

PREMIER DEVELOPMENT, LLC

Traffic Impact Analysis (133 Apartments in McMinnville)

Prepared for

Premier Development, LLC
1312 NE Highway 99W
McMinnville OR 97128

Prepared by

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MARCH 2017

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Executive Summary

Premier Development, LLC is seeking a change in zoning from R-2 to R-4 to build 133 new apartment units at 2501 NE Evans St, McMinnville, OR. Currently a vacant lot, a local business, and a parking lot occupy the site. This report analyzes the potential near-term impact of these 133 new apartment units on the expected opening day in 2019, as well as the longer-term (20-year) potential impacts in 2037.

To analyze both times, existing traffic counts were collected and grown for the 2019 analysis, new trips were generated for 133 apartment units, and added to these naturally increasing background trips. These trips were analyzed to determine intersection traffic performance.

The 2037 analysis was conducted slightly differently. As the City's TSP is already planning for the current R2 zoning, the 2037 analysis focuses on the additional trips generated by the proposed 133 apartments instead of the 28 single-family homes that are currently allowed with the existing zoning. An analysis of the difference in future trips represents the result of the zone change from R-2 to R-4. This difference, plus the growth in background trips, was modelled to analyze a future 20-year planning horizon.

No operational deficiencies were found because of the zone change in either the 2019 opening day or the 2037 planning horizon. The intersection operations are expected to be within the governing roadway operating standards (both City of McMinnville and Oregon Department of Transportation). A left-turn lane warrant analysis was conducted at the site driveway on NE Evans and installation of a left-turn lane is not warranted in either 2019 or 2037.

Existing Conditions

The project site is currently zoned R-2 (single family residential). The site is currently occupied by a non-conforming commercial use. There is a single story commercial building housing a moving supply company, and an automobile accessory store, as well as a surface parking lot.

Study Area

The study area is located at 2501 NE Evans Street, McMinnville, OR 97128. Site generated trips were analyzed at the four study area intersections shown below in Figure 1. Access to the site will be provided via a driveway on NE Evans Street.

The intersection of Baker Creek Road at Oregon Highway 99 West (Hwy 99W) was added as a study area intersection to ensure compliance with the City’s TSP. As will be shown in later sections of this analysis, the proposed development will only add approximately 2.1% to the total entering vehicle trips of the

intersection. As such, the proposed development is not expected to have a significant impact to this intersection.

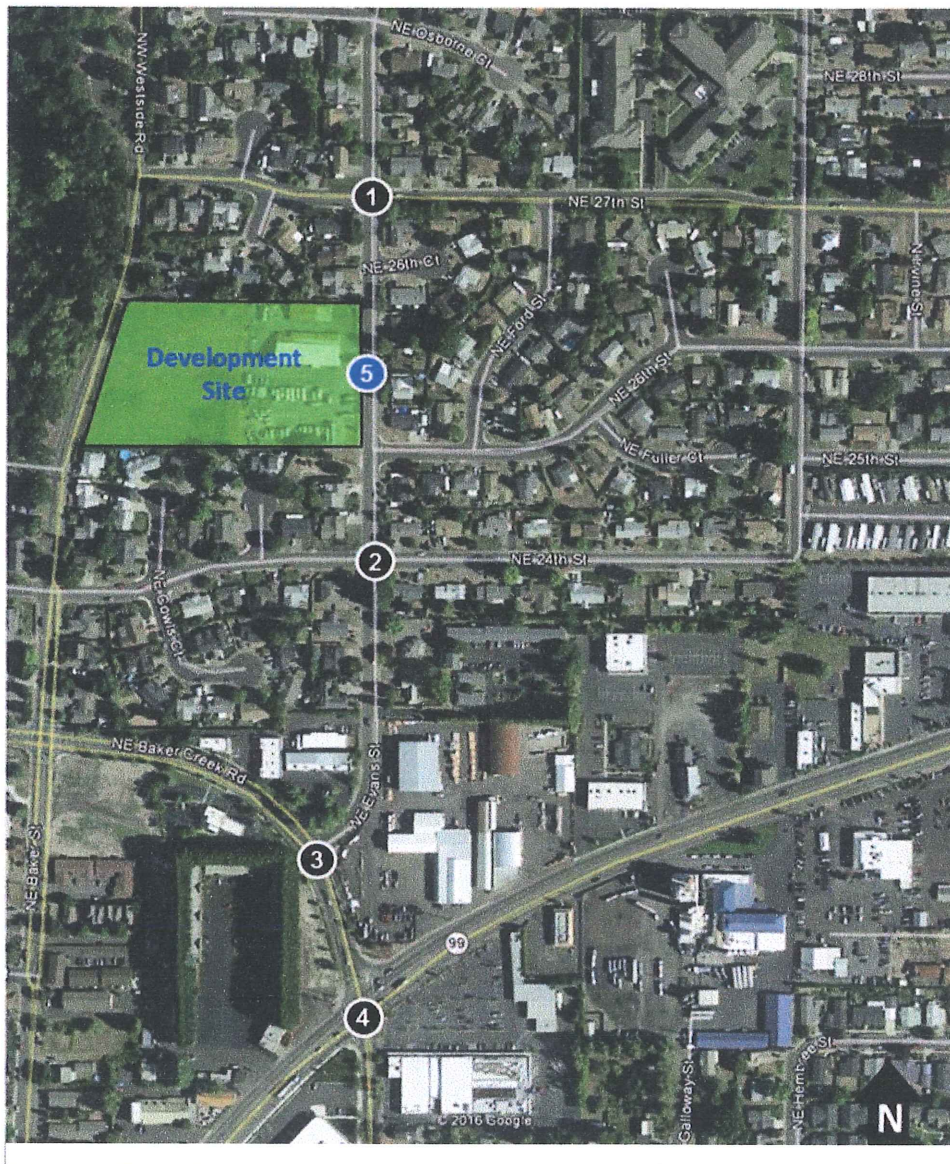


FIGURE 1. STUDY AREA

Roadway Network

The 2010 City of McMinnville Transportation System Plan (TSP) outlines the functional classification of roads and maps each type within the city's boundaries. Within the study area, there are local residential streets, minor collectors, minor arterials, and major arterials.

Local Residential Streets

To the south of the development are NE 24th Street and NE 26th Street, which are identified as Local Residential Streets in the TSP. Local streets are intended to serve abutting residential areas only, without carrying any through traffic. They are designed for up to 1,200 vehicles a day.

