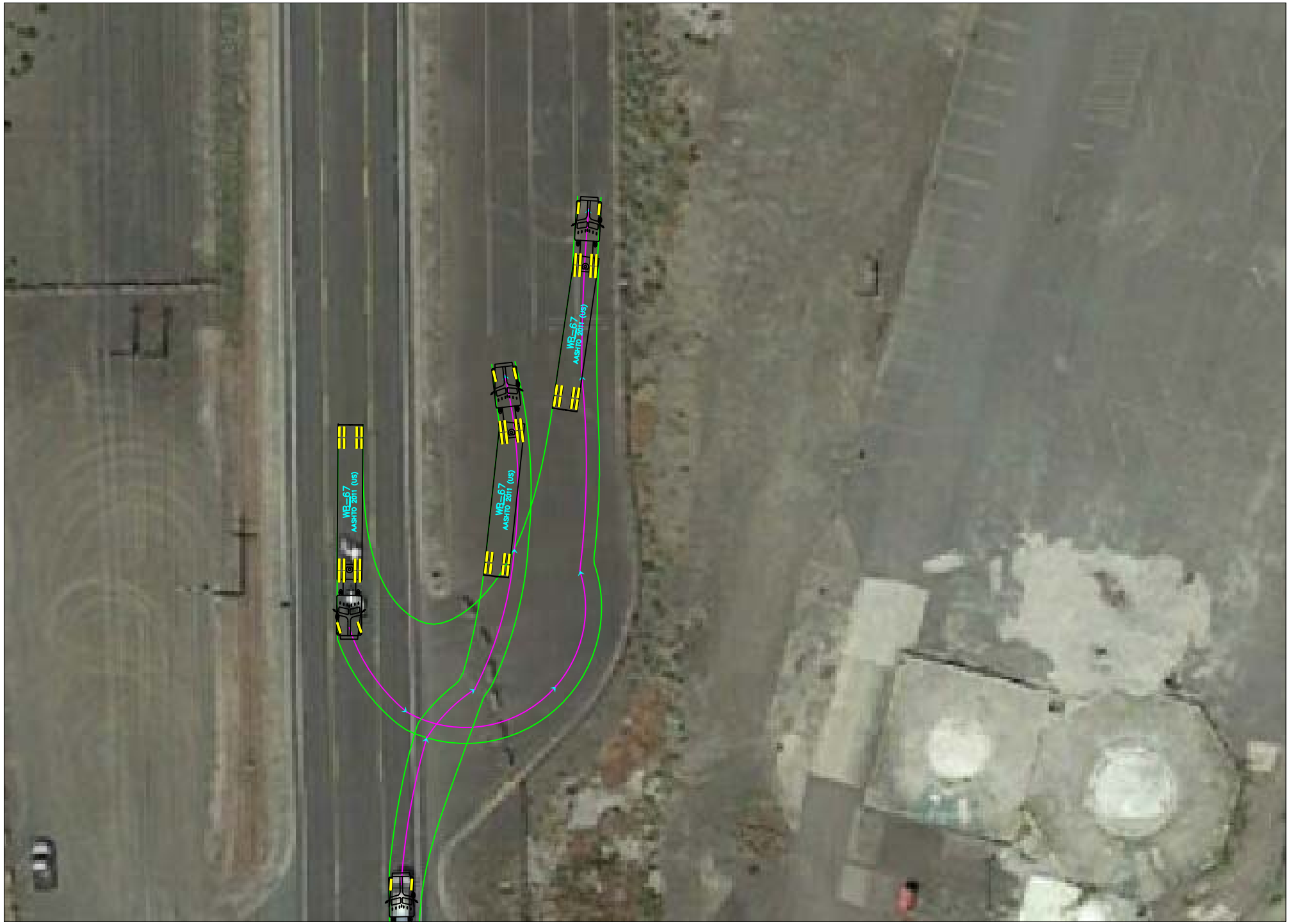
It is recommended that this intersection is reconfigured to a traditional intersection geometry and control. The revisions as recommended in this report will eliminate northbound left turning trucks from blocking southbound traffic and eastbound left turning trucks from blocking northbound left turning vehicles. The recommended intersection control and configuration is illustrated in Figure 16.

