

Myra-Offner Master Plan Traffic Impact Analysis

595 Offner Road
Walla Walla, Washington

Prepared for:
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PBS Project 67619.000



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Executive Summary

Purpose and Scope

The applicant proposes to develop approximately 49± acres of mostly vacant land into multiple uses that include RV/boat storage, single-family residences, multi-family residences, general commercial uses, and a super convenience market with a gas station and a fast-food restaurant. The project site is located within the City of Walla Walla (City) at the northeast corner of the Myra Road / Futura Road intersection. The proposed development is anticipated to be constructed over multiple phases and will be completely built out by the year 2025.

This report analyzes the traffic impacts generated by the completed development as required by the City.

The following intersections were identified for study within this traffic impact analysis (TIA):

1. Myra Road / Heritage Road / Pine Street
2. N 9th Avenue / N 9th Court / Pine Street
3. Myra Road / Futura Road
4. Wallula Avenue / Lambert Avenue / Rose Street
5. Myra Road / Rose Street
6. Offner Road / Rose Street
7. Avery Street / Rose Street
8. N 9th Avenue / Rose Street
9. Myra Road / C Street / Poplar Street
10. Myra Road / Whitman Drive
11. Myra Road / 12th Street / The Dalles Military Road
12. Myra Road / State Route 125 (SR 125)

Findings

The findings of this TIA are listed below.

Present Traffic Volumes Are Estimated

Due to the ongoing COVID-19 pandemic temporarily closing schools and multiple businesses, present intersection traffic volumes were estimated based on historical data rather than by counting existing volumes. This approach was agreed to in negotiation with staff from the City and DKS Associates.

Historical data available at study area intersections indicate a growth rate of 2.5% (annually compounded), so for locations where historical data were available, past volumes were grown by 2.5% (annually compounded) to estimate April 2020 volumes.

Comparisons between current counts and present projections (based on 2.5% growth) at select study area intersections indicate the COVID-19 pandemic has depressed volumes by approximately 30% across the study area. So, for locations where historical data were unavailable, current counts were increased by 30% to estimate April 2020 volumes.

To apply a level of uniformity to the study, intersection approach volumes were balanced along the Myra Road and Rose Street corridors, using the estimated April 2020 volumes at the Myra Road / Rose Street intersection as a fixed reference. These balanced volumes and the unadjusted volumes at isolated intersections were used as the 2020 baseline volumes for this study.

Traffic Volumes Increase

Traffic volumes in the study area will continue to increase without or with the project. Generic background growth (at 1% for 5 years) was assumed to add approximately 5.1% to the 2020 baseline volumes to estimate 2025 Without Project volumes. Generic background growth (at 1% for 20 years) was assumed to add approximately 22.0% to the 2020 baseline volumes to estimate 2040 Without Project volumes.

Access and Circulation

Although the detailed site plan is not available currently, it is assumed the project will use Futura Road, Offner Road, and Avery Street as the three access points into and out of the site. An internal local roadway network will be developed to serve the various uses proposed. Pedestrian connections will be provided between the public right-of-way and the proposed development.

Trip Generation

Including all land uses and all development phases, the Myra-Offner Master Plan is anticipated to generate 385 net new vehicle trips during the AM peak hour and 450 net new trips during the PM peak hour. In addition, Myra-Offner Master Plan is anticipated to generate 28 internal trips and 212 pass-by trips during the AM peak hour, and 102 internal trips and 182 pass-by trips during the PM peak hour.

Intersection Operations

In all analysis scenarios, both without and with project conditions, all except one studied intersection will operate at an acceptable LOS during both the weekday AM and PM peak hours. The exception is the Myra Road / Futura Road intersection, which will operate at LOS F for westbound left-turn lane in the 2040 With Project scenario during the PM peak hour.

No mitigation is recommended for the Myra Road / Futura Road intersection because the 2040 horizon year without and with project conditions analyses are only for the City's planning purposes.

Volumes on Adjacent Collector and Local Roadways

Trips generated by the Konen Myra-Offner Master Plan will impact Offner Road and Avery Street with increases ranging from 20% to 324%. Two segments meet or exceed the City's 25% threshold for recommending mitigation measures: Offner Road north of Rose Street and Avery Street north of Rose Street.

Left-Turn Lane Evaluations

Eastbound Rose Street met the criteria for further consideration of a left-turn lane at both Offner Road and Avery Street based on the 2025 With Project conditions. On further consideration, left-turn lanes are not recommended at these locations with the project development. Rather, the evaluations are expected to be included as part of the City's future multimodal improvement study for Rose Street, and implementation of turn lanes can be determined as part of a consistent corridor treatment.

Right-Turn Lane Evaluations

Although the Myra Road / Futura Road intersection volumes from the 2025 With Project meet the Washington State Department of Transportation (WSDOT) criteria to consider a northbound right-turn lane, no other factors recommend its implementation. No right-turn lanes are recommended with the project.

Collision Analysis

The 2014–2019 collision history at the study intersections was reviewed; all intersections have collision rates lower than the critical rate. The Poplar Street corridor project (currently in the design phase) and the recently completed improvement projects at the N 9th Avenue / Rose Street intersection should address the locations

with the most notable crash history. The Myra-Offner Master Plan project will have minor impacts on any of the studied intersections.

Transit, Pedestrian, and Bicycle Facilities

Sidewalks, bike lanes, and off-street paths are available along several roadways within the study area. Current pedestrian infrastructure has gaps along Offner Road and Avery Street between the Konen site and Rose Street, most notably at the Columbia-Walla Walla Railway crossings.

The development will construct new pedestrian and/or bicycle facilities along internal streets, connecting to current facilities where they exist and anticipating future connections.

No pedestrian improvements are necessary currently at the Myra Road / Futura Road intersection, but if pedestrian activity increases across Myra Road, then additional improvements are suggested.

Crossing Rose Street at Offner Road or Avery Street is considered a moderate risk for pedestrians, and pedestrian traffic is likely to increase with the Konen site developments. The City anticipates conducting a corridor study for multi-model improvements along Rose Street in the future.

Intersection Sight Distance

Because the roadways and intersections currently exist and are publicly maintained, it is assumed that adequate intersection sight distance (ISD) is available on the stop-controlled approaches at the three access intersections.

Recommendations

The traffic impact analysis supports the following recommendations.

Traffic Impact Mitigation

Negotiate acceptable mitigation improvements for Offner Road and/or Avery Street with City staff. Options to consider should include providing traffic calming measures along the roadways, particularly at the railroad crossings, and completing the pathway connection along Offner Road across the Columbia-Walla Walla Railway crossing. These improvements could be considered safety mitigations for the increased traffic volumes generated by the Konen Myra-Offner Master Plan developments. Planning for the mitigations should be considered beginning with the first phase of single-family residential development.

Left-Turn Lanes on Rose Street

Contribute funds with later phases of the Konen Myra-Offner Master Plan toward the implementation of left-turn lanes on Rose Street if the City's completed multimodal improvement study recommends them at Offner Road and/or Avery Street.

Collision Mitigation

The City should continue to monitor crash records at the Myra Road / C Street / Poplar Street intersection and should review the traffic signal timing parameters to assure they minimize the risk of rear-end collisions.

Accessibility

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

Pedestrian Crosswalks of Myra Road at Futura Road

Continue to monitor the Myra Road / Futura Road intersection for increasing pedestrian activity crossing Myra Road. If pedestrian activity increases, then install advance stop bars and warning signs on Myra Road.

Pedestrian Crossings of Rose Street

Within the City's corridor study, Rose Street should be considered for a lane conversion to reduce the roadway cross section from four undivided lanes to three vehicles lanes and bike lanes.

Intersection Sight Lines

Design the proposed internal roadway network, intersections, and site accesses in accordance with guidelines presented in Chapter 9.5 of the American Association of State Highway and Transportation Officials (AASHTO) *Geometric Design* policy (see References) for ISD. Install no objects within the ISD triangles that would block approaching drivers' views of approaching traffic.

1 INTRODUCTION

The purpose of this study is to determine the traffic impacts generated by the Myra-Offner Master Plan project on the surrounding roadway infrastructure. The project site is shown on the vicinity map (Figure 1). This study will determine if mitigation is required to keep the roadways operating safely and at capacity levels acceptable under the current level of service standards. This report documents the findings and conclusions of a traffic impact analysis (TIA) conducted for the proposed master plan application for property located in Walla Walla, Washington (City).

1.1 Scope of Study

This study documents the existing and proposed conditions, traffic data, safety analysis, and intersection operations in accordance with the requirements of the City's *TIA Guidelines* (see References).

The following intersections were identified for analysis:

1. Myra Road / Heritage Road / Pine Street
2. N 9th Avenue / N 9th Court / Pine Street
3. Myra Road / Futura Road
4. Wallula Avenue / Lambert Avenue / Rose Street
5. Myra Road / Rose Street
6. Offner Road / Rose Street
7. Avery Street / Rose Street
8. N 9th Avenue / Rose Street
9. Myra Road / C Street / Poplar Street
10. Myra Road / Whitman Drive
11. Myra Road / 12th Street / The Dalles Military Road
12. Myra Road / State Route (SR) 125

This TIA includes analysis of future background conditions growth based on an assumed 1.0% annually compounded growth rate and no addition of traffic from in-process projects.

This TIA is prepared for submission to the City of Walla Walla. The traffic-related issues addressed in this report include:

- Existing traffic conditions
- Proposed site-generated traffic volumes and their distribution
- Build-out year (2025) conditions without and with the project
- Planning horizon year (2040) conditions without and with the project
- Capacity analysis of the existing and future conditions for weekday AM and PM peak hours
- Safety analysis of the existing and future conditions
- Recommendations for mitigation of traffic impacts and conclusions

Note that it was determined during the TIA scoping process that only three of the study area intersections were required to be evaluated during the weekday AM peak hour conditions. These three intersections are the access points for the development where the most turning movements are expected to be added. The three were the Myra Road / Futura Road, Offner Road / Rose Street, and Avery Street / Rose Street intersections, numbered 3, 6, and 7, respectively, above.

1.2 Existing Site Conditions

The existing site spans approximately 0.1 mile along the east side of Myra Road between Mill Creek and Futura Road. It includes contiguous properties to the southeast that border Offner Road and Avery Street north of Rose Street. The existing site is mostly undeveloped except for a few single-family residences. Most of the site is zoned "UPC Urban Planned Community," with the remainder zoned "RN Residential Neighborhood," and it is surrounded by a variety of land uses, as described below. The specific tax lot numbers included in this evaluation are:

- 350724440024
- 350725110028
- 360730220029
- 360730220010
- 360730220030
- 360730220014
- 360719330031
- 360719330030
- 360730220031

1.3 Existing Infrastructure

The existing infrastructure and operational traffic conditions in the study area were documented. Roadway conditions were studied to confirm that the roadway is currently operating in a safe and efficient manner.

1.3.1 Land Uses

The land uses surrounding the site are documented to help identify the site location and provide reference for any discussion of conditions that might impact the adjacent properties. The land uses surrounding the site are shown in Table 1, below.

Table 1. Land Uses Around the Site

North of Site	
Zoning	CH, RN, IL
Description	Highway Commercial, Residential Neighborhood, Light Industrial/Commercial
Existing Use	Hotels, Commercial Lots, and Undeveloped Land

West of Site		S I T E	East of Site	
Zoning	CH, PR		Zoning	RN, IL, IH
Description	Highway Commercial, Public Reserve		Description	Residential Neighborhood, Light Industrial/Commercial, Heavy Industrial
Existing Use	City of Walla Walla Wastewater Treatment Plant and Undeveloped Land		Existing Use	Medical Center, School District Facilities & Support, and Other Industrial Lots

South of Site	
Zoning	CH, RN
Description	Highway Commercial, Residential Neighborhood
Existing Use	Commercial and Residential Lots

1.3.2 Existing Roadways

The existing major arterial roadways providing access to the site are Myra Road and Rose Street. Data were gathered on these and other roadways in the study area to inform operations analysis of the existing roadway system. The pertinent information regarding the study area roadways is tabulated in Table 2.

Table 2. Existing Roadway Information

Roadway Name	Classification	Speed Limit (mph)	Lane Configuration		
			Lanes	Sidewalks	Bike Lanes
Myra Road	CoWW: Major Arterial CoCP: Minor Arterial WSDOT: Urban Minor Arterial	35	4 or 5 ^e	Yes	Yes ⁱ
Heritage Road	CoWW: Major Arterial	40	2	No	Yes
Pine Street	CoWW: Freeway/Expressway ^a CoWW: Major Arterial ^b WSDOT: Urban Other Principal Arterial	30	2	Yes	No
Rose Street	CoWW: Major Arterial	35	4	Yes	No
9th Avenue	WSDOT: Urban Other Principal Arterial	30	2	Yes	No
9th Court	CoWW: Local Street	25	2	Yes	No
Futura Road	CoWW: Local ^f CoWW: Collector ^g	25 ^h	2	Partial	No
Offner Road	CoWW: Collector	25	2	Partial	No
Avery Street	CoWW: Local Street ^c CoWW: Collector ^d	25 ^h	2	Partial	No
Poplar Street	CoWW: Major Arterial	35	4	Yes	No
The Dalles Military Road	CoWW: Major Arterial	35	2	Yes	No
Wallula Avenue	CoCP: Minor Arterial	35	2	Partial	No
Lambert Avenue	CoCP: Major Collector	25	2	Partial	No
C Street	CoCP: Minor Arterial	25	3 ^e	Yes	No
Whitman Drive	CoCP: Minor Arterial	30	3 ^e	Yes	No
12th Street	CoCP: Minor Arterial	35	2	Yes	No
SR 125	WSDOT: Urban Other Freeways/Expressways	55	4	No	No

mph = miles per hour, CoWW = City of Walla Walla, CoCP = City of College Place, N/A = not applicable, WSDOT = Washington State Department of Transportation

^a From Myra Road to east of 9th Avenue

^b From 9th Avenue to east of 2nd Avenue

^c North of Rose Street to end of roadway

^d South of Rose Street to Poplar Street

^e One lane represents the two-way left-turn lane or median

^f This TIA assumes Futura Road, east of Myra Road, will have a functional classification of a local street.