Minor Collectors

The development is served directly by NE Evans Street, which is classified by the City as a Minor Collector (McMinnville TSP, 2010, P. 2-9). To the north of these development site is NE 27th Street, which is also a minor collector. Minor collectors are primarily intended to provide access to abutting parcels, as well to provide access to local streets. They are designed to carry up to 10,000 vehicles a day (McMinnville TSP, 2010, P. 2-10), comprised of both local and through traffic.

Minor Arterials

Further to the south of the development is NE Baker Creek Road, which is identified as a Minor Arterial in the TSP. These arterials are designed to be the primary street network both through and within the City of McMinnville. Minor arterials typically have two to three lanes of traffic, and are designed to carry up to 20,000 vehicles a day.

Major Arterials

Highway 99W runs to the southeast of the property, providing access primarily via NE Baker Creek Road to the south, but also via NE 27th Street further east of the study area. Major arterials are also meant to be the primary network for traffic in McMinnville. They typically have four or more lanes, and carry up to 32,000 vehicles a day.

Pedestrian and Bicycle Facilities

NE Evans Street has a mix of sidewalks on both sides and one side of the street. The development site currently has no sidewalk on the west side of the street (the side where the property is located), and a sidewalk on the east side of the street. Immediately to the north and south of the property on NE Evans Street, there are sidewalks on both sides of the street. However, further to the north and south, the sidewalks are discontinuous, with some properties lacking sidewalks in front of them. It is important to note that the City TSP designates NE Evans Street as a Safe Routes to School (SRTS) route. As such, it is imperative that the proposed development construct a sidewalk on their NE Evans Street frontage.

In the TSP, NE Evans Street and NE 27th Street are classified as shared roadways, indicated with sharrows on them, while NE Baker Creek Road and Hwy 99W are classified as bikeways and the McMinnville TSP designates each route for future bike lanes. Sharrows are painted markings on the road that indicate that cyclists and drivers should share the street space.

Transit Facilities

Yamhill County Transit Area (YCTA) Route 3 currently serves the study area. Route 3 is a local loop route, which in the study area, runs north along NE Evans Street. See Figure 2 for map of Route 3, with the development site indicated. Route 3 is a weekday only service, which runs from 8:00 AM to 5:00 PM and operates at one-hour headways.