Intermodal Transfer Faciltiiy



North Access

SANDOW ENGINEERING

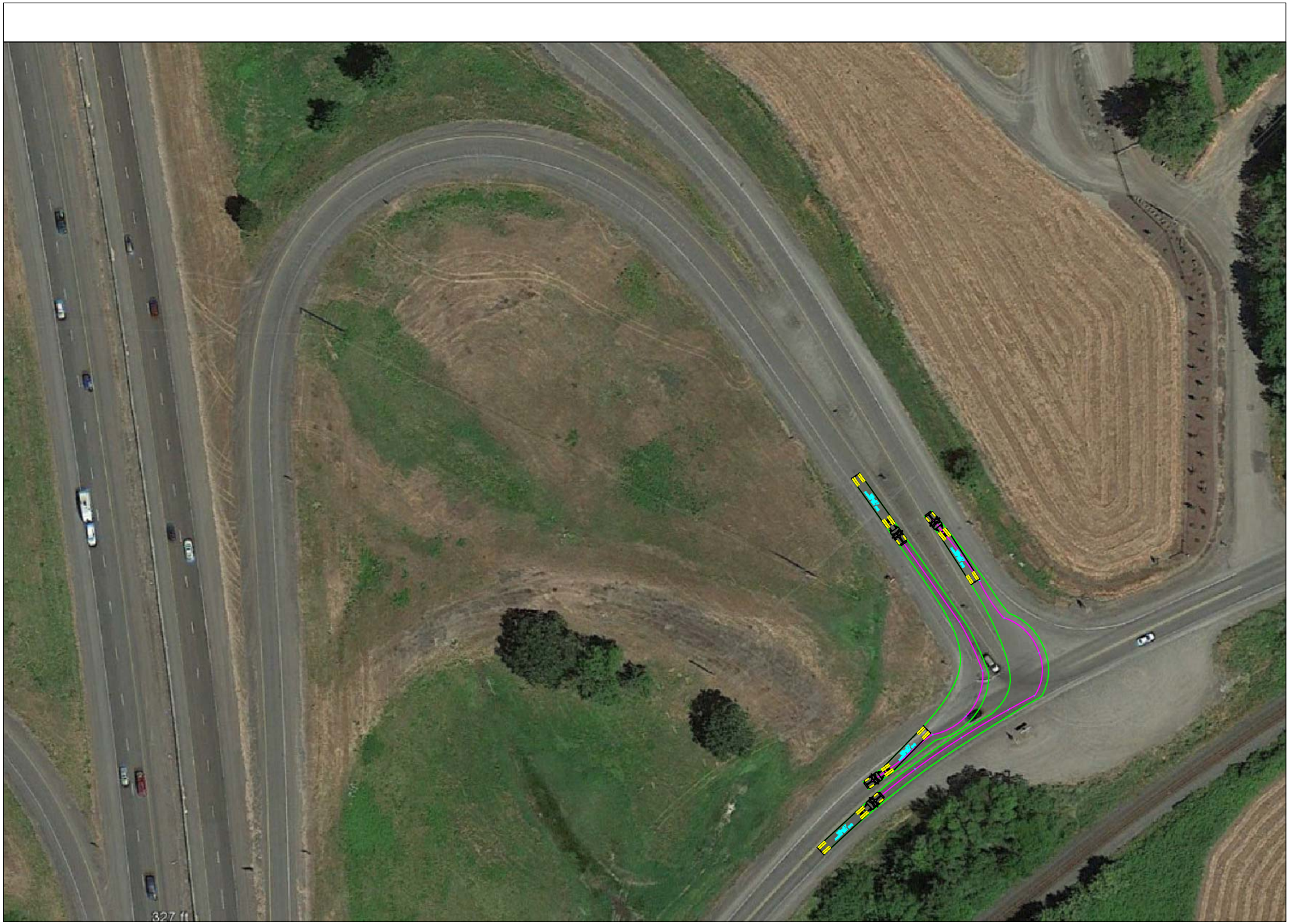


South Access

SANDOW ENGINEERING

APPENDIX B: INTERSECTION TRUCK TURNING TEMPLATES