^g West of Myra Road to end of roadway

^h Speed limit not posted. Speed limit assumed based on other roadways in the study area with similar functional classification.

ⁱ Bikes are accommodated on a wide sidewalk or detached path along the east side of Myra Road.

1.3.3 Major Intersections and Traffic Controls

For each of the intersections being evaluated in the study area (listed in the scope of study, above) essential information relevant to the intersection operations analysis was gathered. Table 3 presents the existing geometrics and traffic controls at the study intersections.

Table 3. Major Intersections: Existing Lanes and Traffic Controls

Intersection	<i>Myra Road / Heritage Road / Pine Street</i>			
Leg	NB	SB	WB	EB
Control	Yield	Yield	Yield	Yield
Number of Lanes	2	2	1	1

Intersection	<i>N 9th Avenue / N 9th Court / Pine Street</i>			
Leg	NB	SB	WB	EB
Control	Stop	Stop	Unc.	Unc.
Number of Lanes	1	1	1	1

Intersection	<i>Myra Road / Futura Road</i>			
Leg	NB	SB	WB	EB
Control	Unc.	Unc.	Stop	Stop
Number of Lanes	3	3	1	2

Intersection	<i>Wallula Avenue / Lambert Avenue / Rose Street</i>			
Leg	NB	SB	WB	EB
Control	Stop	Stop	Unc.	Unc.
Number of Lanes	1	1	2	2

Intersection	<i>Myra Road / Rose Street</i>			
Leg	NB	SB	WB	EB
Control	Signalized	Signalized	Signalized	Signalized
Number of Lanes	3	3	4	4

Intersection	<i>Offner Road / Rose Street</i>			
Leg	NB	SB	WB	EB
Control	NA	Stop	Unc.	Unc.
Number of Lanes	NA	1	2	2

Intersection	<i>Avery Street / Rose Street</i>			
Leg	NB	SB	WB	EB
Control	Stop	Stop	Unc.	Unc.
Number of Lanes	1	1	2	2

Intersection	<i>N 9th Avenue / Rose Street</i>			
Leg	NB	SB	WB	EB
Control	Signalized	Signalized	Signalized	Signalized
Number of Lanes	3	2	3	3

Intersection	<i>Myra Road / C Street / Poplar Street</i>			
Leg	NB	SB	WB	EB
Control	Signalized	Signalized	Signalized	Signalized
Number of Lanes	3	3	2	2

Intersection	<i>Myra Road / Whitman Drive</i>			
Leg	NB	SB	WB	EB
Control	Signalized	Signalized	NA	Signalized
Number of Lanes	3	2	NA	3

Intersection	<i>Myra Road / 12th Street / The Dalles Military Road</i>			
Leg	NB	SB	WB	EB
Control	Signalized	Signalized	Signalized	Signalized
Number of Lanes	3	4	3	3

Intersection	<i>Myra Road / SR 125</i>			
Leg	NB	SB	WB	EB
Control	NA	Signalized	Signalized	Signalized
Number of Lanes	NA	3	3	3

NA = Not applicable – approach does not exist

Stop = Stop-controlled leg of intersection

Unc. = Uncontrolled leg approaching intersection – does not stop or yield

The project area is defined as the vicinity of the site encompassed by the study intersections. The operation of the intersections can be controlled by signing, roundabouts, or signalization. Table 3 refers to the type of control and number of approach lanes for each leg of each intersection. The existing lane configurations and traffic controls for all intersections are shown in Figure 2.

1.4 Traffic Volumes

1.4.1 Baseline Traffic Volumes

Because of the ongoing COVID-19 (novel coronavirus) pandemic, traffic volumes are somewhat depressed throughout the nation, and current volume data represent highly atypical conditions. The City's *TIA Guidelines* (see References) typically require intersection counts to have been collected within 18 months. It was agreed in negotiation with staff from the City and DKS Associates, the City's contracted traffic engineering consultant, to waive the usual requirement and instead to follow the methodology described here to estimate reasonable present-day traffic volumes for use in this TIA. These volume estimates address all locations, both where historical data were available and where they were not.

1.4.1.1 *Method Where Historical Data Were Available*

Historic growth rates were calculated from the following four studied intersections that had two or more points of historical data available. The dates range from March 2011 through December 2018. All data are for the weekday PM peak period.

- Myra Road / Rose Street
- Myra Road / C Street / Poplar Street
- Myra Road / 12th Street / The Dalles Military Road
- Myra Road / SR 125

All locations showed growth in total entering traffic volumes from the prior data. Annual growth rates range between 0.7% and 4.9%. The average and median calculations suggest an overall value of 2.5% (geometric, or annually compounded).

Thus, for each studied intersection with historical data available, a 2.5% annual growth rate was applied to historical data to estimate present volumes (approximately on April 1, 2020). Copies of the historical data and of the growth rate calculations are provided in Appendix A.

1.4.1.2 *Method Where Historical Data Were Unavailable*

To aid in estimating the current decrease in traffic volumes, traffic counts were collected during the weekday PM peak period at the following five studied intersections on March 31, 2020. Each intersection had at least one historical count available. PBS retained All Traffic Data (ATD) to gather the data.

- Myra Road / Heritage Road / Pine Street
- Myra Rose / Rose Street
- N 9th Avenue / Rose Street
- Myra Road / C Street / Poplar Street
- Myra Road / SR 125

At these locations, the total entering volumes were 25% to 34% below the present values estimated above. The average and median calculations suggest 28% or 29% decreases. Rounding up, the decrease is taken to be approximately 30% across the study area.

For each studied intersection with no historical data available, PBS staff collected traffic counts between March 31 and April 9, 2020. Counts were collected during the weekday PM peak period for all intersections lacking historical data and also during the weekday AM peak period at the three intersections where site trips will access the arterial network. At each intersection, an increase of 30% was applied to the current counts to estimate present volumes. Copies of the historical data, the recent data, and the regional decrease calculations are provided in Appendix A.

1.4.1.3 *Present Volumes*

Present volumes were estimated at each of the 12 studied intersections by one of the two methods described above. Where deemed reasonable to do so, volumes were balanced between intersections along major corridors to estimate a level of uniformity among the data. Volumes were balanced with reference to the Myra Road / Rose Street intersection (where present volumes were held fixed) both because its historical data were collected during a summer season peak and because the intersection is convenient to the Konen site. The corridors balanced were:

- Myra Road between Heritage Road / Pine Street and SR 125
- Rose Street between Wallula Avenue / Lambert Avenue and Avery Street

The one exception was the Myra Road / C Street / Poplar Street intersection, where outright volume balancing would have reduced the total intersection volumes by 12%. Instead, acknowledging the presence of a major access point for the Walla Walla Town Center (former Blue Mountain Mall) on Myra Road between Rose Street and Poplar Street, the volume adjustment was reduced by half. The volume balancing calculations are provided in Appendix A.

At the remaining studied intersections (listed below), the present volumes estimated in the above sections were preserved without adjustments. These intersections were deemed to be located too far from other studied intersections and/or to have too many intermediate intersections or driveways, for volume balancing to be considered reasonable.

- N 9th Avenue / N 9th Court / Pine Street
- Myra Road / Rose Street (held as fixed for the volume balancing exercise described above)
- N 9th Avenue / Rose Street

The resulting present peak hour volumes for the studied intersections are termed the 2020 baseline volumes. These volumes were input to the intersection operations analyses addressed later in this TIA, and they form the basis of all the future year scenarios as well. The 2020 baseline volumes are presented in Figure 3.

Findings: Due to the ongoing COVID-19 pandemic temporarily closing schools and multiple businesses, present intersection traffic volumes were estimated based on historical data rather than by counting existing volumes. This approach was agreed to in negotiation with staff from the City and DKS Associates.

Historical data available at study area intersections indicate a growth rate of 2.5% (annually compounded), so for locations where historical data were available, past volumes were grown by 2.5% (annually compounded) to estimate April 2020 volumes.

Comparisons between current counts and present projections (based on 2.5% growth) at select study area intersections indicate the COVID-19 pandemic has depressed volumes by approximately 30% across the study area. So, for locations where historical data were unavailable, current counts were increased by 30% to estimate April 2020 volumes.

To apply a level of uniformity to the study, intersection approach volumes were balanced along the Myra Road and Rose Street corridors, using the estimated April 2020 volumes at the Myra Road / Rose Street intersection as a fixed reference. These balanced volumes and the unadjusted volumes at isolated intersections were used as the 2020 baseline volumes for this study.

1.4.2 Background Growth

Background growth is a generic increase in traffic volumes that either is not attributable to specific developments or is attributable to influences outside the study area. Long-range traffic modeling from the Walla Walla Valley Metropolitan Planning Organization (WWVMPO) suggests a background growth rate of approximately 1.0% per year between present conditions and the planning horizon year (2040). Thus, a background growth rate of 1.0% per year (annually compounded) was applied to all 2020 baseline peak hour movement volumes between public roadways at the studied intersections.

1.4.3 In-Process Projects

In-process trips from approved projects were requested from the City of Walla Walla, and no in-process projects were identified for inclusion in this TIA.

1.4.4 Future Volumes

The baseline volumes for 2025 intersection operations analyses, termed the 2025 Without Project volumes, represent the sum of 2020 baseline traffic and 5 years of background growth. Figure 4 presents the 2025 Without Project volumes for the weekday AM and PM peak hours.

The baseline volumes for 2040 intersection operations analysis, termed the 2040 Without Project volumes, represent the sum of 2020 baseline traffic and 20 years of background growth. Figure 8 presents the 2040 Without Project volumes for the weekday AM and PM peak hours.

Findings: Traffic volumes in the study area will continue to increase without or with the project. Generic background growth (at 1% for 5 years) was assumed to add approximately 5.1% to the 2020 baseline volumes to estimate 2025 Without Project volumes. Generic background growth (at 1% for 20 years) was assumed to add approximately 22.0% to the 2020 baseline volumes to estimate 2040 Without Project volumes.

2 PROPOSED CONDITIONS

The proposed development will add traffic to the roadway system. Where the project is located, the size of the project, and when it will be completed are all important elements that need to be considered to determine the impacts of this development on safety and capacity. It is also important to examine how the project will operate with the existing transportation system, estimate how much new traffic it will generate, and predict where traffic generated by the site will be distributed. Furthermore, this section will address any funded infrastructure changes planned by other agencies or developers. All these elements are important in assessing the traffic impacts of this project.

2.1 Project Description

The project will consist of developing 49± acres of vacant land into multiple uses that include single-family residences, multi-family residences, general commercial uses, RV/boat storage, and a super convenience market with a gas station and a fast-food restaurant. The site is located on the northeast corner of the Myra Road / Futura Road intersection. The uses will be developed over several phases, and they are expected to be fully occupied by the year 2025. Table 4 provides the anticipated phasing schedule on which the proposed master plan development is to be constructed.

Table 4. Anticipated Phasing for Proposed Development

Use	Total Size of Use	Phasing Schedule (Added Occupancy in Year Noted)				
		2021	2022	2023	2024	2025
Single-Family Residential	240 dwelling units	50 units	50 units	50 units	50 units	40 units
Multi-Family Residential	100 dwelling units	-	-	50 units	50 units	-
Flex Retail	32,600 SF	-	-	16,300 SF	16,300 SF	-
Super Convenience Market with Gas and Restaurant	12 vehicle fueling positions, 3,750 SF market, 1,850 SF fast-food restaurant, 1-bay car wash (optional)	-	Occupied	-	-	-
RV/Boat Storage	156 storage spaces/units	-	Occupied	-	-	-

SF = square feet floor area

Note that, although the City's *TIA Guidelines* (see References) require evaluation at each successive phase's build-out year, this TIA was simplified to include only the 2025 build-out year for the entire site. As shown later in this report, there are no intersection operations impacts at full build-out, meaning there is little value to presenting each phase year's impacts.

2.2 Access and Circulation

There are three roads that currently provide access points into and out of the site. The first access is Futura Road, which will be extended east from its existing intersection with Myra Road through the Konen site to provide the primary access to the site. It is assumed for this TIA that the westbound Futura Road approach to Myra Road will be striped with a separate left-turn lane to align with the eastbound approach lanes.

The second access is Offner Road, which will be extended north from its current terminus at the Konen site's south perimeter (approximately 0.2 mile north of the Offner Road / Rose Street intersection) to connect with the Futura Road extension. The third access is Avery Street, which will be extended north from its current

terminus at the Konen site’s southeast corner (approximately 0.1 mile north of the Avery Street / Rose Street intersection) to connect with the Futura Street extension. The project proposes to use these three access points for vehicular and nonmotorized travel into and out of the site.

Within the development, an internal local roadway network will be developed to serve the various uses proposed, and pedestrian connections will be provided between the public rights-of-way and the individual lots as they develop.

Findings: Although the detailed site plan is not available currently, it is assumed the project will use Futura Road, Offner Road, and Avery Street as the three access points into and out of the site. An internal local roadway network will be developed to serve the various uses proposed. Pedestrian connections will be provided between the public right-of-way and the proposed development.

2.3 Trip Generation and Distribution

The following sections rely on data provided in the Institute of Transportation Engineers’ (ITE) *Trip Generation Manual* and the *ITE Trip Generation Handbook* (see References). Detailed trip generation calculations are provided in Appendix B.

2.3.1 Proposed Trip Generation

The City of Walla Walla roadway network will see some increase in traffic volume from the proposed Myra-Offner Master Plan project. Table 5 presents the conceptual proposed uses and their corresponding ITE land use models organized by ITE land use code.