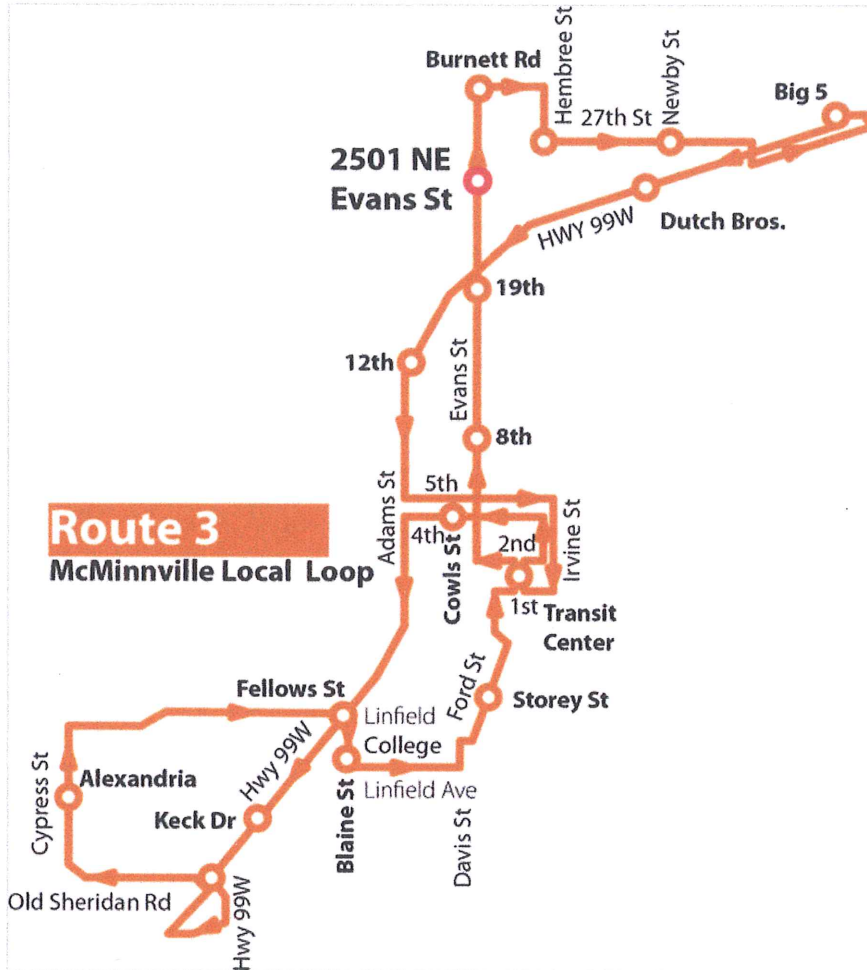


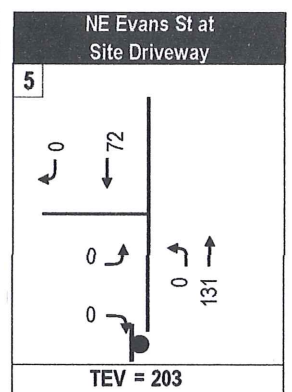
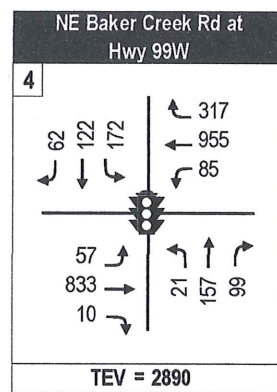
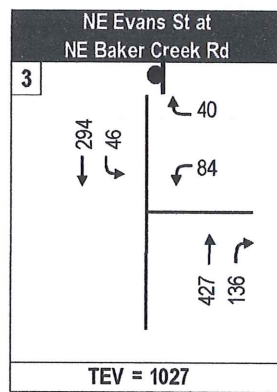
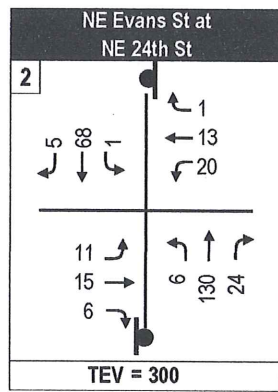
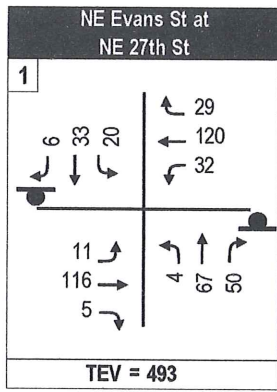
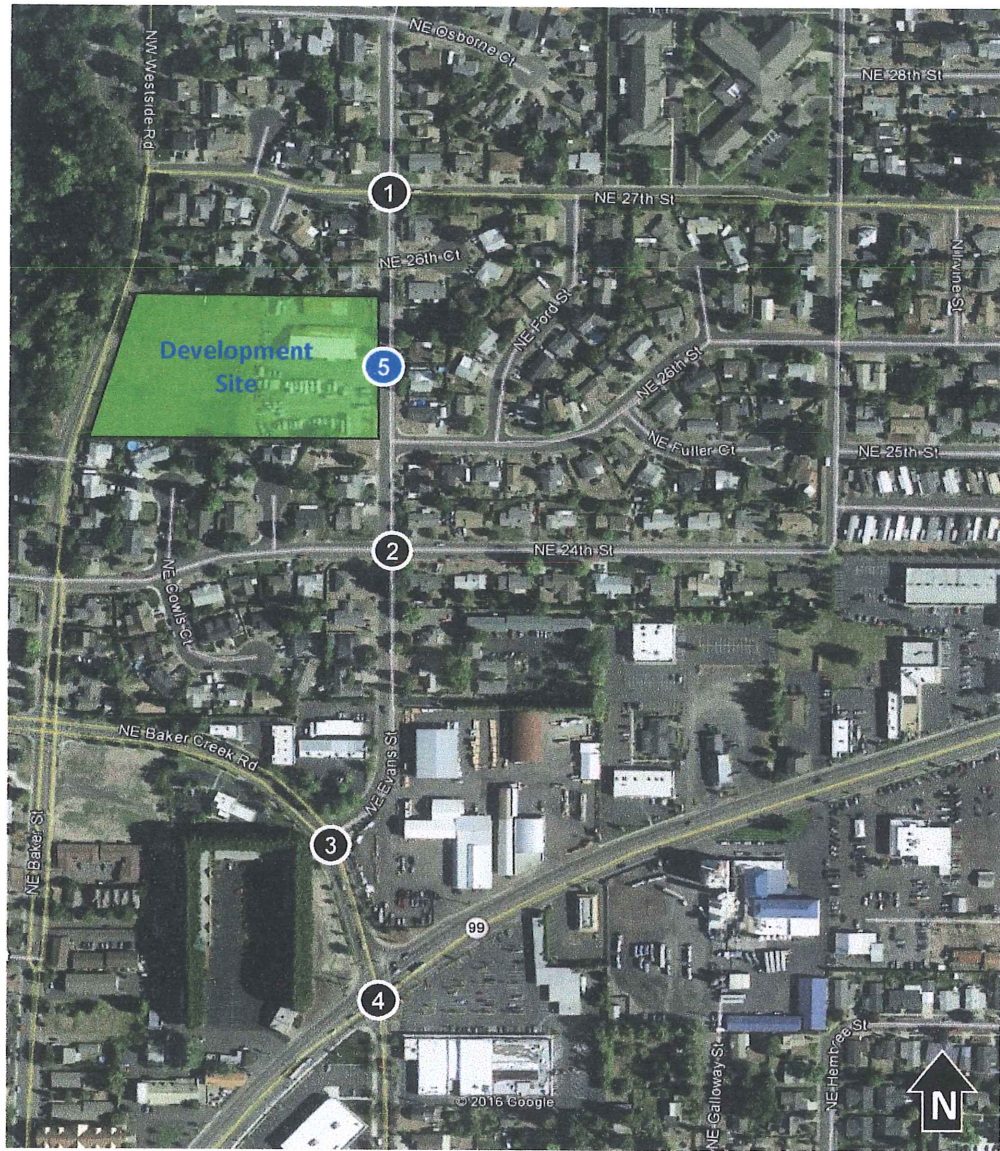
FIGURE 2. STUDY AREA TRANSIT SERVICES.

Existing (2017) Traffic Conditions

PM peak (4:00 PM to 6:00 PM) traffic counts were conducted on Thursday, February 9, 2017 for the following intersections:

1. NE Evans St at NE 27th St
2. NE Evans St at NE 24th St
3. NE Evans St at NE Baker Creek Rd
4. NE Baker Creek Rd at Hwy 99W

The PM Peak Hour occurred on NE Baker Creek Rd at Hwy 99W from 4:40 PM to 5:40 PM. This common peak hour was used for all study area intersections. See Figure 3 for these existing volumes.



133 Apartments in McMinnville

Legend

- Turning Movement
- ##** PM Peak Hour Volume
- TEV: Total Entering Volume

- STOP Control
- Signalized Intersection
- 1** Study Area Intersection
- 5** Site Access Point

Figure 3
Existing (2017)
PM Peak Hour Traffic Volumes

Existing traffic operations were analyzed using the Highway Capacity Manual (HCM) 2010 standards for unsignalized intersections and HCM 2000 methodology for the signalized intersection; HCM 2010 does not report outputs for signalized intersections. See Table 1 for a summary of current operations.

TABLE 1. SUMMARY OF CURRENT OPERATIONS

Intersection		Operations	
1	NE Evans St at NE 27th St Unsignalized	V/C	0.24
		LOS	B
2	NE Evans St at NE 24th St Unsignalized	V/C	0.07
		LOS	B
3	NE Evans St at NE Baker Creek Rd Unsignalized	V/C	0.41
		LOS	C
4	NE Baker Creek Rd at Hwy 99W Signalized	V/C	0.60
		LOS	C

Assumptions and Methodology

Intersection operations were analyzed using Synchro, a microscopic traffic analysis program. As stated in the Executive Summary, the trip generation methodology used for the opening year analysis (2017) and the forecast year analysis (2037) varied as the two different analysis are designed to answer two distinctly different questions. Trip generation is based on the 9th edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual. The generated trips were distributed based on local understanding of travel patterns. Background trips were increased annually based on observed trends. On opening day in 2019, the potential impacts of these 133 units were analyzed, while in 2037 the potential impact in the difference in trips from the apartment and single family homes were analyzed. Left turn warrants were also performed for both years.