Intermodal Transfer Faciltiy



South Jefferson at NB Ramps

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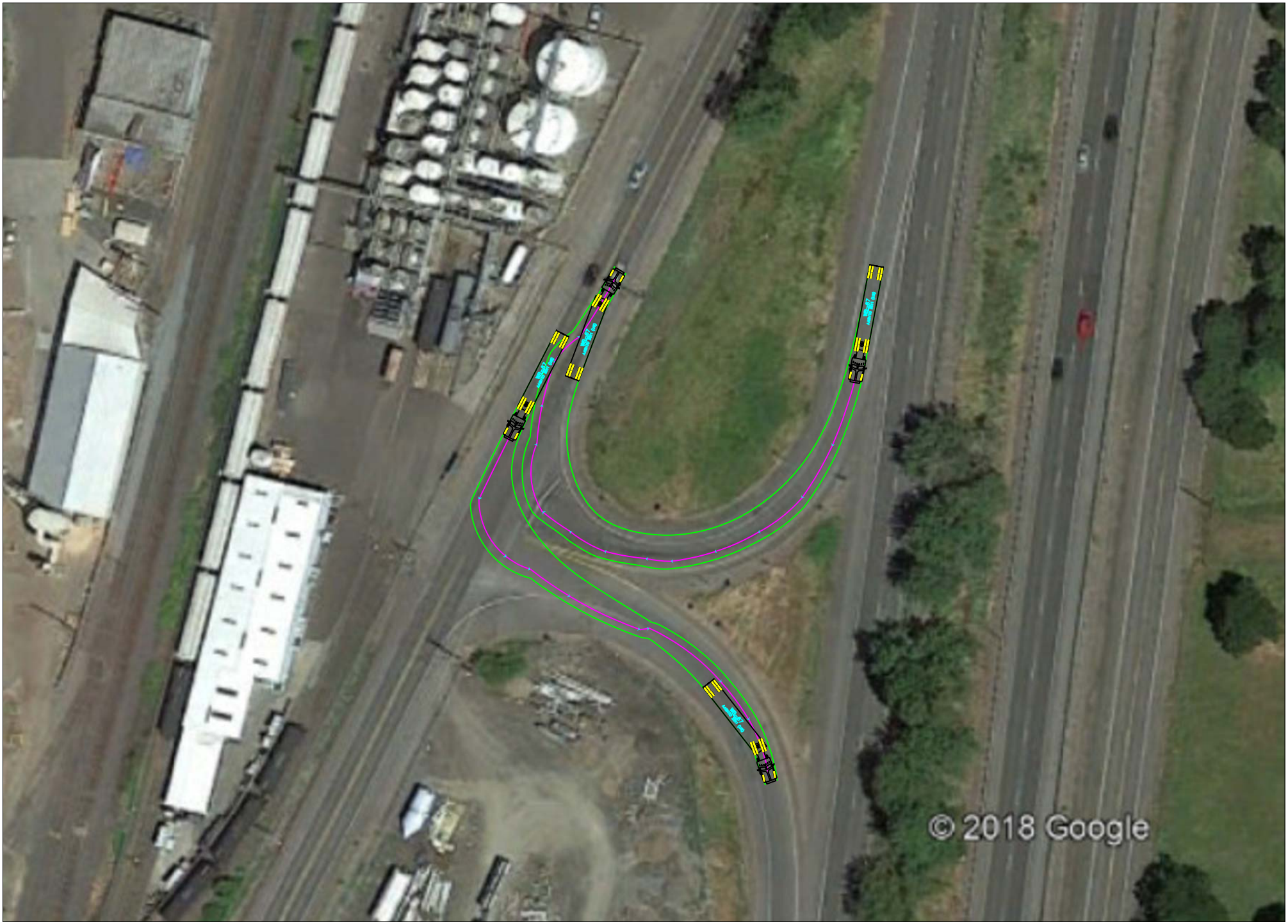
South Jefferson at SB Ramps