Table 5. Myra-Offner Master Plan Uses

Site Use	Land Area (acres)	Developed Size ^a	ITE Land Use Code	ITE Land Use Model
RV/Boat Storage	4.6	168 SU ^b	151	Mini-Warehouse
Single-Family Residential	35.8	240 DU ^c	210	Single-Family Detached Housing
Multi-Family Residential	3.6	100 DU ^c	221	Multifamily Housing (Mid-Rise)
General Commercial	3.0	32,600 SF ^d	820	Shopping Center
Fast-Food Restaurant	2.0	1,850 SF ^e	933	Fast-Food Restaurant without Drive-Through Window
Super C-Store + Gas		12 VFP ^e	960	Super Convenience Market with Gas Station

^a SU = storage units; DU = dwelling units; SF = square feet gross leasable area; VFP = vehicle fueling positions

^b Based on density at similar sites with outdoor RV/boat storage

^c Based on a preliminary site layout

^d Based on a typical floor-to-area ratio (FAR) of 0.25 for single-story suburban retail developments

^e Based on floor area and fuel pump count at similar sites

The total trip generation estimates for the Myra-Offner Master Plan project were calculated using either the ITE weighted average trip rates or regression equations, following ITE *Handbook* (see References) guidelines.

With multiple and diverse uses, internal trip capture reductions were estimated for the project following guidance in the ITE *Handbook* (see References), specifically using the National Cooperative Highway Research Program (NCHRP) Report 684 method. For the internal trip capture exercise, the single-family and multi-family

uses were treated together as residential development types, the shopping center was treated as a retail development type, and the fast-food restaurant was treated as a restaurant. All internal trips were applied in the 2025 analysis scenarios.

Pass-by trips were evaluated for the General Commercial and Super Convenience Store with Gas Station uses. For the Shopping Center (ITE 820) use, a pass-by trip rate of 34% for PM peak hour was used, as published in the ITE *Handbook* (see References). For the AM peak hour, a rate of half the PM rate was assumed: 17%. For the Super Convenience Market with Gas Station (ITE 960), pass-by trip rates of 62% for the AM peak hour and 56% for the PM peak hour were used. These were borrowed from the rates published in the ITE *Handbook* for a similar use, a Gas Station with Convenience Market (ITE 945). No pass-by trips were assumed for the fast-food restaurant since it will share a building with the convenience market. See Figure 5 for the pass-by trip distribution and assignment.

Table 6 summarizes the project-generated trips, including the internal, pass-by, and primary trips. Detailed calculations are provided in Appendix B.

Table 6. Trip Generation Estimates for Myra-Offner Master Plan

Land Use (ITE Code)	Mini-Warehouse (151)		Single-Family Detached Housing (210)		Multifamily Housing (Mid-Rise) (221)		Shopping Center (820)		Fast-Food Restaurant without Drive- Through Window (933)		Super Convenience Market/Gas Station (960)		Total	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Weekday Average Daily Trips (ADT)	30		2,327		543		1,231		641		2,766		7,538	
Total	2	3	175	235	34	44	31	124	46	52	337	276	625	734
Internal	NA	NA	(8)	(27)	(2)	(5)	(7)	(42)	(11)	(28)	NA	NA	(28)	(102)
External	2	3	167	208	32	39	24	82	35	24	337	276	597	632
Pass-By	NA	NA	NA	NA	NA	NA	(4)	(28)	NA	NA	(208)	(154)	(212)	(182)
Primary Trips	2	3	167	208	32	39	20	54	35	24	129	122	385	450

NA = not applicable

Note: negative values are shown in parentheses.

Findings: Including all land uses and all development phases, the Myra-Offner Master Plan is anticipated to generate 385 net new vehicle trips during the AM peak hour and 450 net new trips during the PM peak hour. In addition, Myra-Offner Master Plan is anticipated to generate 28 internal trips and 212 pass-by trips during the AM peak hour, and 102 internal trips and 182 pass-by trips during the PM peak hour.

2.3.2 Proposed Trip Distribution

The proposed trip distribution of pass-by trips is based on the ratio of northbound and southbound volumes on Myra Road in the 2025 Without Project scenario, as presented in Figure 4. Volumes were assessed at the Futura Road intersection where the commercial developments will be located within the overall Konen site. No pass-by trips were assessed from Rose Street. The proposed pass-by distribution pattern is as follows:

- 50% (AM) and 48% (PM) from northbound Myra Road
- 50% (AM) and 52% (PM) from southbound Myra Road

The distribution pattern above represents the pass-by distribution of vehicle trips that patronize one of the Konen site uses while traveling along Myra Road to another destination. The distribution and assignment of the pass-by trips to the project site are shown on Figure 5.

The proposed distribution of primary (net new) trips is based on a review of the land uses within the study area, on the distribution of existing traffic patterns, on portions of the WWVMPO travel-demand model, and on engineering judgment. The proposed distribution pattern is as follows:

- 10% to and from the west on US Highway 12, west of Myra Road
- 5% to and from the west on Wallula Avenue, northwest of Rose Street
- 10% to and from the west on Rose Street, west of Wallula Avenue / Lambert Avenue
- 15% to and from the west on C Street, west of Myra Road
- 10% to and from the west on Whitman Drive, west of Myra Road
- 5% to and from the southwest on SR 125, west of Myra Road
- 5% to and from the south on Avery Street, south of Rose Street
- 5% to and from the south on N 9th Avenue, south of Rose Street
- 5% to and from the east on Rose Street, east of N 9th Avenue
- 5% to and from the east on Pine Street, east of N 9th Avenue
- 20% to and from the east on US Highway 12, east of Myra Road
- 5% to and from the north on N 13th Avenue, north of Pine Street

The trip distribution pattern above represents an external distribution of project trips entering and exiting the study area. The distribution and assignment of the primary trips to the project site are shown on Figure 6.

2.3.3 Future Volumes With Project

The Myra-Offner Master Plan project is expected to be completed and fully occupied in 2025. Figure 7 presents the 2025 With Project volumes, or the sum of 2025 Without Project volumes and the site-generated trips (both pass-by and primary trips), for the weekday AM and PM peak hours.

Figure 9 presents the 2040 With Project volumes, or the sum of 2040 Without Project volumes and the site-generated trips (both pass-by and primary trips), for the weekday AM and PM peak hours.

3 INTERSECTION OPERATIONS AND ROADWAY CAPACITY ANALYSES

3.1 Operations Description

Traffic operations are assessed in terms of level of service (LOS), a concept developed by transportation engineers to qualify the level of operation of intersections and roadways (*Highway Capacity Manual*, see References). LOS measures are classified in grades "A" through "F," indicating a range of operation, with LOS "A" signifying the best level of operation and LOS "F" representing the worst level.

LOS at intersections is quantified in terms of average delay per vehicle. LOS "A" reflects full freedom of operation for a driver, while LOS "F" represents excessive delay to the driver and operational failure. The criteria for unsignalized intersections are based on the theory of gap acceptance for stop-controlled and yield-controlled movements. The criteria for signalized intersections are based on studied levels of driver behavior at various durations of delay.

The volume-to-capacity (v/c) ratio quantifies the portion of the theoretical capacity consumed by traffic demand volume. A v/c ratio of zero (0.00) reflects none of the capacity is consumed and all the capacity is fully available to approaching drivers. A v/c ratio of one (1.00) reflects all the capacity is consumed and represents operational failure. The v/c ratio typically is calculated for each intersection approach lane group.

3.2 Operation Standards

Based on the City's *Comprehensive Plan* (see References), the City of Walla Walla LOS standards operating conditions for both signalized and unsignalized intersections in urban areas may not exceed LOS "D" or a v/c ratio of 0.90 for intersections on arterials or collectors. The arterials and collectors include Myra Road, Poplar Street between Myra Road and 9th Avenue, and Rose Street between Myra Road and 9th Avenue. For all other intersections, the intersections may not exceed LOS "E" or a v/c ratio of 0.95.

In addition, based on the City's *Transportation Impact Analysis Guidelines* (see References),

- No existing intersection or critical movement should worsen by more than two levels of service.
- Delay for the critical movement at an unsignalized intersection must not increase by more than 10 seconds with the proposed additional traffic.
- Traffic mitigation shall be recommended to offset other safety issues, capacity issues, and/or specific neighborhood traffic impacts caused by an increase of 25% or more in average daily traffic (ADT) on adjacent local or collector streets due to the proposed development.

The above operation standards were applied to the intersections under City of Walla Walla jurisdiction:

- Myra Road / Futura Road
- Myra Road / Rose Street
- Offner Road / Rose Street
- Avery Street / Rose Street
- Myra Road / C Street / Poplar Street
- Myra Road / Whitman Drive
- Myra Road / The Dalles Military Road

The City of College Place's *Transportation Plan* (see References) adopts a LOS standard of "D" for all roadway segments, a LOS of "D" for all signalized intersections, and a LOS "D" for the critical movement of all non-signalized intersections. This operation standard was applied to the Wallula Avenue / Lambert Avenue / Rose Street intersection.

WSDOT requires a level of service "D" or better for state highways in urban areas of Walla Walla County, including SR 125 (see References). In addition, the WSDOT guidelines for roundabout analysis recommend the maximum v/c ratio for any approach lane be within a range of 0.85 to 0.90. These operation standards were applied to the following intersections:

- Myra Road / Heritage Road / Pine Street
- N 9th Avenue / N 9th Court / Pine Street
- N 9th Avenue / Rose Street
- Myra Road / SR 125

3.3 Analysis Methodology

Traffic impacts were estimated to determine the extent of change in traffic conditions caused by the development of this project. To make this determination, the following assumptions were employed:

- The individual peak hour volumes were analyzed for 2020, 2025, and 2040.
- The peak hour factor (PHF) for the overall intersection, as calculated from the count data, was applied for 2020 baseline analysis scenario. For 2025 and 2040 conditions, the PHF recommended by the City's *TIA Guidelines* (see References) was applied unless the count data PHF was higher.
- A minimum heavy vehicle percentage (HV%) of 2% was assumed for each movement for all analysis scenarios (2020, 2025, and 2040). The HV% calculated from the count data was applied if it was greater than 2%.
- Baseline traffic volumes on the surrounding street system were determined prior to adding the traffic impacts of the proposed project. This was done to establish a baseline for measuring the project impacts at the time of its development. Baseline traffic volume estimates were prepared for year of full buildout, 2025 Without Project, and for the planning horizon year, 2040 Without Project volumes.
- As noted previously, trip generation estimates for the project were prepared for the weekday AM and PM peak hours on the surrounding street system.
- Cumulative traffic impacts of the proposed project were determined by superimposing the project-generated traffic onto the background weekday AM and PM peak traffic at all studied intersections. These are termed the 2025 With Project and 2040 With Project conditions.
- The LOS for all signalized and stop-controlled intersections was calculated with Trafficware's Synchro software, Version 10, based on *Highway Capacity Manual* 6th Edition (2016) methodologies.
- The LOS for the roundabout intersection was calculated with Akcelik Associates' SIDRA Intersection software, Version 8, based on WSDOT-recommended settings (see References).
- Intersection results are reported differently depending on the control type.
 - Two-way stop-controlled intersection results report the critical movement LOS, delay, and v/c ratio.
 - All-way stop-controlled, roundabout, and signalized intersection results report the overall intersection LOS and delay as well as the critical lane v/c ratio.

3.4 Level of Service Analyses

LOS calculation reports for the study area intersections are provided in Appendix C. The key analysis findings are listed in the following tables.

3.4.1 2020 Existing Conditions

Table 7 describes the existing LOS for each intersection within the study area for the 2020 existing volumes during the AM and PM peak hours.

Table 7. Estimated 2020 Level of Service for Existing Conditions for Study Area Intersections

Int. #	INTERSECTION	JURISDICTION (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)	-	-	-	A	4.2	0.222 (WB)
2	N 9th Avenue / N 9th Court / Pine Street	WSDOT (LOS D)	-	-	-	C	20.5	0.537 (NB)
3	Myra Road / Futura Road	City (LOS E, v/c ≤ 0.95) ^a	A	9.3	0.001 (EB TH-RT)	C	15.3	0.027 (EB-LT)
4	Wallula Avenue / Lambert Avenue / Rose Street	City ^b (LOS D)	-	-	-	B	13.8	0.149 (SB)
5	Myra Road / Rose Street	City (LOS D, v/c ≤ 0.90)	-	-	-	C	20.4	0.61 (WB-LT)
6	Offner Road / Rose Street	City (LOS D, v/c ≤ 0.90)	B	11.5	0.024 (SB)	B	12.8	0.053 (SB)
7	Avery Street / Rose Street	City (LOS D, v/c ≤ 0.90)	B	12.5	0.076 (NB)	B	14.1	0.033 (SB)
8	N 9th Avenue / Rose Street	WSDOT (LOS D)	-	-	-	C	22.3	0.80 (WB TH)
9	Myra Road / C Street / Poplar Street	City (LOS D, v/c ≤ 0.90)	-	-	-	C	20.5	0.78 (WB TH- RT)
10	Myra Road / Whitman Drive	City (LOS D, v/c ≤ 0.90)	-	-	-	A	7.4	0.61 (NB-LT)
11	Myra Road / 12th Street / The Dalles Military Road	City (LOS D, v/c ≤ 0.90)	-	-	-	B	17.0	0.59 (WB TH)
12	Myra Road / SR 125	WSDOT (LOS D)	-	-	-	C	23.7	0.89 (EB LT)

^a Futura Road is a local roadway east of Myra Road.

^b City of College Place operating standard.

As shown in Table 7, all studied intersections currently operate at an acceptable LOS during the weekday AM and PM peak hours.

3.4.2 2025 Future Conditions Without Project

Table 8 describes the LOS for each intersection within the study area for 2025 Without Project during the AM and PM peak hours.