The City's TSP states that the operational standard of McMinnville streets is a maximum v/c ratio of 0.90. The ODOT standard, however, applies only to the intersection of Evans Street at Hwy 99W and is a maximum v/c ratio of 0.85.

Trip Generation

The maximum number of apartment units which could be built on the site under R-4 zoning is 133. The following analysis assumes that all 133 apartments are to be built; this was done to ensure that the maximum amount of potential trips are analyzed in this report. Should any fewer units be built, the analysis and recommendations of this report will still be valid. Generation rates were used for the weekday PM peak hour of adjacent street traffic. See Table 2 for a summary of apartment generated trips.

TABLE 2. TRIP GENERATION FOR APARTMENTS

Description	Land Use Code	Size	ITE Average Trip Rate	Trips	Entering Percent	Entering Trips	Exiting Percent	Exiting Trips
Apartments	220	133 units	0.62 / unit	83	65%	54	35%	29

Trips were also calculated for 28 single-family homes, the maximum number that could be built on the site (see Table 2) under R-2 zoning. The reason for these single family home trips is that the site is currently zoned R-2, and should it be re-zoned from R-2 to R-4; the differences in trips resulting from the zone change represents additional (net new) trips to be analyzed in the forecast year. See Table 4 for the trips generated by the 28 single-family homes.

TABLE 3. TRIP GENERATION FOR SINGLE-FAMILY HOMES

Description	Land Use Code	Size	ITE Average Trip Rate	Trips	Entering Percent	Entering Trips	Exiting Percent	Exiting Trips
Single-Family Homes	210	28 houses	1.00 / house	28	63%	18	37%	10

Table 4 below shows the difference in total, entering, and exiting trips as a result of the change in zoning. The Net New Driveway Trips will be added to the 2037 no-build volumes to determine the build volumes.

TABLE 4. OPENING YEAR (2019) NET NEW TRIPS

		Trips	Entering Trips	Exiting Trips
Added	Apartments (proposed zoning)	83	54	29
Removed	Single Family Homes (current zoning)	28	18	10
Net New Driveway Trips		55	36	19

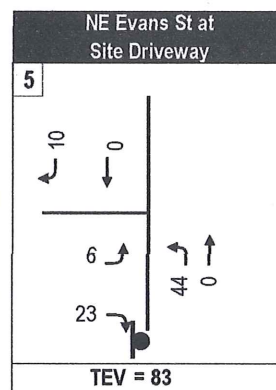
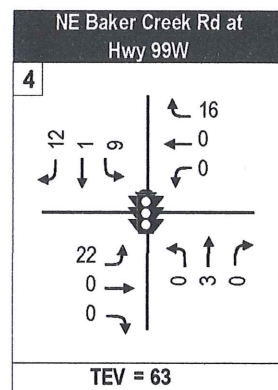
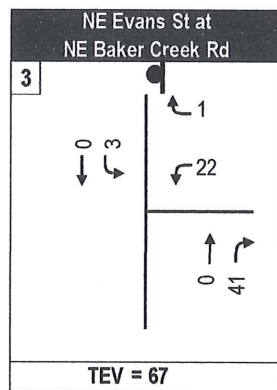
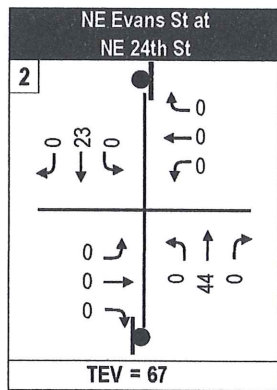
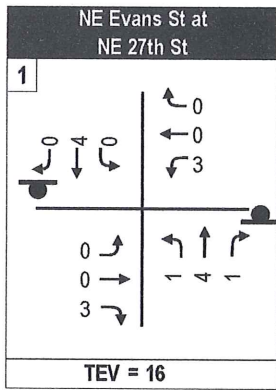
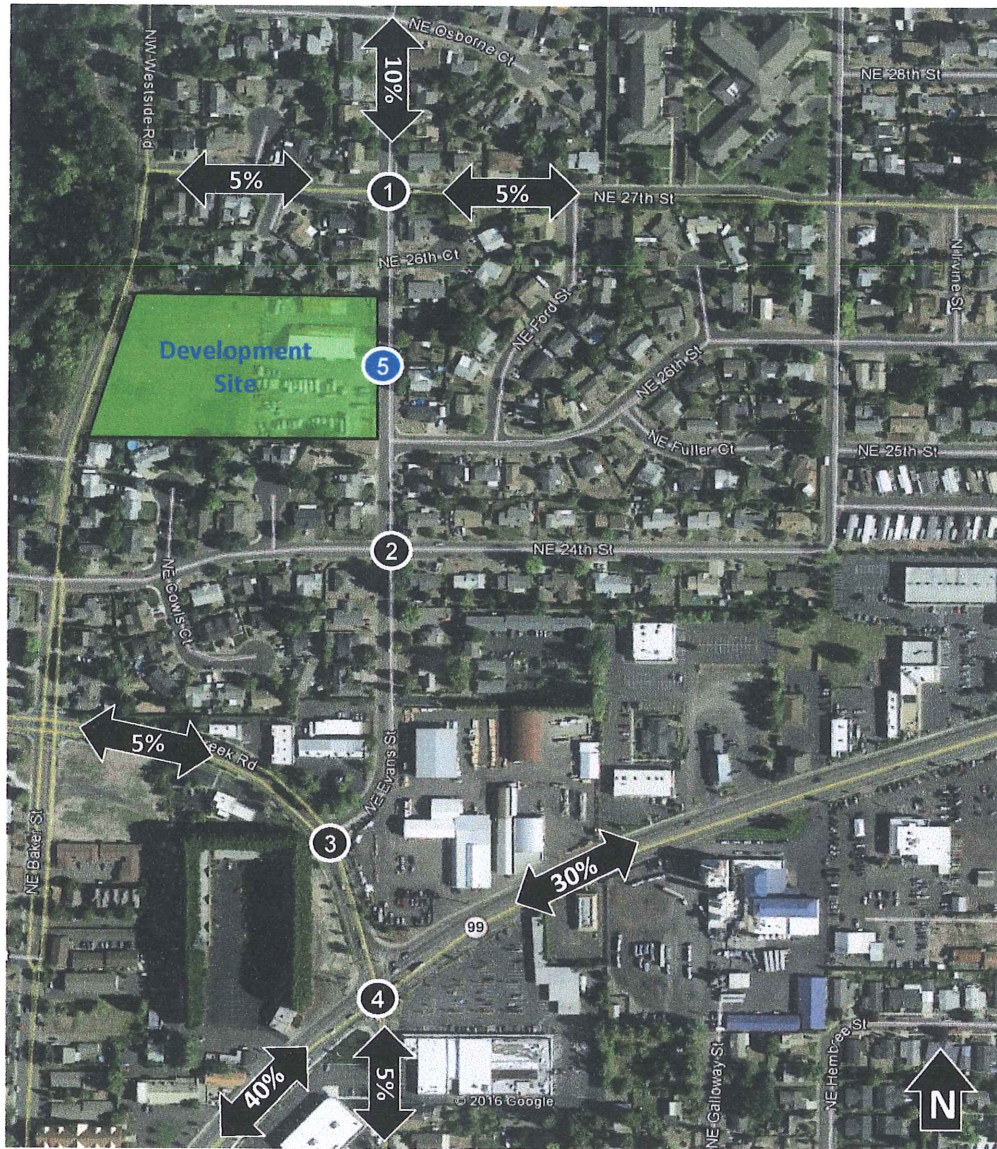
The new trips from the apartment units were distributed based on the percentages shown in Figure 4.