SANDOW ENGINEERING



Old Salem Road at SB Ramps

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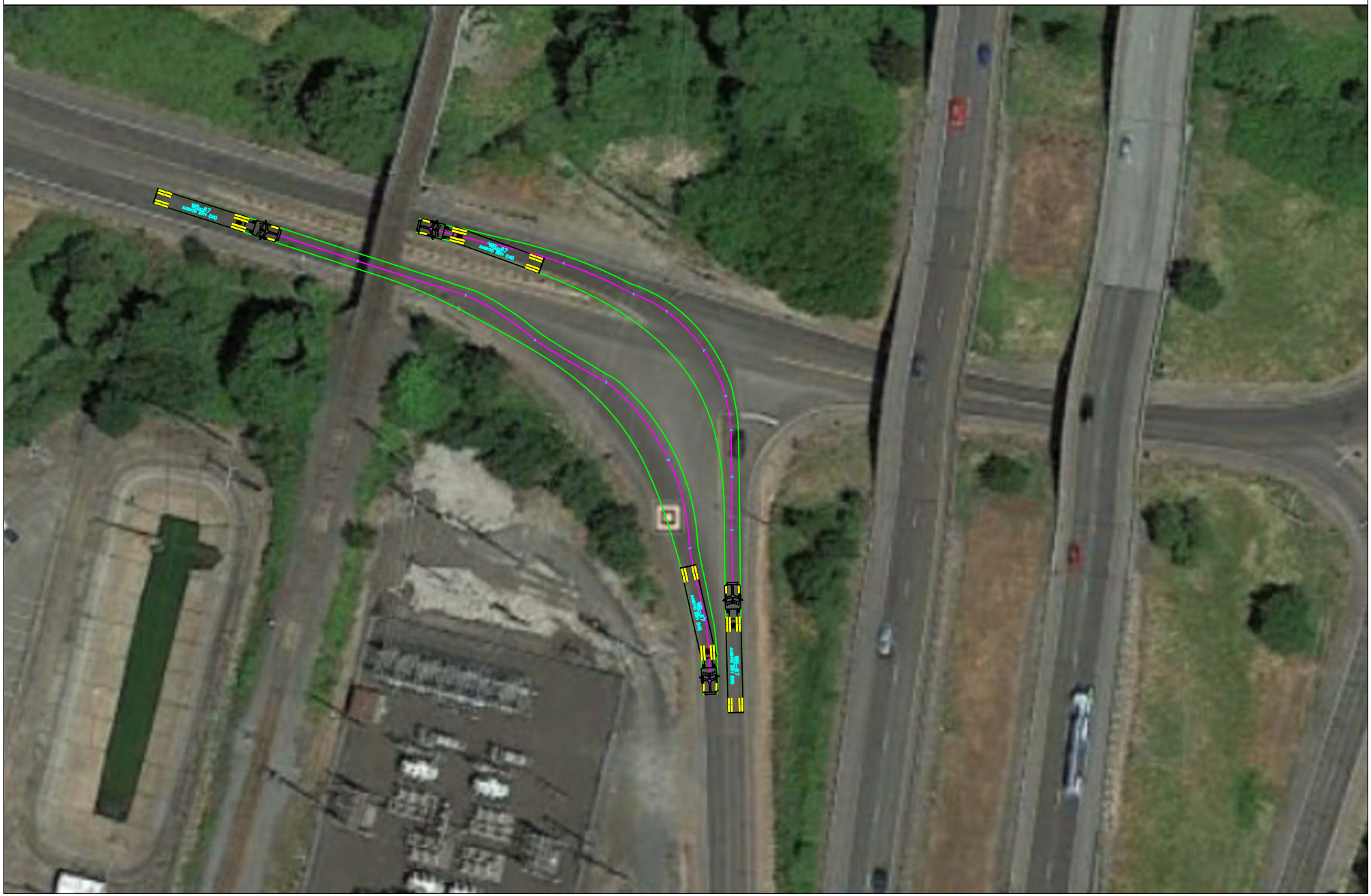