Table 8. Estimated 2025 Level of Service without Project for Study Area Intersections

Int. #	INTERSECTION	JURISDICTION (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)	-	-	-	A	4.2	0.206 (WB)
2	N 9th Avenue / N 9th Court / Pine Street	WSDOT (LOS D)	-	-	-	C	20.8	0.544 (NB)
3	Myra Road / Futura Road	City (LOS E, v/c ≤ 0.95) ^a	A	9.3	0.001 (EB TH-RT)	C	15.9	0.029 (EB-LT)
4	Wallula Avenue / Lambert Avenue / Rose Street	City ^b (LOS D)	-	-	-	B	14.3	0.163 (SB)
5	Myra Road / Rose Street	City (LOS D, v/c ≤ 0.90)	-	-	-	C	20.7	0.63 (WB-LT)
6	Offner Road / Rose Street	City (LOS D, v/c ≤ 0.90)	B	11.1	0.019 (SB)	B	13.2	0.058 (SB)
7	Avery Street / Rose Street	City (LOS D, v/c ≤ 0.90)	B	12.3	0.072 (NB)	B	14.6	0.035 (SB)
8	N 9th Avenue / Rose Street	WSDOT (LOS D)	-	-	-	C	22.6	0.81 (WB TH)
9	Myra Road / C Street / Poplar Street	City (LOS D, v/c ≤ 0.90)	-	-	-	C	21.2	0.79 (WB TH- RT)
10	Myra Road / Whitman Drive	City (LOS D, v/c ≤ 0.90)	-	-	-	A	7.3	0.60 (NB-LT)
11	Myra Road / 12th Street / The Dalles Military Road	City (LOS D, v/c ≤ 0.90)	-	-	-	B	17.0	0.62 (WB TH)
12	Myra Road / SR 125	WSDOT (LOS D)	-	-	-	C	25.2	0.93 (EB LT)

^a Futura Road is a local roadway east of Myra Road.

^b City of College Place operating standard.

As shown in Table 8, all studied intersections will operate at an acceptable LOS in the 2025 year of opening Without Project conditions during the weekday AM and PM peak hours.

3.4.3 2025 Future Conditions With Project

Table 9 describes the LOS for each intersection within the study area for 2025 With Project during the AM and PM peak hours.

Table 9. Estimated 2025 Level of Service With Project for Study Area Intersections

Int. #	INTERSECTION	JURISDICTION (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)	-	-	-	A	4.2	0.231 (WB)
2	N 9th Avenue / N 9th Court / Pine Street	WSDOT (LOS D)	-	-	-	C	21.3	0.553 (NB)
3	Myra Road / Futura Road	City (LOS E, v/c ≤ 0.95) ^a	C	22	0.251 (WB-LT)	E	49.5	0.599 (WB-LT)
4	Wallula Avenue / Lambert Avenue / Rose Street	City ^b (LOS D)	-	-	-	C	15.8	0.211 (SB)
5	Myra Road / Rose Street	City (LOS D, v/c ≤ 0.90)	-	-	-	C	21.7	0.71 (WB-LT)
6	Offner Road / Rose Street	City (LOS D, v/c ≤ 0.90)	B	10.8	0.093 (SB)	B	14.6	0.144 (SB)
7	Avery Street / Rose Street	City (LOS D, v/c ≤ 0.90)	B	13.7	0.101 (NB)	C	17.8	0.275 (NB)
8	N 9th Avenue / Rose Street	WSDOT (LOS D)	-	-	-	C	23.1	0.82 (WB TH)
9	Myra Road / C Street / Poplar Street	City (LOS D, v/c ≤ 0.90)	-	-	-	C	22.1	0.80 (WB TH- RT)
10	Myra Road / Whitman Drive	City (LOS D, v/c ≤ 0.90)	-	-	-	A	7.3	0.60 (NB-LT)
11	Myra Road / 12th Street / The Dalles Military Road	City (LOS D, v/c ≤ 0.90)	-	-	-	B	17.2	0.62 (WB TH)
12	Myra Road / SR 125	WSDOT (LOS D)	-	-	-	C	27.7	0.99 (EB LT)

^a Futura Road is a local roadway east of Myra Road.

^b City of College Place operating standard.

As shown in Table 9, all studied intersections will operate at an acceptable LOS in the 2025 year of opening With Project conditions during the weekday AM and PM peak hours.

3.4.4 2040 Future Conditions Without Project

Table 10 describes the LOS for each intersection within the study area for 2040 Without Project during the AM and PM peak hours.

Table 10. Estimated 2040 Level of Service Without Project for Study Area Intersections

Int. #	INTERSECTION	JURISDICTION (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)	-	-	-	A	4.3	0.232 (WB)
2	N 9th Avenue / N 9th Court / Pine Street	WSDOT (LOS D)	-	-	-	D	32.5	0.723 (NB)
3	Myra Road / Futura Road	City (LOS E, v/c ≤ 0.95) ^a	A	9.5	0.001 (EB TH-RT)	C	18.2	0.042 (EB-LT)
4	Wallula Avenue / Lambert Avenue / Rose Street	City ^b (LOS D)	-	-	-	C	16.4	0.218 (SB)
5	Myra Road / Rose Street	City (LOS D, v/c ≤ 0.90)	-	-	-	C	21.7	0.72 (WB-LT)
6	Offner Road / Rose Street	City (LOS D, v/c ≤ 0.90)	B	11.7	0.025 (SB)	B	14.6	0.08 (SB)
7	Avery Street / Rose Street	City (LOS D, v/c ≤ 0.90)	B	13.4	0.093 (NB)	C	16.6	0.052 (SB)
8	N 9th Avenue / Rose Street	WSDOT (LOS D)	-	-	-	C	24.4	0.84 (WB TH)
9	Myra Road / C Street / Poplar Street	City (LOS D, v/c ≤ 0.90)	-	-	-	C	23.6	0.82 (WB TH- RT)
10	Myra Road / Whitman Drive	City (LOS D, v/c ≤ 0.90)	-	-	-	A	7.7	0.67 (NB-LT)
11	Myra Road / 12th Street / The Dalles Military Road	City (LOS D, v/c ≤ 0.90)	-	-	-	B	18.0	0.68 (WB TH)
12	Myra Road / SR 125	WSDOT (LOS D)	-	-	-	C	32.0	1.08 (EB LT)

^a Futura Road is a local roadway east of Myra Road.

^b City of College Place operating standard.

As shown in Table 10, all studied intersections will operate at an acceptable LOS in the 2040 horizon year Without Project conditions during the weekday AM and PM peak hours.

3.4.5 2040 Future Conditions With Project

Table 11 describes the LOS for each intersection within the study area for 2040 With Project during the AM and PM peak hours.

Table 11. Estimated 2040 Level of Service With Project for Study Area Intersections

I n t. #	INTERSECTION	JURISDICTION (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)	-	-	-	A	4.2	0.257 (WB)
2	N 9th Avenue / N 9th Court / Pine Street	WSDOT (LOS D)	-	-	-	D	34	0.737 (NB)
3	Myra Road / Futura Road	City (LOS E, v/c ≤ 0.95) ^a	D	26	0.292 (WB-LT)	F	72.8	0.722 (WB-LT)
4	Wallula Avenue / Lambert Avenue / Rose Street	City ^b (LOS D)	-	-	-	C	18.3	0.275 (SB)
5	Myra Road / Rose Street	City (LOS D, v/c ≤ 0.90)	-	-	-	C	23.1	0.83 (WB-LT)
6	Offner Road / Rose Street	City (LOS D, v/c ≤ 0.90)	B	11.3	0.104 (SB)	C	16.5	0.18 (SB)
7	Avery Street / Rose Street	City (LOS D, v/c ≤ 0.90)	C	15.1	0.128 (NB)	C	21.9	0.363 (NB)
8	N 9th Avenue / Rose Street	WSDOT (LOS D)	-	-	-	C	25.0	0.85 (WB TH)
9	Myra Road / C Street / Poplar Street	City (LOS D, v/c ≤ 0.90)	-	-	-	C	25.3	0.83 (WB TH- RT)
10	Myra Road / Whitman Drive	City (LOS D, v/c ≤ 0.90)	-	-	-	A	8.0	0.68 (NB-LT)
11	Myra Road / 12th Street / The Dalles Military Road	City (LOS D, v/c ≤ 0.90)	-	-	-	B	18.0	0.68 (WB TH)
12	Myra Road / SR 125	WSDOT (LOS D)	-	-	-	C	34.9	1.13 (EB LT)

^a Futura Road is a local roadway east of Myra Road.

^b City of College Place operating standard.

As shown in Table 11, all studied intersections except one will operate at an acceptable LOS in the 2040 horizon year With Project conditions during the weekday AM and PM peak hours. The exception is the Myra Road / Futura Road intersection, whose westbound left-turn lane will operate at LOS F in the PM peak hour.

3.5 Level of Service Analysis Discussion

With one exception, all studied intersections are projected to operate at an acceptable LOS in all scenarios and during both the weekday AM and PM peak hours. The exception is the Myra Road / Futura Road intersection, which will operate at LOS F for the westbound left-turn lane in the 2040 With Project scenario during the PM peak hour. Mitigation is required only when the buildout year (2025) conditions exceed LOS standards, so no mitigation is required or recommended for the horizon year (2040) conditions.

Findings: In all analysis scenarios, both without and with project conditions, all except one studied intersection will operate at an acceptable LOS during both the weekday AM and PM peak hours. The exception is the Myra Road / Futura Road intersection, which will operate at LOS F for westbound left-turn lane in the 2040 With Project scenario during the PM peak hour.

Recommendations: No mitigation is recommended for the Myra Road / Futura Road intersection because the 2040 horizon year without and with project conditions analyses are only for the City’s planning purposes.

3.6 Volumes on Adjacent Collector and Local Roadways

As noted above, the City’s *TIA Guidelines* (see References) stipulate that daily traffic volume increases of 25% or more on collector or local roadways adjacent to a proposed development should recommend measures to mitigate safety issues, capacity issues, and/or specific neighborhood traffic impacts. While daily traffic volumes were not evaluated as part of this TIA, peak hour volumes may be used as a proxy indicator. Table 12 presents a summary of the peak hour volume increases attributable to the Konen site developments on nearby collector and local roadways.

Table 12. Total (Bi-Directional) Peak Hour Volumes in 2025 for Adjacent Collector or Local Segments

ROADWAY (Segment)	AM Peak Hour			PM Peak Hour		
	Without Project	With Project	Increase	Without Project	With Project	Increase
Offner Road (North of Rose Street)	24	89	271%	41	121	195%
Avery Street (North of Rose Street)	27	92	241%	25	106	324%
Avery Street (South of Rose Street)	76	95	25%	114	137	20%

As shown in Table 12, trips from the Konen Myra-Offner Master Plan developments are anticipated to increase peak hour traffic volumes by significant percentages on Offner Road and Avery Street. Therefore, the developments should recommend mitigation measures.

The LOS analyses above demonstrate that there are no capacity issues to mitigate at the Offner Road / Rose Street or Avery Street / Rose Street intersections. There are potential opportunities for safety improvements in the vicinity, however. Incomplete pedestrian infrastructure along Offner Road (with a gap at the Columbia-Walla Walla Railway crossing) and Avery Street (with no infrastructure) represent significant gaps in the

pedestrian network that could serve the Konen site developments. To mitigate the impacts to pedestrian safety, possible safety improvements could include:

- Evaluating, selecting, and implementing traffic calming measures along Offner Road and Avery Street, particularly at the railroad crossings. Examples include speed tables or speed cushions.
- Completing the pedestrian network along Offner Road to connect nearby existing paths across the Columbia-Walla Walla Railway crossing. This will complete the remaining pedestrian link between the Konen site and Rose Street.

The specific mitigations should be negotiated between the developers and the City. Improving Avery Street to provide a complete pedestrian connection is deemed beyond the reasonable scope of the Konen developments' mitigation improvements.

Sensitivity analyses indicate that Offner Road is likely to reach the 25% threshold during both the AM and PM peak hours when the 28th (AM) or 41st (PM) single-family home is occupied. Consequently, planning for the mitigations should be considered beginning with the first phase of single-family residential development.

Sensitivity analyses indicate that Avery Street (north of Rose Street) is likely to reach the 25% threshold during both the AM and PM peak hours when the 32nd (AM) or 26th (PM) single-family home is occupied. Consequently, planning for the mitigations should be considered beginning with the first phase of single-family residential development.

Findings: Trips generated by the Konen Myra-Offner Master Plan will impact Offner Road and Avery Street with increases ranging from 20% to 324%. Two segments meet or exceed the City's 25% threshold for recommending mitigation measures: Offner Road north of Rose Street and Avery Street north of Rose Street.

Current pedestrian infrastructure has gaps along Offner Road and Avery Street between the Konen site and Rose Street, most notably at the Columbia-Walla Walla Railway crossings.

Recommendations: Negotiate acceptable mitigation improvements for Offner Road and/or Avery Street with City staff. Options to consider should include providing traffic calming measures along the roadways, particularly at the railroad crossings, and completing the pathway connection along Offner Road across the Columbia-Walla Walla Railway crossing. These improvements could be considered safety mitigations for the increased traffic volumes generated by the Konen Myra-Offner Master Plan developments. Planning for the mitigations should be considered beginning with the first phase of single-family residential development.

4 SAFETY ANALYSIS

This section addresses safety components of a TIA, including the merits for turn lanes, the existing multimodal facilities and planned multimodal improvements, and intersection sight distance (ISD) at the three access intersections, plus the collision histories at all the study area intersections.