In addition to the new trips expected to be generated by the addition of 133 apartment units, an increase in background trips was also forecasted. A growth rate of 1.13% per year was calculated from link volumes from ODOT’s Regional Travel Demand Model (RTDM).

To validate the growth rate assumed in the RTDM several other methods were analyzed. A comparison was completed of total entering volume at the intersection of Evans Street at Hwy 99W between the 2006 count used for the TSP and the existing count collected for this study. This comparison showed that total entering volume had decreased over the last 11 years. This implies a negative growth rate. As a negative growth rate was deemed unacceptable for use in this analysis, a review of Automatic Traffic Recorder stations (ATRs) was also conducted at three locations. ATR 36-004 (Hwy 99W in Newberg)

indicated a 20-year historical trend of 1.11% growth per year. ATR 36-006 (OR 18 three miles west of 99W) indicated a 14-year (the longest period available) historical trend of 0.13% *decline* per year. ATR 36-005 (Hwy 99W in Amity) indicated a 20-year historical trend of 1.10% growth per year.

To be conservative, the highest calculated growth rate of 1.13% per year was used to growth existing volumes out to the analysis years of 2019 and 2037.



133 Apartments in McMinnville

Legend

- Turning Movement
- ##** PM Peak Hour Volume
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- 1** Site Access Point

Figure 4
Opening Year (2019)
Site Generated Trips
PM Peak Hour Traffic Volumes

Opening Year Conditions

The opening of 133 new apartment units is expected to be completed by 2019. At that time, there would be the 83 new trips calculated from the development of the apartments, as well as the 1.13% per year increase in background volumes.

Opening Year (2019)

Figure 5 and Figure 6 summarize the future turn movement volumes for the study area and Table 5 summarizes the 2019 operations.

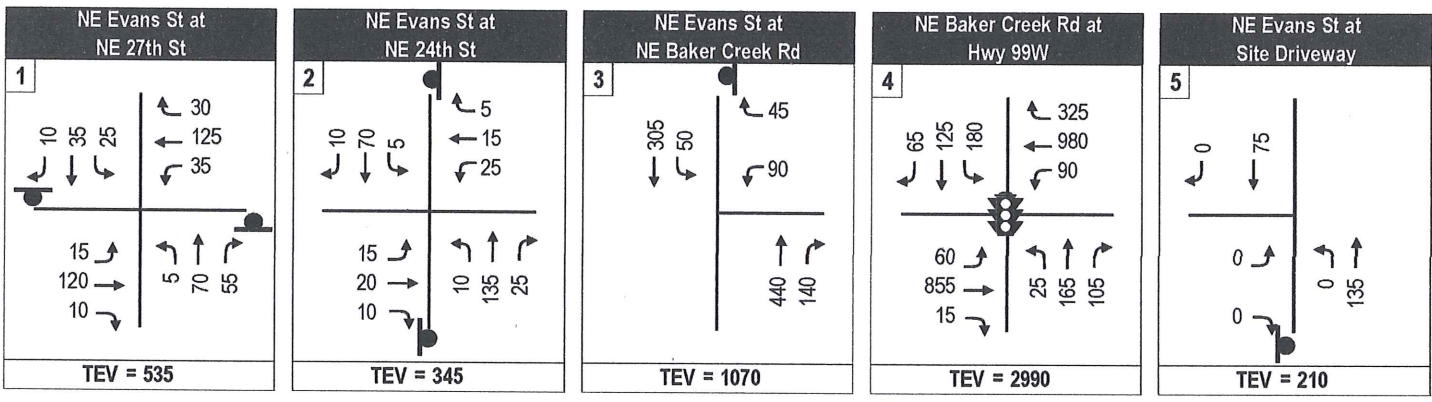
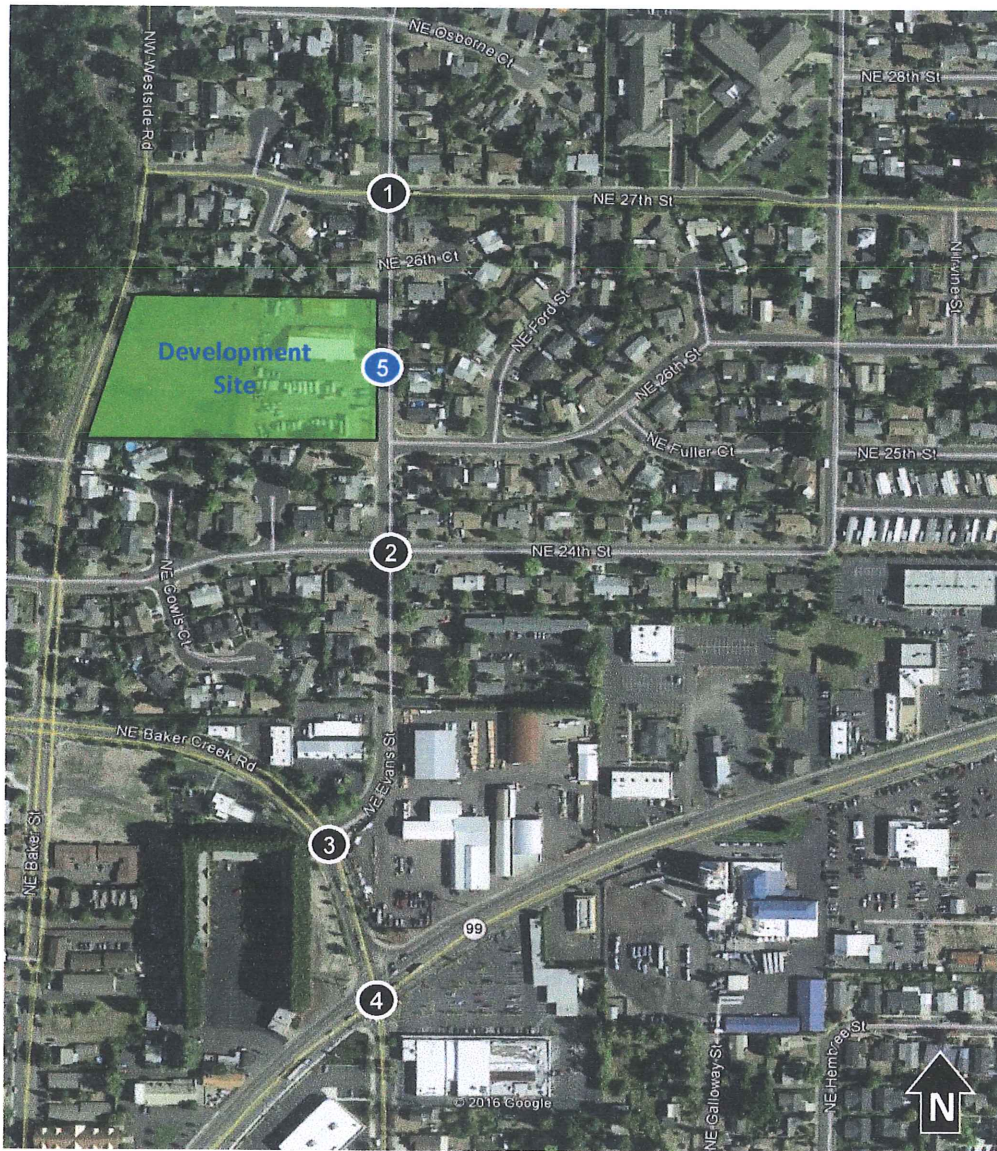
TABLE 5. OPENING YEAR (2019) OPERATIONS SUMMARY.