Old Salem Road at Old Salem Road

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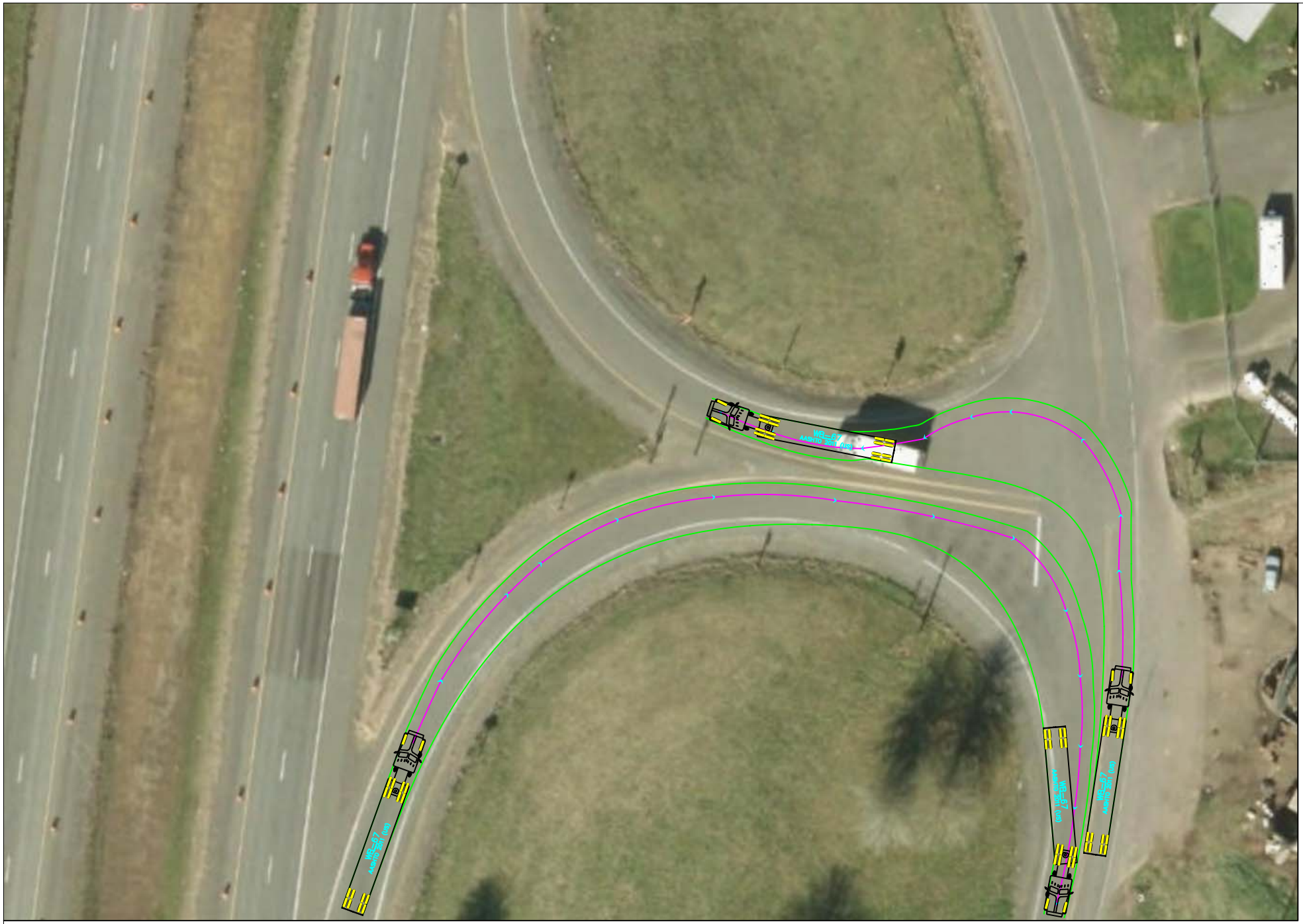