4.1 Left-Turn Storage Analysis

The criteria for the analysis of left-turn lanes at uncontrolled intersection legs are based on the *WSDOT Design Manual* (see References), Exhibit 1310-7b, Left-Turn Storage Guidelines: Four-Lane, Unsignalized. The exhibit provides guideline curves for left-turn storage lengths of various lengths. Appendix D presents evaluations of the left-turn lane criteria on the approaches relevant to this TIA.

It was found that a left-turn lane merits further investigation at the following locations:

- Eastbound Rose Street at Offner Road, based on the 2025 With Project conditions
- Eastbound Rose Street at Avery Street, based on the 2025 With Project conditions

After further investigation, it was found that the City of Walla Walla has programmed a multimodal improvement study for Rose Street: projects FS-77a and MM-77b noted on Exhibit 49 of the City's *Comprehensive Plan* (see References). This project is likely to assess the corridor holistically, considering left-turn lanes and other merits. If the completed study recommends left-turn lanes at Offner Road and/or Avery Street, then later phases of the Konen Myra-Offner Master Plan could contribute funds toward their implementation.

Findings: Eastbound Rose Street met the criteria for further consideration of a left-turn lane at both Offner Road and Avery Street based on the 2025 With Project conditions. On further consideration, left-turn lanes are not recommended at these locations with the project development. Rather, the evaluations are expected to be included as part of the City's future multimodal improvement study for Rose Street, and implementation of turn lanes can be determined as part of a consistent corridor treatment.

Recommendation: Contribute funds with later phases of the Konen Myra-Offner Master Plan toward the implementation of left-turn lanes on Rose Street if the City's completed multimodal improvement study recommends them at Offner Road and/or Avery Street.

4.2 Right-Turn Treatment Analysis

The criteria for the analysis of right-turn lanes at uncontrolled intersection legs are based on the *WSDOT Design Manual* (see References), Exhibit 1310-11, Right-Turn Lane Guidelines, which notes:

Right-turn movements influence intersection capacity even though there is not conflict between right-turning vehicles and opposing traffic. Right-turn lanes might be needed to maintain efficient intersection operation. Use the following to determine when to consider right-turn lanes at unsignalized intersections:

- *For two-lane roadways and for multilane roadways with a posted speed of 45 mph or above, when recommended by Exhibit 1310-11.*

The proposed access intersections include uncontrolled multilane arterials (Myra Road and Rose Street) with posted speed limits of 35 miles per hour (mph). By this criterion, the intersections do not merit further consideration for right-turn lanes. Despite this, Myra Road was evaluated due to the high number of northbound right-turn movements expected with the Konen Myra-Offner Master Plan development. It was found that the WSDOT criteria to consider a right-turn lane were satisfied for:

- Northbound Myra Road at Futura Road, based on the 2025 With Project conditions

Appendix D presents the evaluation of the right-turn lane criteria. Further evaluation of this location, reviewing all the factors identified in the *WSDOT Design Manual* (see References), did not find any significant consideration to recommend a right-turn lane.

Findings: Although the Myra Road / Futura Road intersection volumes from the 2025 With Project meet the WSDOT criteria to consider a northbound right-turn lane, no other factors recommend its implementation. No right-turn lanes are recommended with the project.

4.3 Collision Analysis

Collision data from the study area was obtained from WSDOT for the five-year period spanning from January 2015 through December 2019. This analysis assumes that a collision rate less than the critical collision rate for the intersection is typically considered to be within acceptable parameters. A collision rate above the critical rate is worthy of further examination. The detailed collision data can be found in Appendix E. Table 13 presents the results of the collision analysis.

Table 13. Collision Analysis for Study Area Intersections (January 2015 through December 2019)

Intersection	Collision Type					Total Collisions	Critical Rate	Collision Rate
	Rear-end	Sideswipe	Angle	Object	Pedestrian / Bicycle			
Myra Road / Heritage Road / Pine Street	1	3	4	1	-	9	0.85	0.41
N 9th Avenue / N 9th Court / Pine Street	-	-	3	-	-	3	0.91	0.22
Myra Road / Futura Road	-	-	-	-	-	0	-	-
Wallula Avenue / Lambert Avenue / Rose Street	-	-	1	1	-	2	0.96	0.21
Myra Road / Rose Street	4	-	3	-	-	7	0.83	0.27
Offner Road / Rose Street	1	-	2	1	1	5	0.92	0.39
Avery Street / Rose Street	1	-	6	-	-	7	0.91	0.51
N 9th Avenue / Rose Street	5	2	8	1	2	18	0.82	0.63
Myra Road / C Street / Poplar Street	18	1	6	-	1	26	0.81	0.79
Myra Road / Whitman Drive	1	-	-	-	-	1	0.85	0.05
Myra Road / 12th Street / The Dalles Military Road	5	-	7	2	-	14	0.82	0.51
Myra Road / SR 125	9	4	5	3	-	22	0.81	0.66

To calculate the collision rate, the PM peak hour total entering volumes from the existing turning movement counts were multiplied by 10 to provide an approximation of the ADT. Detailed calculations of critical rates and collision rates are provided in Appendix E.

As shown in Table 13, all the calculated collision rates are lower than the critical rates. There were no fatalities and two collisions that resulted in suspected serious injuries; both occurred at the N 9th Avenue / Rose Street intersection. One suspected serious injury incident involved a vehicle striking a pedestrian, and the other involved a vehicle sideswiping another that was stopped. The City has prioritized this intersection within its *Local Road Safety Plan* (see References) and has implemented at least two traffic improvement projects within recent years to address safety concerns.

The Myra Road / C Street / Poplar Street intersection has a collision rate that merits further investigation. Although the collision rate is very approximate based on uncertainty of the traffic volumes, the collision data show a clear pattern of rear-end incidents. These collisions are distributed on all four approaches with slightly more on the westbound Poplar Street approach. Rear-end crashes can often be addressed with signal retiming, especially clearance interval timing (yellow and all red signal timing). The City's Poplar Street lane restriping project may address the crashes on Poplar Street, and the City should continue to monitor the crash history at the intersection.

Findings: The 2014–2019 collision history at the study intersections was reviewed; all intersections have collision rates lower than the critical rate. The Poplar Street corridor project (currently in the design phase) and the recently completed improvement projects at the N 9th Avenue / Rose Street intersection should address the locations with the most notable crash history. The Myra-Offner Master Plan project will have minor impacts on any of the studied intersections.

Recommendation: The City should continue to monitor crash records at the Myra Road / C Street / Poplar Street intersection and should review the traffic signal timing parameters to assure they minimize the risk of rear-end collisions.

4.4 Pedestrian, Bicycle, and Transit Facilities

4.4.1 Existing Facilities

Most roadways within the study area have sidewalks or off-street paths for pedestrians. By contrast, on-street bike lanes currently do not exist along both sides of the several studied roadways, as noted in Table 2.

Transit services are provided by Valley Transit. Four bus routes serve roadways near the Konen site:

- 1 – Mainline travels along Rose Street in both directions between College Avenue in the City of College Place and N 9th Avenue in the City of Walla Walla.
- 6 – VA / Medical Loop travels southwest along The Dalles Military Road from S 9th Avenue, north on Myra Road, and east on Poplar Street.
- 9 – Pine Street Loop travels south along Myra Road from Dell Avenue and east along Pine Street to N 2nd Avenue.
- West Loop travels east along Rose Street from College Avenue to Avery Street and south on Avery Street to Poplar Street. It also travels southwest along The Dalles Military Road from S 9th Avenue and continues southwest along 12th Street to Larch Avenue.

The nearest bus stops to the Konen site are located

- Along Rose Street at the Offner Road and Avery Street intersections
- Along eastbound Pine Street east of Myra Road
- Along Poplar Street near the Avery Street intersection

These bus stops are considered to be within walking distance for most, if not all, of the proposed Konen master plan developments.

4.4.2 Proposed Conditions

With the proposed development, sidewalks will be constructed along the internal streets, and new sidewalks will be connected to existing sidewalks (where they exist) along Futura Road, Myra Road, Offner Road, Artesia Avenue, and Avery Street.

Findings: Sidewalks, bike lanes, and off-street paths are available along several roadways within the study area. Current pedestrian infrastructure has gaps along Offner Road and Avery Street between the Konen site and Rose Street, most notably at the Columbia-Walla Walla Railway crossings. The development will construct new pedestrian and/or bicycle facilities along internal streets, connecting to current facilities where they exist and anticipating future connections.

Recommendations: Assure all driveways, sidewalks, and curb ramps constructed with the Konen site developments comply with current Americans with Disabilities Act (ADA) guidelines.

The Myra Road / Futura Road intersection currently has marked crosswalks on all four approaches. The stop-controlled eastbound and westbound approaches are a low risk for pedestrians. The crosswalks on the northbound and southbound approaches pose a moderate risk for pedestrians due to the number of lanes and the distance across Myra Road, as well as the traffic speed and volume. In 2040 the volumes on Myra Road are projected to be approximately 9,000 to 9,500 vehicles per day. The speed limit is 35 mph and crossing distance is approximately 66 feet with two through lanes and left-turn lanes in each direction on Myra Road. The intersection appears well lighted with four streetlights near the intersection. Pedestrian counts were not tabulated for this TIA, but with no pedestrian generators or destinations currently existing near this intersection, pedestrian crossings of Myra Road are estimated to be infrequent.

With build-out of Konen site, pedestrian crossings are likely to increase. Nearby pedestrian crossings include:

- At the Myra Road / Electric Avenue intersection (illuminated and signalized)
- On each side of Mill Creek (one illuminated only, the other providing illumination, a refuge median, and actuated overhead beacons)
- At the Myra Road / Heritage Road / Pine Street intersection (illuminated and a roundabout)

Based on Table 1 of the Federal Highway Administration's (FHWA) *Guide for Improving Pedestrian Safety* (see References), additional countermeasures are suggested to reduce risk to pedestrians in the future conditions. This intersection should continue to be monitored for pedestrian activities. If pedestrian activity increases, then advance stop bars and warning signs should be added to enhance the crosswalks across Myra Road.

Finding: No pedestrian improvements are necessary currently at the Myra Road / Futura Road intersection, but if pedestrian activity increases across Myra Road, then additional improvements are suggested.

Recommendation: Continue to monitor the Myra Road / Futura Road intersection for increasing pedestrian activity crossing Myra Road. If pedestrian activity increases, then install advance stop bars and warning signs on Myra Road.

The Offner Road / Rose Street and Avery Street / Rose Street intersections have no marked crosswalks but are considered a moderate risk to pedestrians crossing Rose street given its four-lane undivided cross section and the presence of transit service. With the build-out of the Konen site, pedestrian traffic is likely to increase due to the availability of transit service. The City's *Comprehensive Plan* (see References) proposes the study of multi-modal improvements on Rose Street (projects FS-77a and MM-77b) that will consider lane conversions among their options. It is recommended the lane conversion options should consider restriping Rose Street to a three-lane cross-section with bike lanes, as this cross section will significantly reduce risk for pedestrians based the FHWA's *Guide for Improving Pedestrian Safety*.

Findings: Crossing Rose Street at Offner Road or Avery Street is considered a moderate risk for pedestrians, and pedestrian traffic is likely to increase with the Konen site developments. The City anticipates conducting a corridor study for multi-modal improvements along Rose Street in the future.

Recommendation: Within the City's corridor study, Rose Street should be considered for a lane conversion to reduce the cross section from four undivided lanes to three vehicles lanes and bike lanes.

Additional findings and recommendations are presented above with respect to the increased volumes generated by the Konen site developments on Offner Road and Avery Street and the potential safety impacts.

4.5 Intersection Sight Distance

Since the three roadways providing access to the Konen Myra-Offner Master Plan site already exist, it is assumed that ISD is adequate at their stop-controlled approaches to the nearby arterial roadways, namely at westbound Futura Road approaching Myra Road, at southbound Offner Road approaching Rose Street, and at southbound Avery Street approaching Rose Street.

It is recommended the internal roadway network, intersections, and site accesses be designed in accordance with American Association of State Highway and Transportation Officials (AASHTO) *Geometric Design* policy (see References) for ISD. Install no objects within the ISD triangles that would block approaching drivers' views of approaching traffic.

Finding: Because the roadways and intersections currently exist and are publicly maintained, it is assumed that adequate ISD is available on the stop-controlled approaches at the three access intersections.

Recommendation: Design the proposed internal roadway network, intersections, and site accesses in accordance with guidelines presented in Chapter 9.5 of the AASHTO *Geometric Design* policy for ISD. Install no objects within the ISD triangles that would block approaching drivers' views of approaching traffic.

5 STUDY FINDINGS

The findings of this TIA are listed below.

5.1 Present Volumes Are Estimated

Due to the ongoing COVID-19 pandemic temporarily closing schools and multiple businesses, present intersection traffic volumes were estimated based on historical data rather than by counting existing volumes. This approach was agreed to in negotiation with staff from the City and DKS Associates.

Historical data available at study area intersections indicate a growth rate of 2.5% (annually compounded), so for locations where historical data were available, past volumes were grown by 2.5% (annually compounded) to estimate April 2020 volumes.

Comparisons between current counts and present projections (based on 2.5% growth) at select study area intersections indicate the COVID-19 pandemic has depressed volumes by approximately 30% across the study area. So, for locations where historical data were unavailable, current counts were increased by 30% to estimate April 2020 volumes.

To apply a level of uniformity to the study, intersection approach volumes were balanced along the Myra Road and Rose Street corridors, using the estimated April 2020 volumes at the Myra Road / Rose Street intersection as a fixed reference. These balanced volumes and the unadjusted volumes at isolated intersections were used as the 2020 baseline volumes for this study.

5.2 Future Traffic Volumes Increase

Traffic volumes in the study area will continue to increase without or with the project. Generic background growth (at 1% for 5 years) was assumed to add approximately 5.1% to the 2020 baseline volumes to estimate 2025 Without Project volumes. Generic background growth (at 1% for 20 years) was assumed to add approximately 22.0% to the 2020 baseline volumes to estimate 2040 Without Project volumes.