Intersection		Operations		
			No Build	Build
1	NE Evans St at NE 27th St Unsignalized	V/C	0.26	0.30
		LOS	B	B
2	NE Evans St at NE 24th St Unsignalized	V/C	0.09	0.10
		LOS	B	B
3	NE Evans St at NE Baker Creek Rd Unsignalized	V/C	0.46	0.61
		LOS	D	D
4	NE Baker Creek Rd at Hwy 99W Signalized	V/C	0.62	0.63
		LOS	C	C
5	NE Evans St at Site Driveway Unsignalized	V/C	N/A	0.05
		LOS		A

Source: DEA Synchro Model

Turn Lane Warrant Analysis

To perform the turn lane warrant analysis at the site driveway for 2019 conditions, northbound and southbound volumes were combined and used with the northbound left turn volumes into the site driveway. These volumes were compared to the turn lane criterion plots in ODOT's Analysis and procedures Manual (APM). As seen in Figure 6, there are expected to be 135 northbound through movements, and 75 southbound through movements, for a total of 210, and 45 NBL turns. The speed of NE Evans Street is 25 mph. Given the anticipated 45 left turns, a turn lane would be warranted at greater than 300 combined northbound and southbound vehicles, and given the anticipated 210 northbound and southbound vehicles, the left turn volume would have to be greater than 60. Since neither of these conditions are met, a left turn lane is not warranted.