Century at NB Ramps

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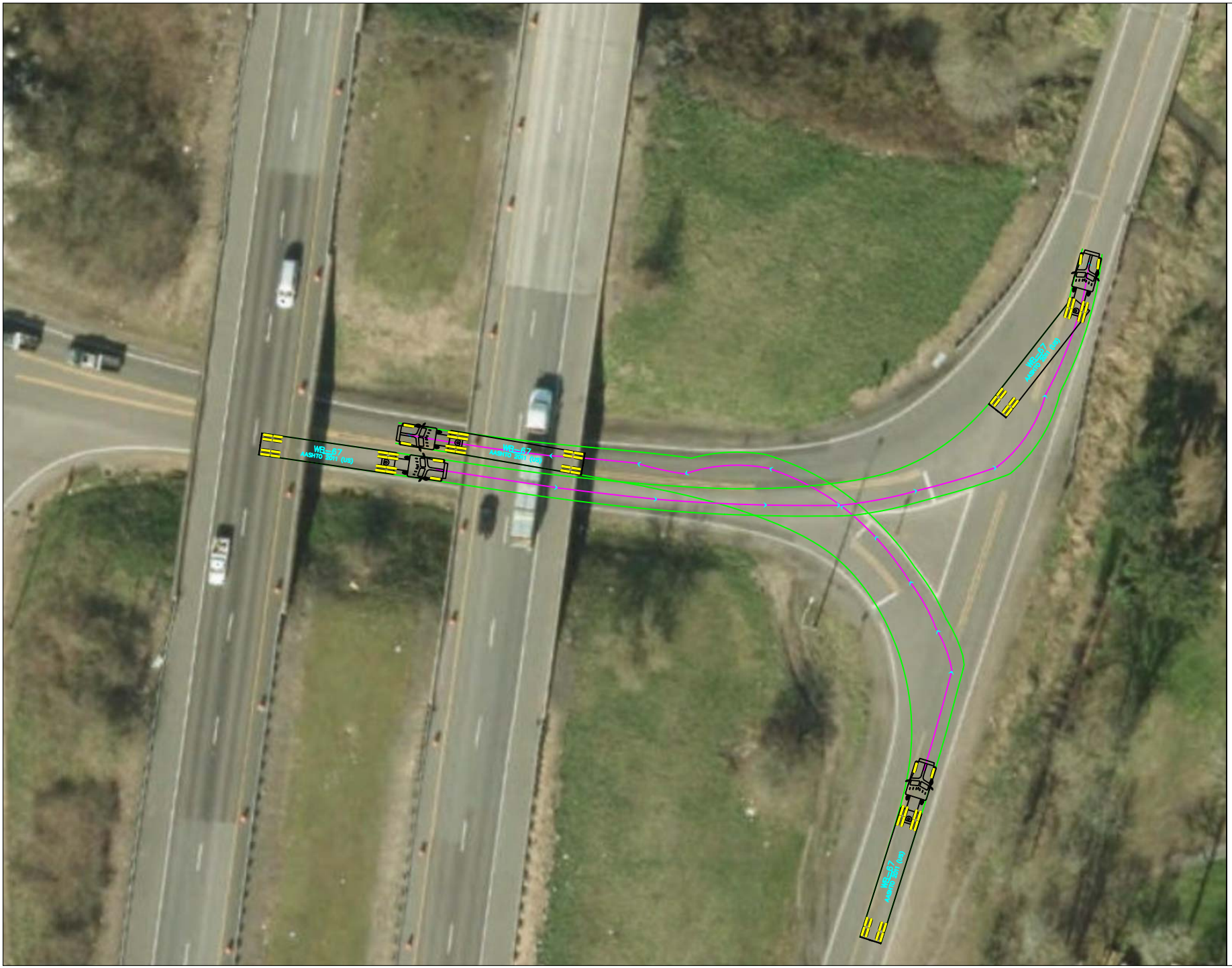