5.3 Access and Circulation

Although the detailed site plan is not available currently, it is assumed the project will use Futura Road, Offner Road, and Avery Street as the three access points into and out of the site. An internal local roadway network will be developed to serve the various uses proposed. Pedestrian connections will be provided between the public right-of-way and the proposed development.

5.4 Trip Generation

Including all land uses and all development phases, the Myra-Offner Master Plan is anticipated to generate 385 net new vehicle trips during the AM peak hour and 450 net new trips during the PM peak hour. In addition, Myra-Offner Master Plan is anticipated to generate 28 internal trips and 212 pass-by trips during the AM peak hour, and 102 internal trips and 182 pass-by trips during the PM peak hour.

5.5 Intersection Operations

In all analysis scenarios, both without and with project conditions, all except one studied intersection will operate at an acceptable LOS during both the weekday AM and PM peak hours. The exception is the Myra Road / Futura Road intersection, which will operate at LOS F for westbound left-turn lane in the 2040 With Project scenario during the PM peak hour.

No mitigation is recommended for the Myra Road / Futura Road intersection because the 2040 horizon year without and with project conditions analyses are only for the City's planning purposes.

5.6 Volumes on Adjacent Collector and Local Roadways

Trips generated by the Konen Myra-Offner Master Plan will impact Offner Road and Avery Street with increases ranging from 20% to 324%. Two segments meet or exceed the City's 25% threshold for recommending mitigation measures: Offner Road north of Rose Street and Avery Street north of Rose Street.

5.7 Left-Turn Lane Evaluations

Eastbound Rose Street met the criteria for further consideration of a left-turn lane at both Offner Road and Avery Street based on the 2025 With Project conditions. On further consideration, left-turn lanes are not recommended at these locations with the project development. Rather, the evaluations are expected to be included as part of the City's future multimodal improvement study for Rose Street, and implementation of turn lanes can be determined as part of a consistent corridor treatment.

5.8 Right-Turn Lane Evaluations

Although the Myra Road / Futura Road intersection volumes from the 2025 With Project meet the WSDOT criteria to consider a northbound right-turn lane, no other factors recommend its implementation. No right-turn lanes are recommended with the project.

5.9 Collision Analysis

The 2014–2019 collision history at the study intersections was reviewed; all intersections have collision rates lower than the critical rate. The Poplar Street corridor project (currently in the design phase) and the recently completed improvement projects at the N 9th Avenue / Rose Street intersection should address the locations with the most notable crash history. The Myra-Offner Master Plan project will have minor impacts on any of the studied intersections.

5.10 Transit, Pedestrian, and Bicycle Facilities

Sidewalks, bike lanes, and off-street paths are available along several roadways within the study area. Current pedestrian infrastructure has gaps along Offner Road and Avery Street between the Konen site and Rose Street, most notably at the Columbia-Walla Walla Railway crossings.

The development will construct new pedestrian and/or bicycle facilities along internal streets, connecting to current facilities where they exist and anticipating future connections.

No pedestrian improvements are necessary currently at the Myra Road / Futura Road intersection, but if pedestrian activity increases across Myra Road, then additional improvements are suggested.

Crossing Rose Street at Offner Road or Avery Street is considered a moderate risk for pedestrians, and pedestrian traffic is likely to increase with the Konen site developments. The City anticipates conducting a corridor study for multi-modal improvements along Rose Street in the future.

5.11 Intersection Sight Distance

Because the roadways and intersections currently exist and are publicly maintained, it is assumed that adequate ISD is available on the stop-controlled approaches at the three access intersections.

6 RECOMMENDATIONS

The traffic impact analysis supports the following recommendations.

6.1 Traffic Impact Mitigation

Negotiate acceptable mitigation improvements for Offner Road and/or Avery Street with City staff. Options to consider should include providing traffic calming measures along the roadways, particularly at the railroad crossings, and completing the pathway connection along Offner Road across the Columbia-Walla Walla Railway crossing. These improvements could be considered safety mitigations for the increased traffic volumes generated by the Konen Myra-Offner Master Plan developments. Planning for the mitigations should be considered beginning with the first phase of single-family residential development.

6.2 Left-Turn Lanes on Rose Street

Contribute funds with later phases of the Konen Myra-Offner Master Plan toward the implementation of left-turn lanes on Rose Street if the City's completed multimodal improvement study recommends them at Offner Road and/or Avery Street.

6.3 Collision Mitigation

The City of Walla Walla should continue to monitor crash records at the Myra Road / C Street / Poplar Street intersection and should review the traffic signal timing parameters to assure they minimize the risk of rear-end collisions.

6.4 Accessibility

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

6.5 Pedestrian Crosswalks of Myra Road at Futura Road

Continue to monitor the Myra Road / Futura Road intersection for increasing pedestrian activity crossing Myra Road. If pedestrian activity increases, then install advance stop bars and warning signs on Myra Road.

6.6 Pedestrian Crosswalks of Rose Street

Within the City's corridor study, Rose Street should be considered for a lane conversion to reduce cross-section from four undivided lanes to three vehicles lanes and bike lanes.

6.7 Intersection Sight Lines

Design the proposed internal roadway network, intersections, and site accesses in accordance with guidelines presented in Chapter 9.5 of the AASHTO *Geometric Design* policy (see References) for ISD. Install no objects within the ISD triangles that would block approaching drivers' views of approaching traffic.

7 REFERENCES

American Association of State Highway and Transportation Officials (AASHTO). (2018). *A Policy on the Geometric Design of Highways and Streets*, 7th Edition.

City of College Place. (October 9, 2018). *Appendix G Transportation Plan. Comprehensive Plan.*

City of Walla Walla. (June 2018). *2040 Walla Walla Comprehensive Plan Update.*

City of Walla Walla. (November 2018). *Transportation Impact Analysis Guidelines.*

DKS Associates. (April 2018). *City of Walla Walla Local Road Safety Plan.*

Federal Highway Administration (FHWA). (July 2018). *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations.*

Institute of Transportation Engineers. (2017). *Trip Generation Handbook*, 3rd Edition.

Institute of Transportation Engineers. (2017). *Trip Generation Manual*, 10th Edition.

Transportation Research Board, National Research Council. (2016). *Highway Capacity Manual (HCM)*, 6th Edition.

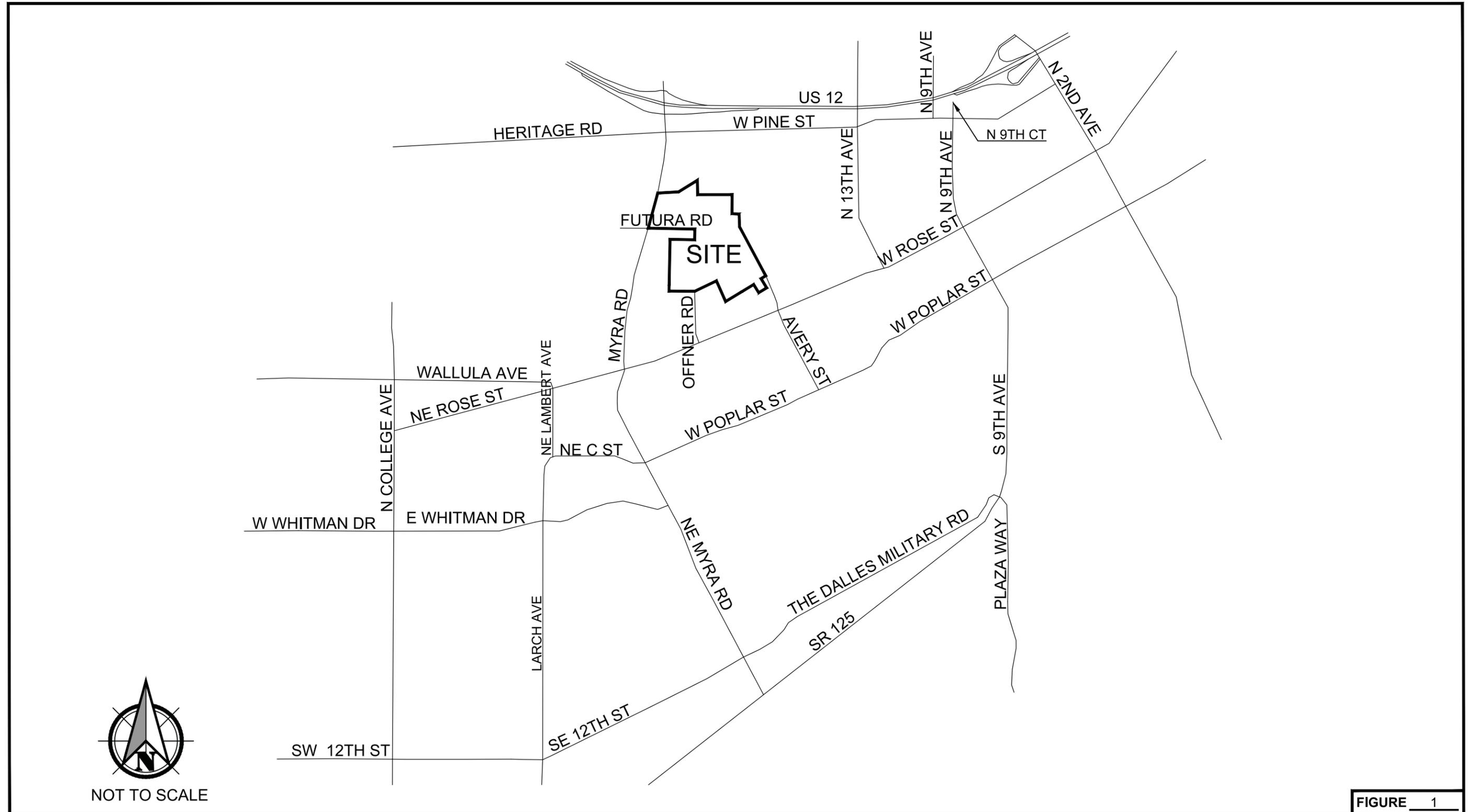
Washington State Department of Transportation (WSDOT). (January 1, 2010). *Level of Service Standards for Washington State Highways.*

Washington State Department of Transportation (WSDOT). (December 2019). *WSDOT Design Manual.*

Washington State Department of Transportation (WSDOT). (Accessed April 23, 2020). *WSDOT GeoPortal.*

Figures

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- Figure 7. 2025 With Project Volumes
- Figure 8. 2040 Without Project Volumes
- Figure 9. 2040 With Project Volumes