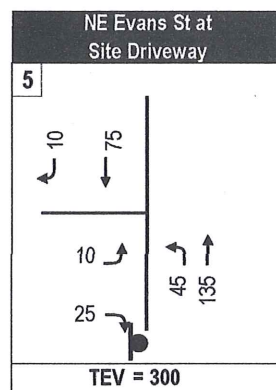
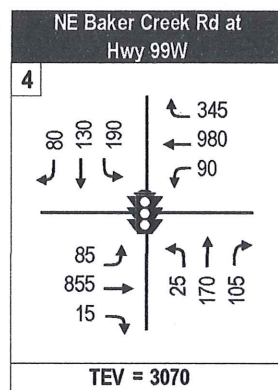
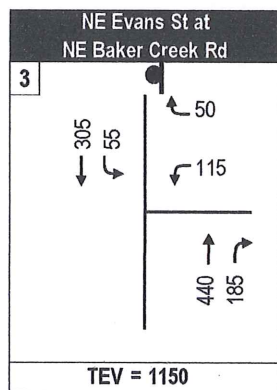
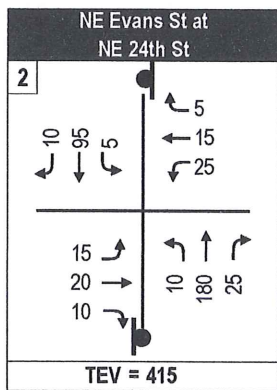
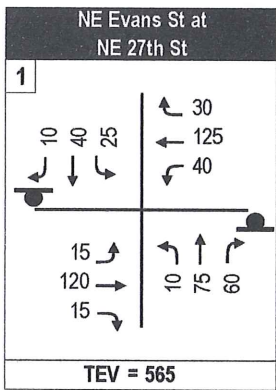
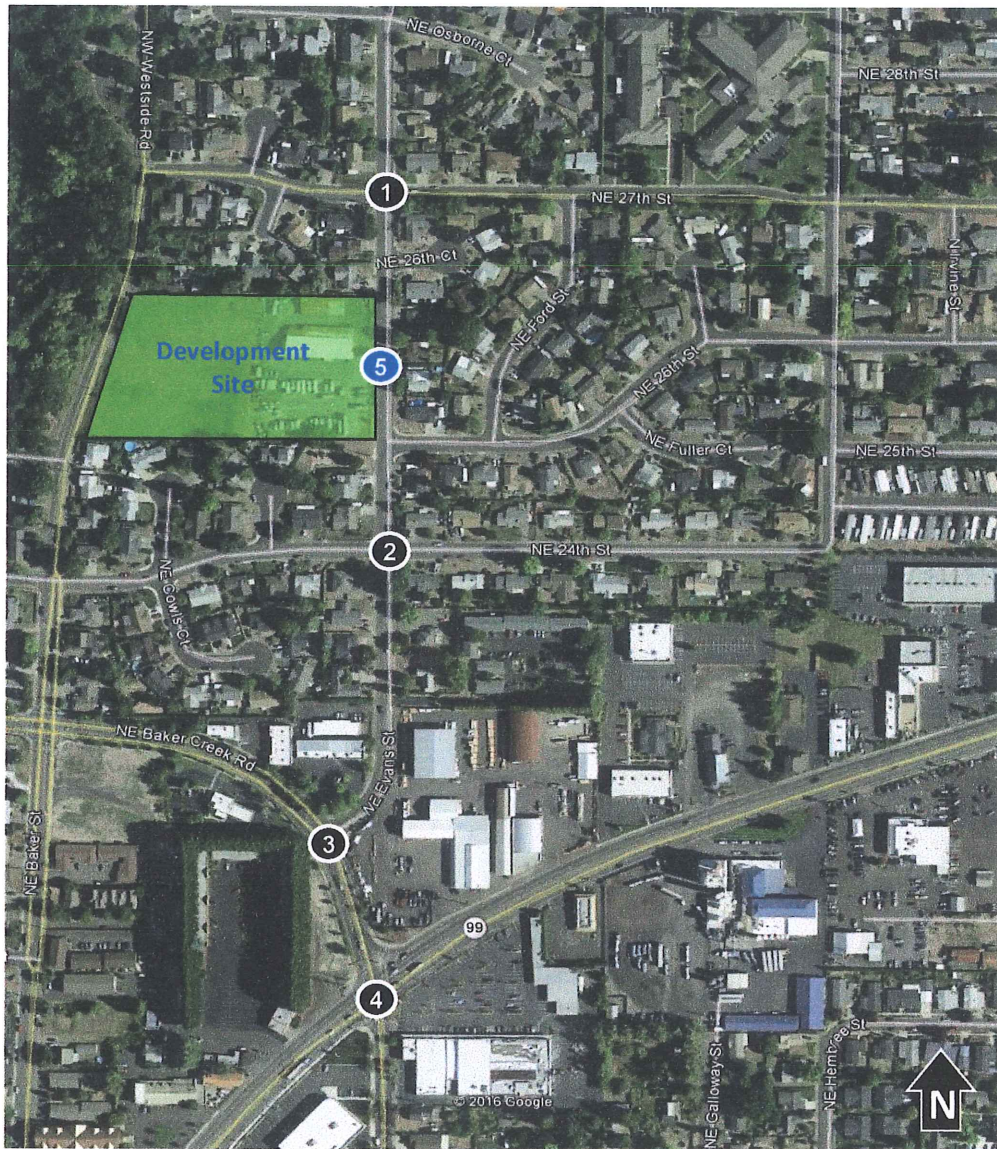
133 Apartments in McMinnville

Legend

- Turning Movement
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Figure 5
Opening Year (2019) No-Build
PM Peak Hour Traffic Volumes





133 Apartments in McMinnville

Legend

- Turning Movement
- ##** PM Peak Hour Volume
- TEV: Total Entering Volume

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- 1** Site Access Point

Figure 6
Opening Year (2019) Build
PM Peak Hour Traffic Volumes



Planning Horizon Conditions

As part of the long range planning process, conditions 20 years in the future (2037) were also analyzed. Two versions of the future were calculated: one with just background growth from 2017 to 2037, and one with the new trips from the change in zoning (the trips of the 133 new apartment units minus the trips of 28 single family homes) plus background growth from 2017 to 2037. Again, the reason for analyzing the difference between the trips from the apartments and the trips from the homes is that this analyzes the impact of the *change in zoning*, to determine if the proposed increase in density is consistent with the City's adopted TSP. See Figure 7 for the new trips and turn volumes from the change in zoning.

Forecast Year (2037)

Figure 8 and Figure 9 show future volumes and turn movements for the study area in 2037 without development, and finally for 2037 with the additional trips from the change in zoning. Operations for the intersections in the study area are summarized in Table 6. All of the study area intersections are expected to meet the applicable operational standards.

TABLE 6. FORECAST YEAR (2037) OPERATIONS SUMMARY

Intersection		Operations		
			No Build	Build
1	NE Evans St at NE 27th St	V/C	0.38	0.42
	Unsignalized	LOS	C	C
2	NE Evans St at NE 24th St	V/C	0.10	0.13
	Unsignalized	LOS	B	B
3	NE Evans St at NE Baker Creek Rd	V/C	0.75	0.88
	Unsignalized	LOS	F	F
4	NE Baker Creek Rd at Hwy 99W	V/C	0.79	0.82
	Signalized	LOS	C	C
5	NE Evans St at Site Driveway	V/C	N/A	0.03
	Unsignalized	LOS		A

Left Lane Turn Analysis

The methodology for the left turn lane warrant analysis for 2037 was consistent with that of the 2019 analysis. As the combined through movements total 260 vehicles and the total northbound left turn volume into the site (not just the difference, but the total trips) is still expected to be 45 vehicles, the left turn lane is still not warranted.