Old Salem Road at Century

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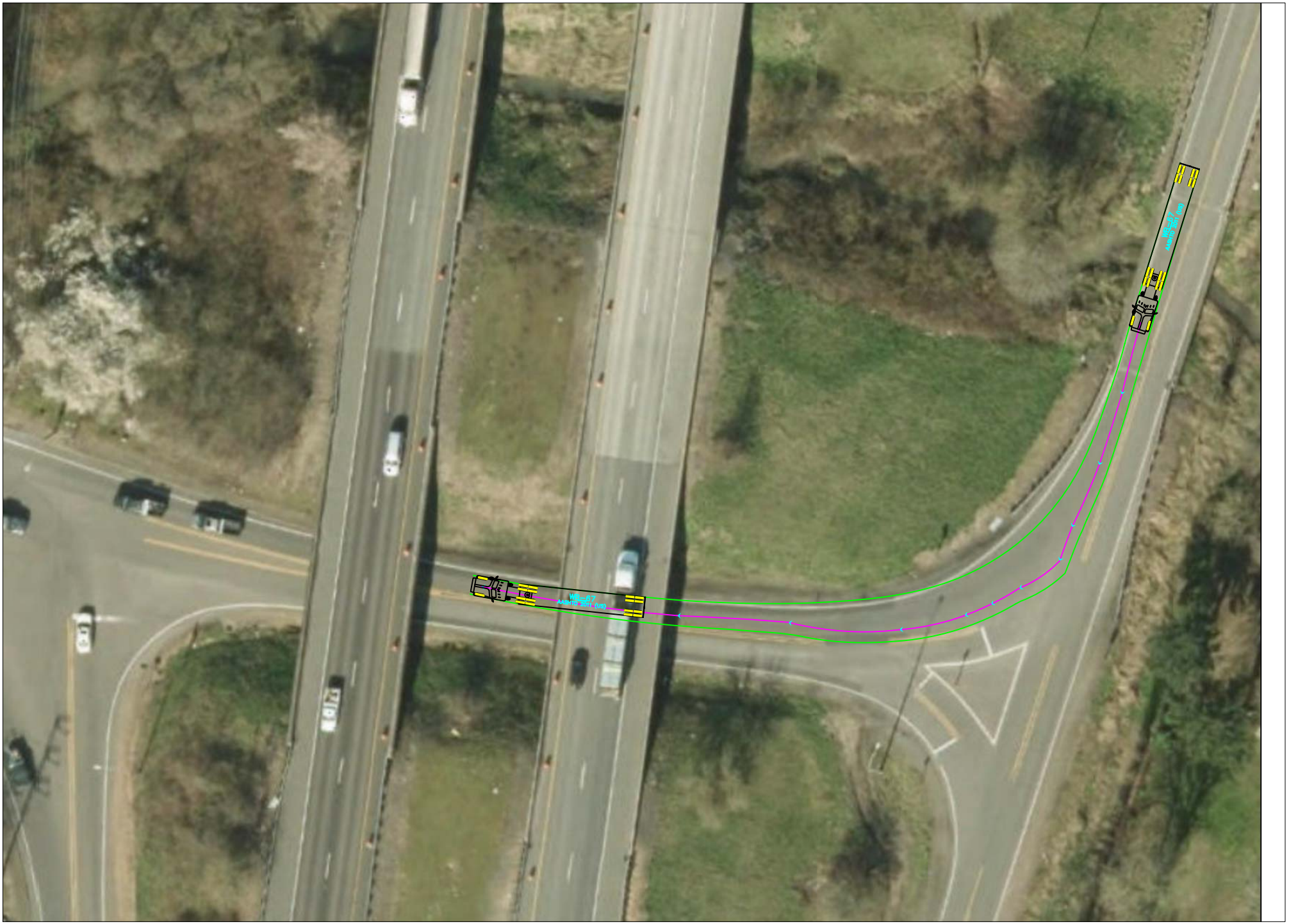

Old Salem Road at Century

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