Vicinity Map
Konen Myra Road Development

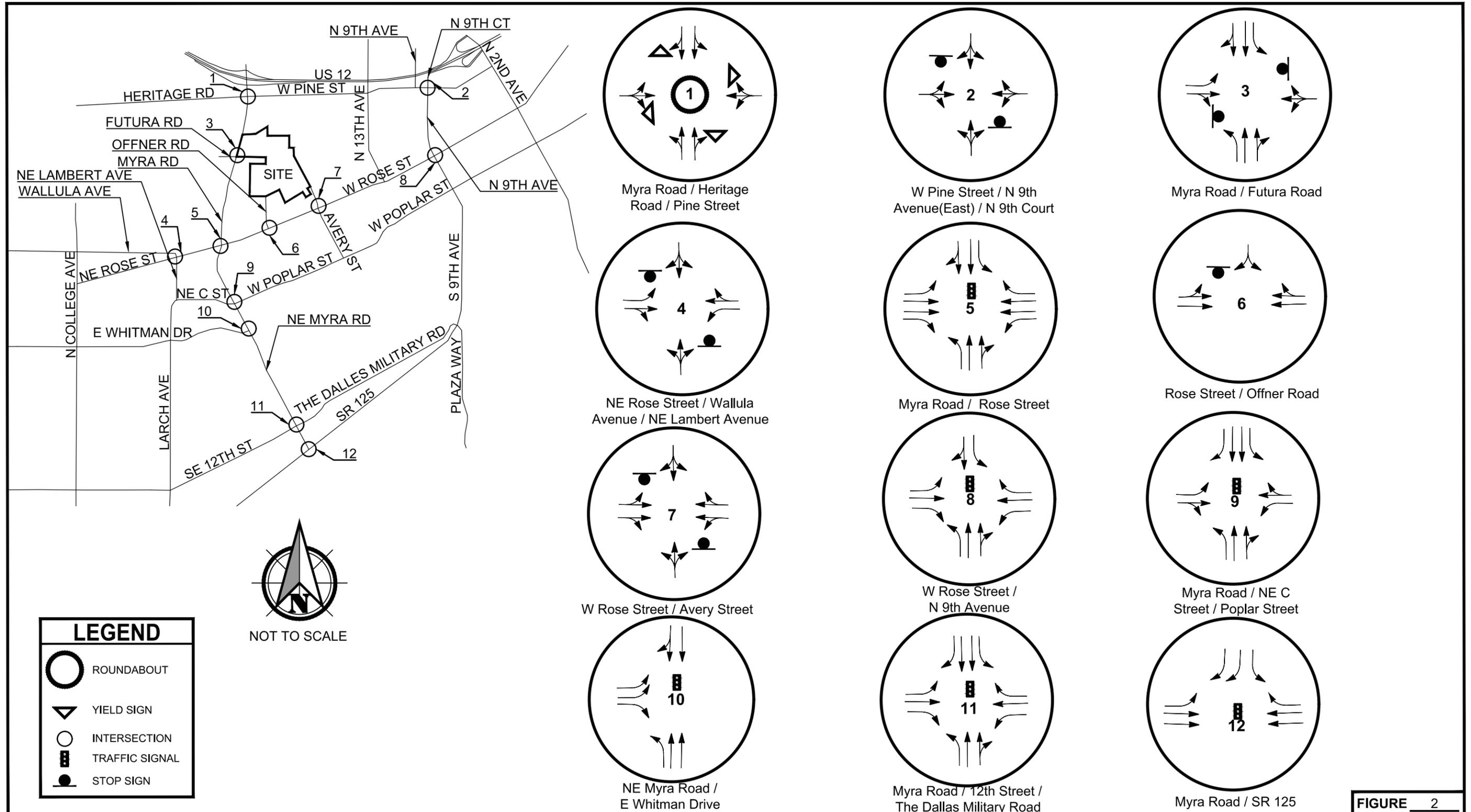


FIGURE 2

Existing Lane Configurations and Traffic Controls

Konen Myra Road Development

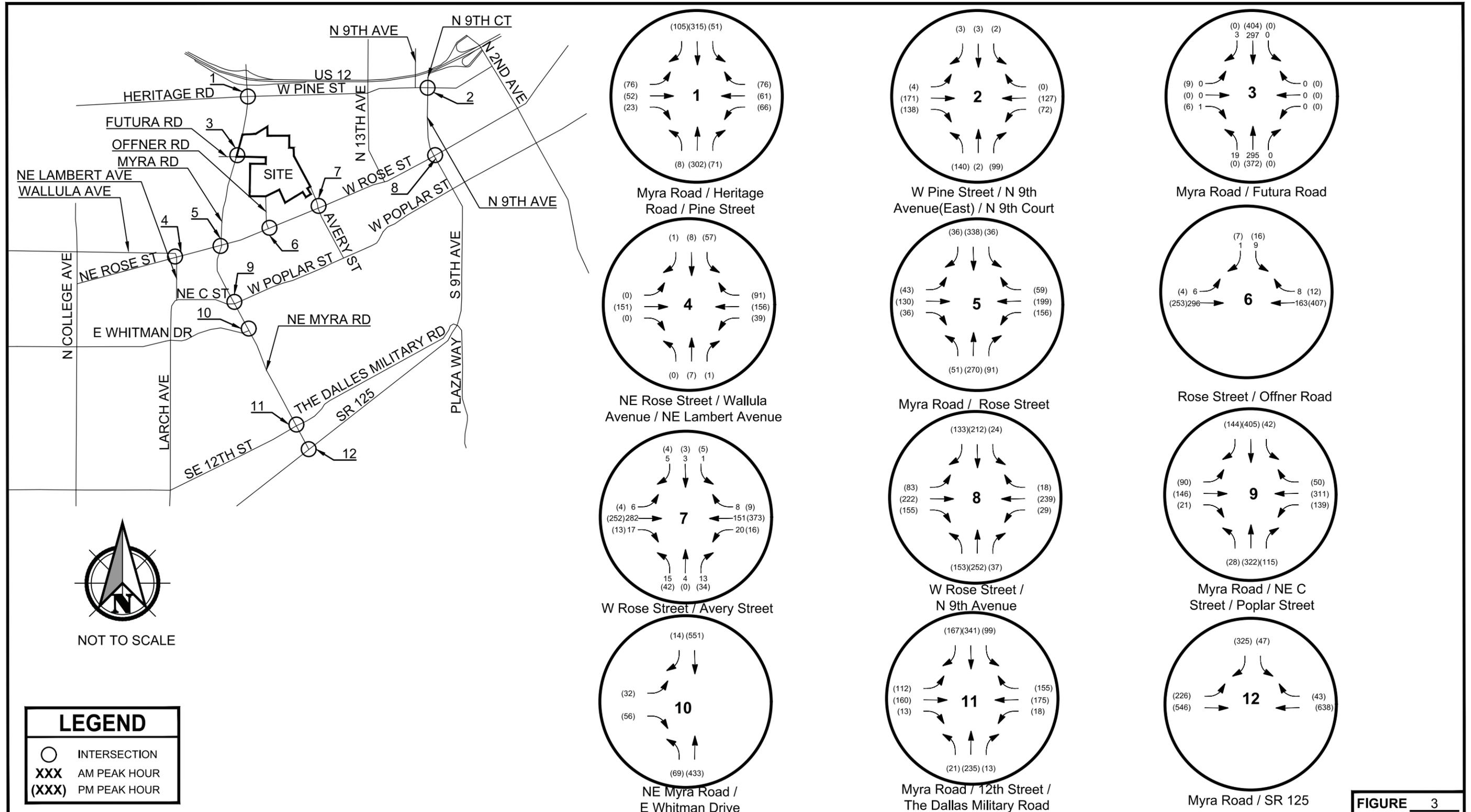


FIGURE 3

**2020 Baseline Volumes
Konen Myra Road Development**

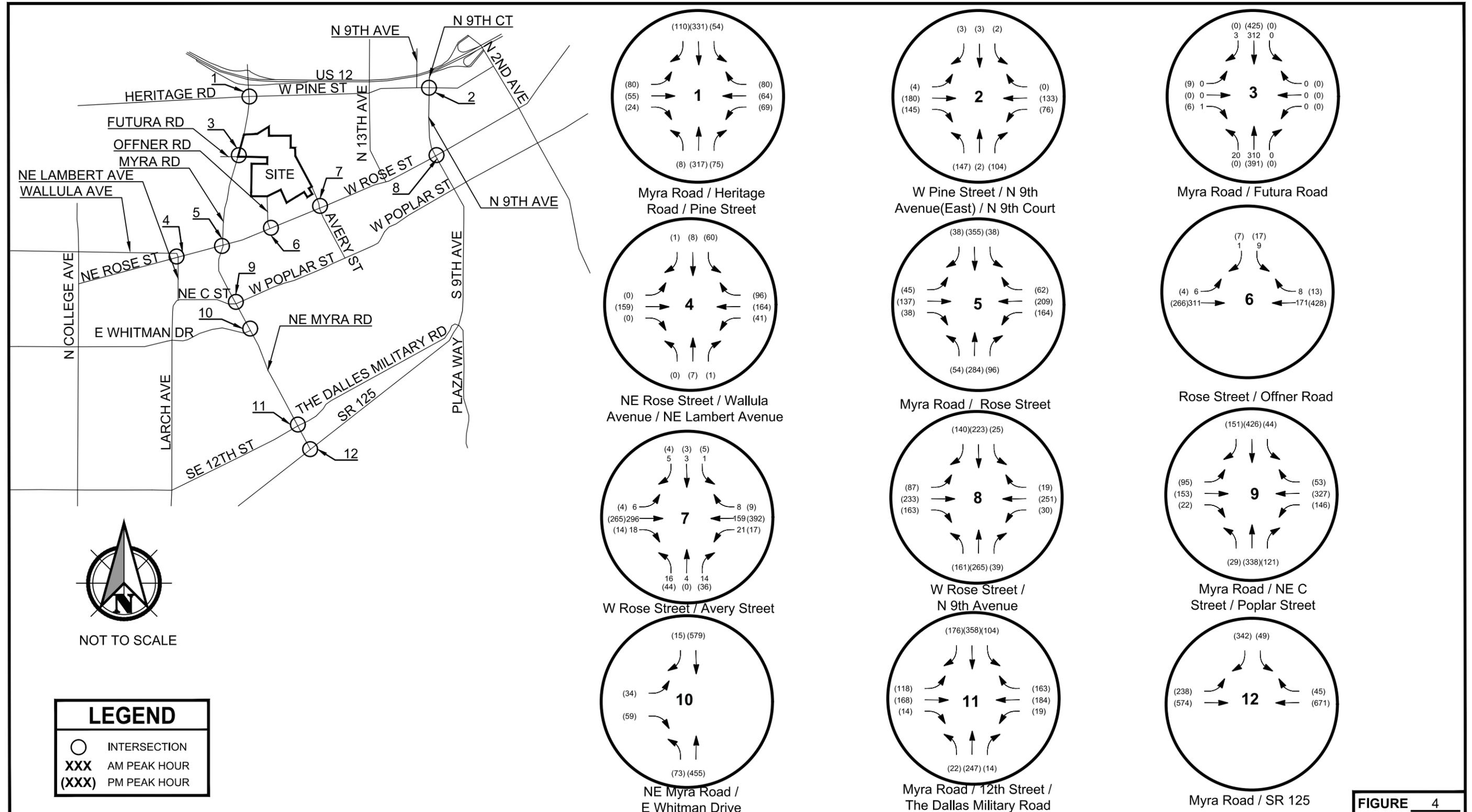


FIGURE 4

**2025 Without Project Volumes
Konen Myra Road Development**

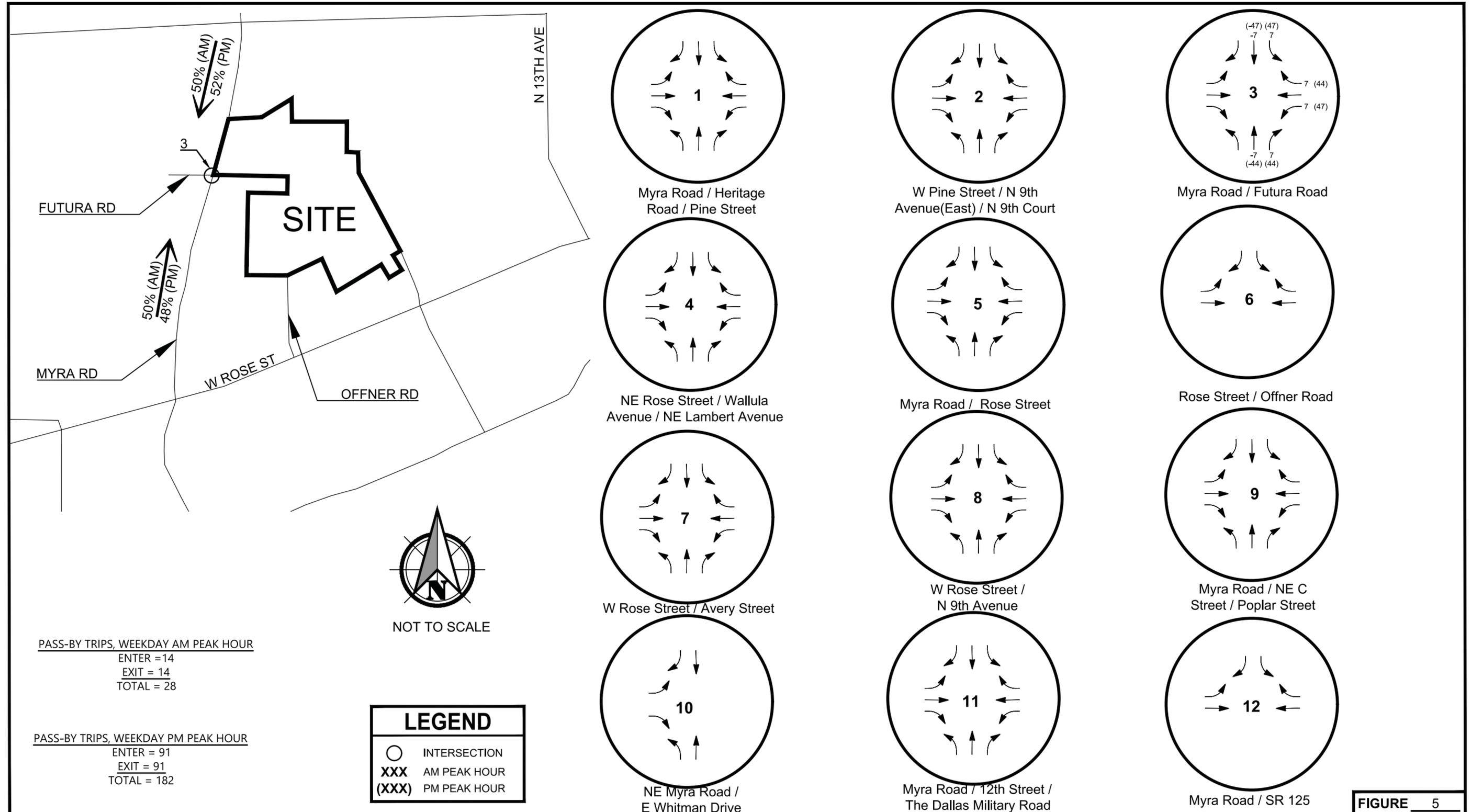


FIGURE 5