NE Evans St at NE 27th St	
TEV = 11	

NE Evans St at NE 24th St	
TEV = 44	

NE Evans St at NE Baker Creek Rd	
TEV = 44	

NE Baker Creek Rd at Hwy 99W	
TEV = 41	

NE Evans St at Site Driveway	
TEV = 55	

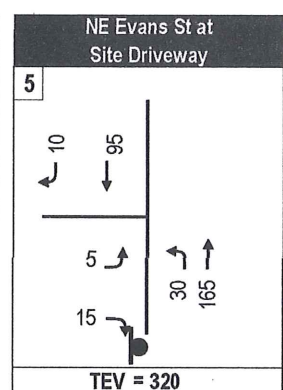
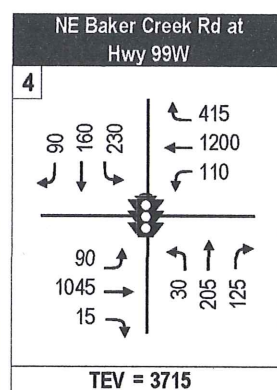
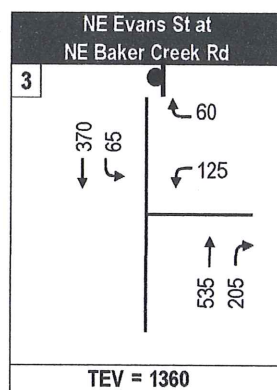
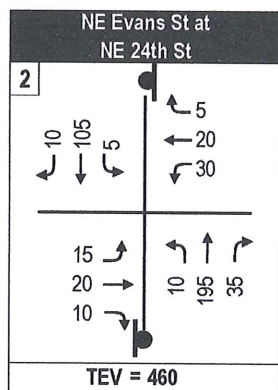
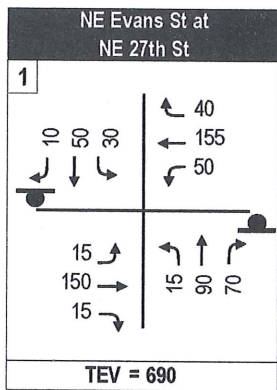
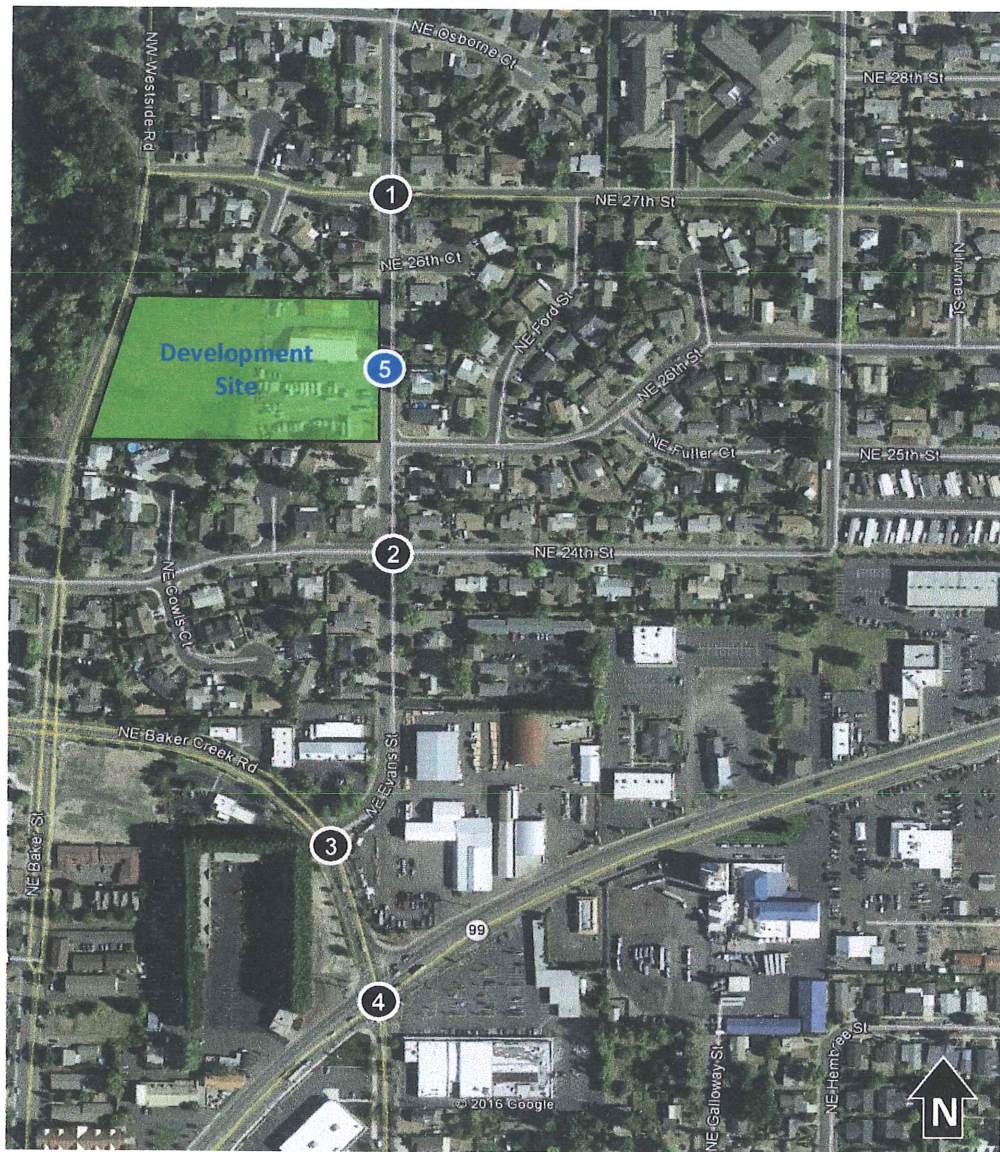
133 Apartments in McMinnville

Legend

- Turning Movement
- ##** PM Peak Hour Volume
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- STOP Control
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Figure 7
Forecast Year (2037)
Site Generated Trips
PM Peak Hour Traffic Volumes



133 Apartments in McMinnville

Legend

- Turning Movement
- #** PM Peak Hour Volume
- TEV: Total Entering Volume

- STOP Control
- Signalized Intersection
- 1** Study Area Intersection
- 5** Site Access Point

Figure 9
Forecast Year (2037) Build
PM Peak Hour Traffic Volumes



Findings and Recommendations

For the opening year (2019) conditions, the additional trips caused by the 133 apartments are not expected to cause any intersections to exceed any City of McMinnville or ODOT operating standards. See Table 5 for full breakdown of anticipated V/C ratios. Based on the results of the analysis, no mitigations are necessary.

For the forecast year conditions (2037), the net increase in trips resulting from the R-2 to R-4 zone change did not cause any study area intersection to exceed either the City's (0.90) or ODOT's (0.85) v/c standard at any intersections in the study area. See Table 6 for a full summary of anticipated V/C ratios. Based on the results of the analysis, no mitigations are necessary.

Based on the anticipated volumes along NE Evans Street, and the and the Site driveway, left turn lane warrants are not met.

Based on the three findings above, the proposed zone change is commensurate with the City's TSP. It is recommended that the City of McMinnville approve the application to rezone the subject property from R2 to R4 with only one transportation related conditions of approval. This condition should require the construction of a sidewalk on the subject site frontage to further improve pedestrian connectivity commensurate with the City's TSP and Safe Routes to School plans.