2025 Pass-By Trips Konen Myra Road Development

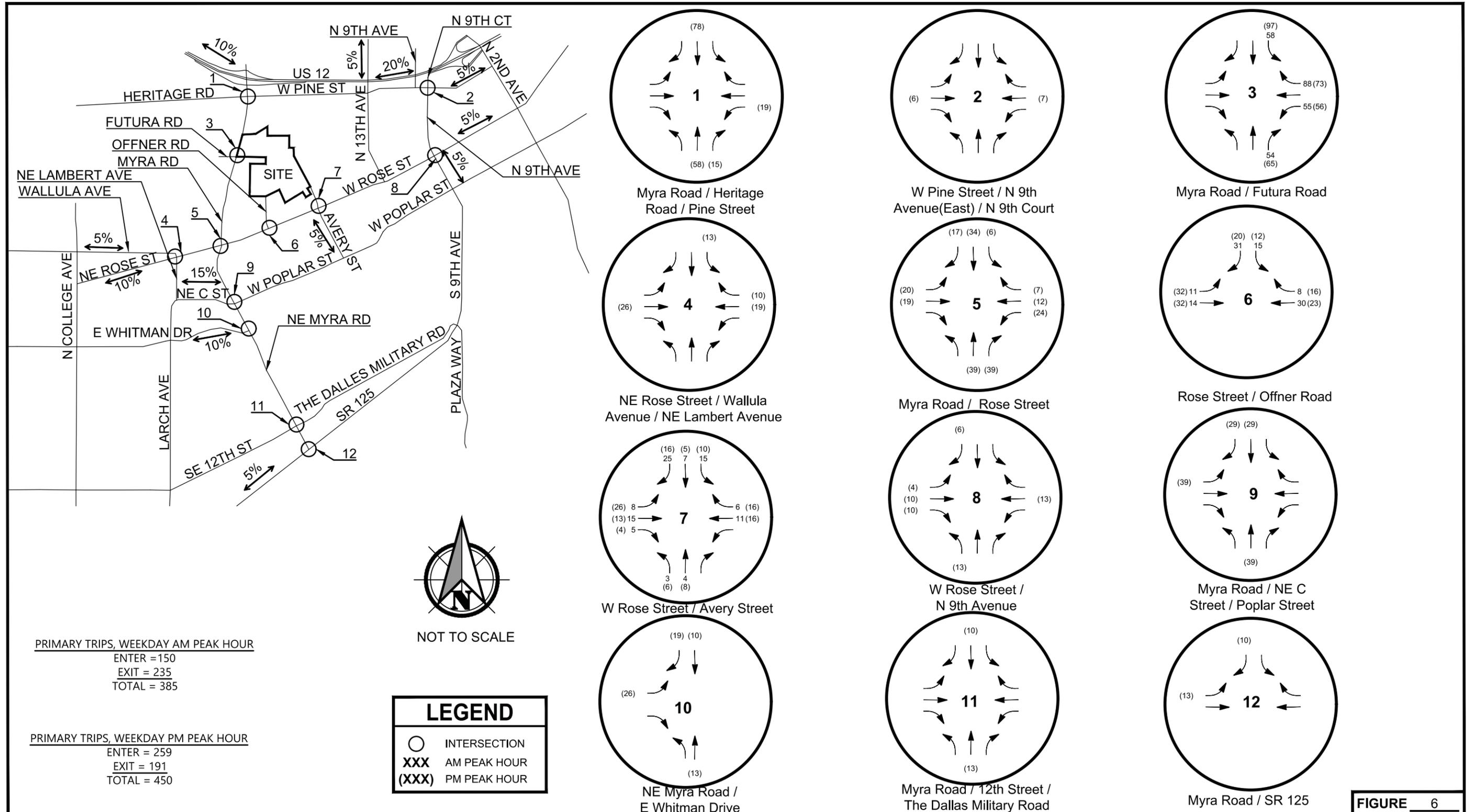


FIGURE 6

**2025 Primary Trips
Konen Myra Road Development**

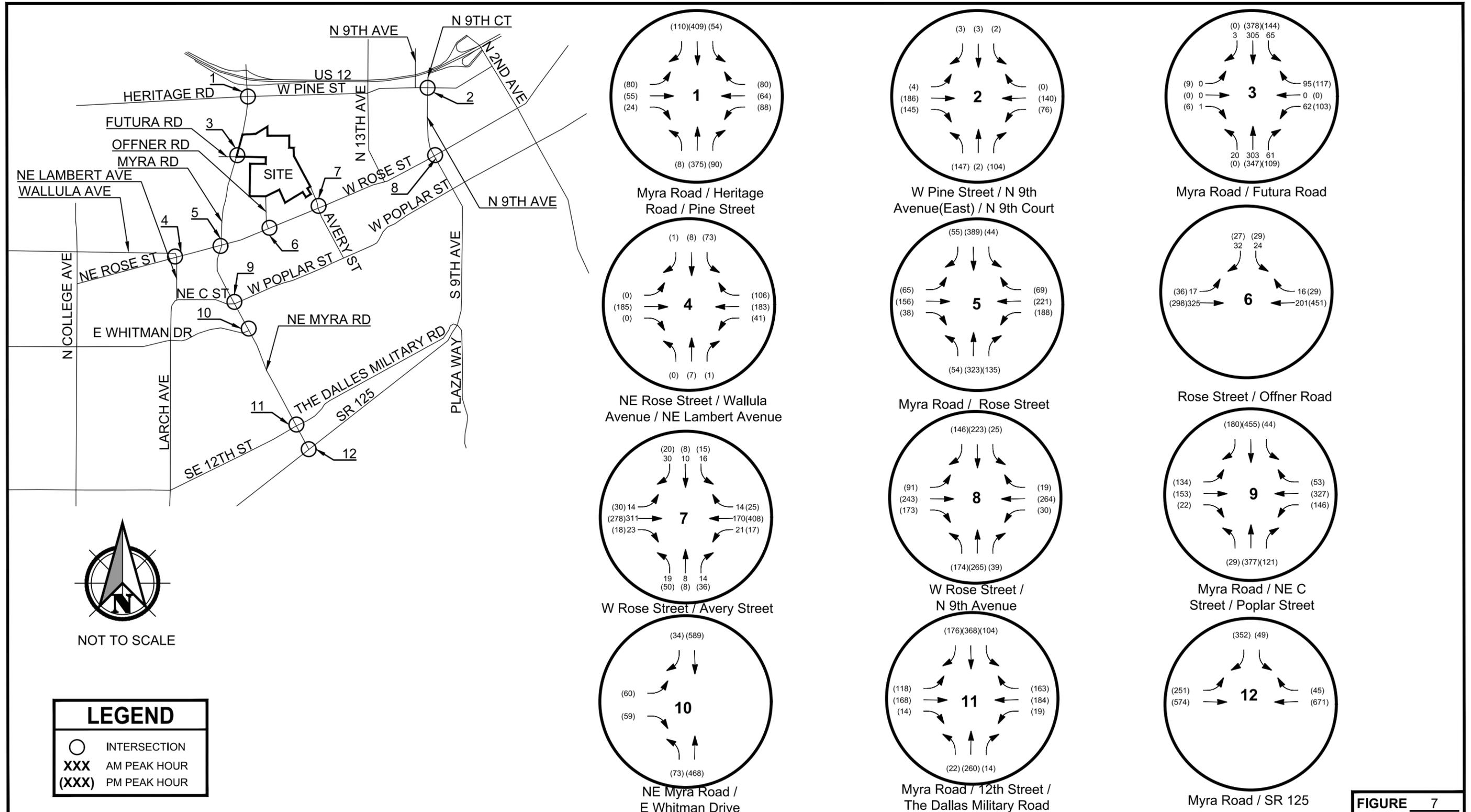


FIGURE 7

2025 With Project Volumes Konen Myra Road Development

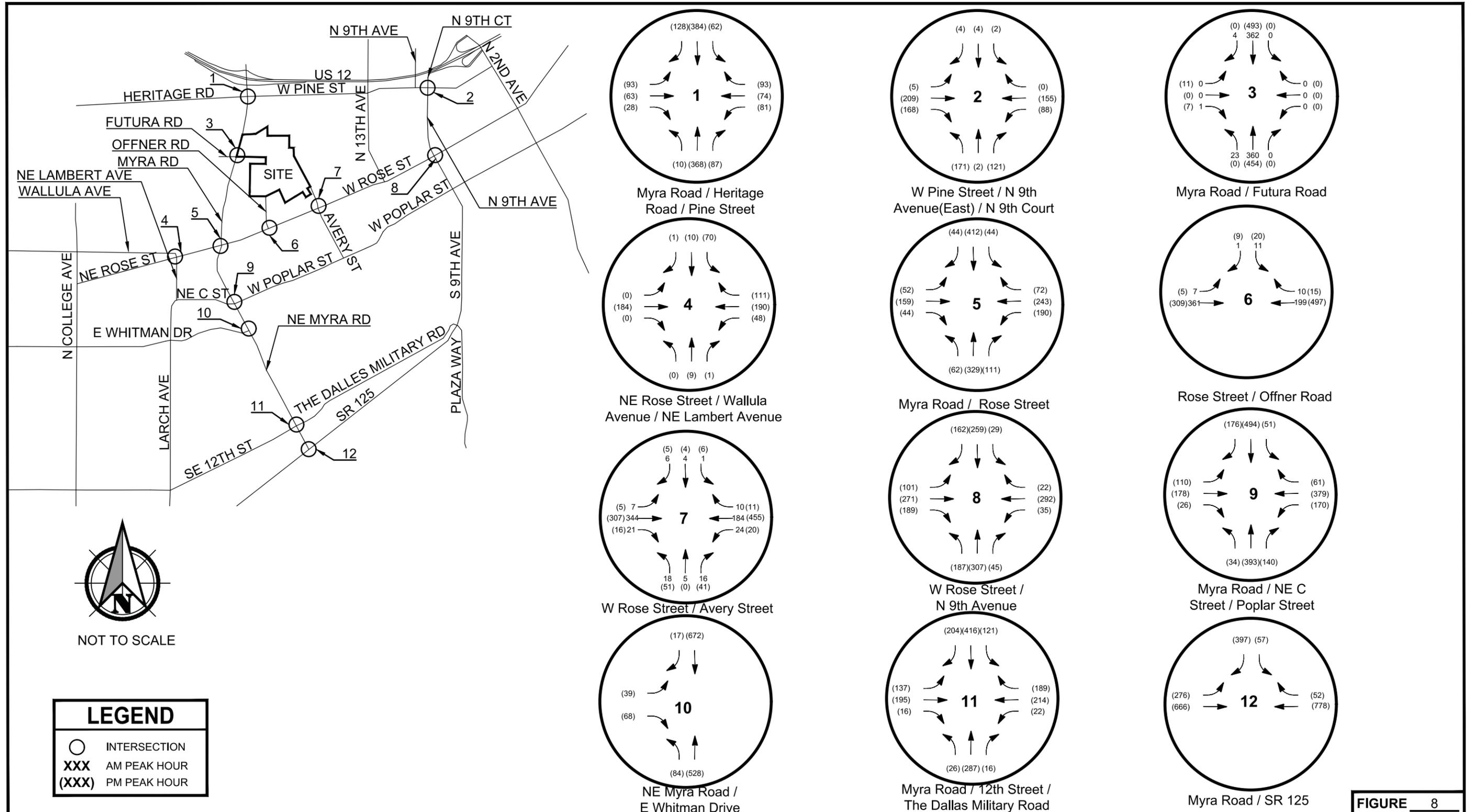


FIGURE 8

2040 Without Project Volumes
Konen Myra Road Development

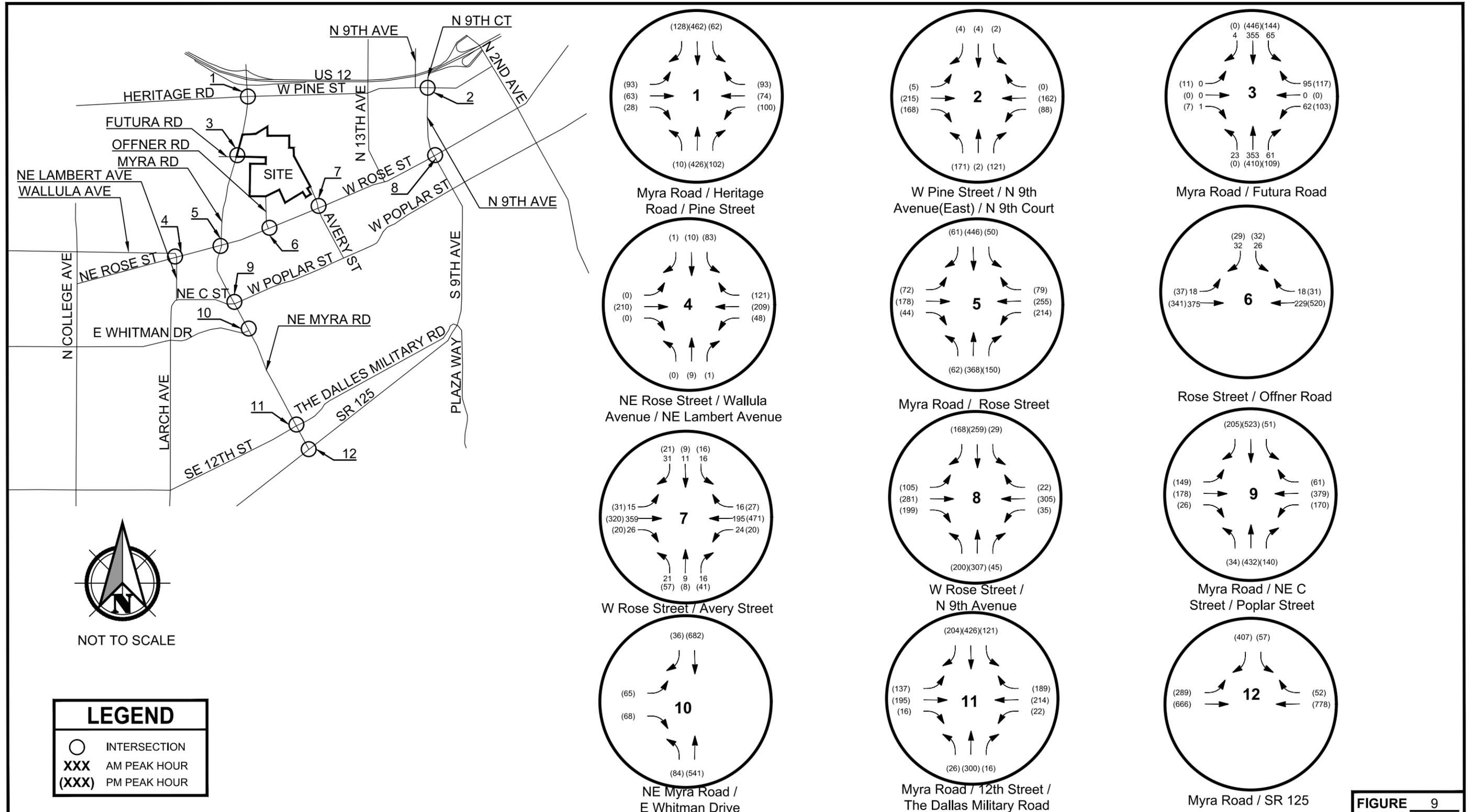


FIGURE 9

**2040 With Project Volumes
Konen Myra Road Development**