



Planning Department
 231 NE Fifth Street ◦ McMinnville, OR 97128
 (503) 434-7311 Office ◦ (503) 474-4955 Fax
www.mcminnvilleoregon.gov

Office Use Only:	
File No.	_____
Date Received	_____
Fee	_____
Receipt No.	_____
Received by	_____

Comprehensive Plan Map Amendment/ Zone Change Application

Applicant Information

Applicant is: Property Owner Contract Buyer Option Holder Agent Other _____

Applicant Name Kimco McMinnville LLC Phone 650.746.7501

Contact Name Michael Strahs Phone Same as above
(If different than above)

Address 15 Southgate Ave, Suite 201

City, State, Zip Daly City, CA 94015

Contact Email mstrahs@kimcorealty.com

Property Owner Information

Property Owner Name Same as above Phone _____
(If different than above)

Contact Name _____ Phone _____

Address _____

City, State, Zip _____

Contact Email _____

Site Location and Description

(If metes and bounds description, indicate on separate sheet)

Property Address 3310 SE Three Mile Lane

Assessor Map No. R4 4 - 426 - 00700 Total Site Area 90.45-acres

Subdivision 4W Block 26 Lot 00700

Comprehensive Plan Designation Industrial Zoning Designation M-3

This request is for a:

Comprehensive Plan Amendment

Zone Change

1. What, in detail, are you asking for? State the reason(s) for the request and the intended use(s) of the property. _____

See attached narrative.

2. Show in detail, by citing specific goals and policies, how your request is consistent with applicable goals and policies of the McMinnville Comprehensive Plan (Vol. 2). _____

See attached narrative and Attachment 2.

3. If your request is subject to the provisions of a planned development overlay, show, in detail, how the request conforms to the requirements of the overlay. _____

See attached narrative and Attachment 2.

4. If you are requesting a Planned Development, state how the proposal deviates from the requirements of the Zoning Ordinance and give justification for such deviation. _____

See attached narrative and Attachment 2.

5. Considering the pattern of development in the area and surrounding land uses, show, in detail, how the proposed amendment is orderly and timely. _____

See attached narrative and Attachment 2.

6. Describe any changes in the neighborhood or surrounding area which might support or warrant the request. _____

See attached narrative and Attachment 2.

7. Document how the site can be efficiently provided with public utilities, including water, sewer, electricity, and natural gas, if needed, and that there is sufficient capacity to serve the proposed use.

No development is proposed with this application. This documentation is not required for this application.

This study will be completed once approval of this application is completed and a formal PD overlay development application can be submitted.

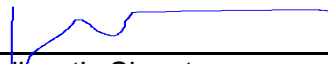
8. Describe, in detail, how the proposed use will affect traffic in the area. What is the expected trip generation?

See attached narrative Attachment 2, and Attachment 3 (completed TIA).

In addition to this completed application, the applicant must provide the following:

- A site plan (drawn to scale, with a north arrow, legible, and of a reproducible size), indicating existing and proposed features within and adjacent to the subject site, such as: access; lot and street lines with dimensions; distances from property lines to structures; improvements; and significant features (slope, vegetation, adjacent development, drainage, etc.). If of a larger size, provide five (5) copies in addition to **an electronic copy** with the submittal.
- A legal description of the parcel(s), preferably taken from the deed.
- Compliance of Neighborhood Meeting Requirements.
- Payment of the applicable review fee, which can be found on the Planning Department web page.

I certify the statements contained herein, along with the evidence submitted, are in all respects true and are correct to the best of my knowledge and belief.


Applicant's Signature

12/17/2020
Date

Same as Applicant
Property Owner's Signature

Date

City of McMinnville, OR

Three Mile Lane Comprehensive Plan and Zoning Map Amendment

Applicant: Kimco McMinnville, LLC

Contact: Michael Strahs (mstrahs@kimcorealty.com)
Alan Roodhouse (amr@rpsdevco.com)
15 Southgate Ave, Suite 201
Daly City, CA
(650) 746-7501

Property Address: 3310 SE Three Mile Ln
McMinnville, Oregon 97128

Tax Lot ID Number: 172164

Property Size: 90.45 Acres (3,940,002 SF)

**Comprehensive Plan:
Designation** Industrial

Zoning Designation: M-2 (General Industrial)

1. Application Request:

Kimco McMinnville, LLC (“Kimco”) proposes a quasi-judicial comprehensive plan map and zoning map amendment for an approximately 33.5-acre area (the “Property”)¹ fronting Three Mile Lane (Oregon State Highway 18 or SH 18). This proposal is to amend the Property’s comprehensive plan map designation from Industrial to Commercial, and to change the zoning map designation from General Industrial (M-2) to General Commercial (C-3) with a Planned Development (PD) overlay, as depicted on **Attachment 1**. No development is proposed at this time.

Following the map amendments, when a development is proposed, the applicant will pursue the land use approvals required to develop the Property with commercial mixed-uses (the “Project”) through the process prescribed through the PD overlay ordinance. The Project is intended to accommodate the community’s growing demand for retail and to capture some of the area’s retail sales leakage, which are goods that residents travel outside the greater McMinnville area to purchase. Due to the scale of the site, the Project’s development process

¹ Kimco owns a 90.45 acre parcel, of which the 33.5 acre area that is the subject of this application is a part. The remaining 56.95 acres of Kimco’s ownership is not a part of this application and will retain its Industrial comp plan and M-2 zoning designations.

will include imposing a site-specific Planned Development (including design and development standards), a partition or land division, and site plan review.

2. Property Description:

The 33.5-acre Property is a portion of the vacant 90.45-acre parcel located in the Three Mile Lane area within the city limits of McMinnville. The Property is located on the southside of Oregon State Highway 18 in the southeastern portion of the city in proximity to the community hospital and satellite development, the McMinnville Municipal Airport adjacent to the east, and the Evergreen Aviation & Space Museum to the north. The Property's topography is flat in elevation and covered by annual crops with few trees.

As depicted on **Attachment 1**, the Property is generally comprised of two parts. The westerly "Parcel 1" is approximately 25.3 acres and the easterly "Parcel 2" is approximately 5.25 acres. The internal local street connections within the Property are expected to require approximately 2.95 acres.

3. Project Background:

The requested amendments will facilitate a future economic development opportunity that will benefit the City of McMinnville and surrounding communities by converting excess industrial land into needed commercial land. Kimco has owned the vacant Property since 2006 and over the years there has high interest from retailers, both local and national, to open shop and serve the local community. No particular retail use has been identified for the Property, but it's location, access to Highway 18, size, and topography make it attractive to General Merchandise retailers such as Target, Home Depot, and Costco because the goods and services offered by those stores are currently unavailable to McMinnville residents and require a 25-mile drive to Salem or even further to the outskirts of Portland. This existing phenomenon, when demand for certain products and services are not met within a trade area and consumers go elsewhere to shop, is "retail leakage."

The Property is suitable to include a mix of larger retailers and smaller store spaces, which could include both locally owned business and nationally known companies. The Property can accommodate adequate on-site parking and be designed to offer great pedestrian circulation on site and programmed community spaces for visitors to linger and enjoy while shopping.

Located three miles southeast of the downtown core of McMinnville, the Property lends itself to prime commercial retail development. The retail space eventually created through this Project would be suited to businesses that do not fit within the format of existing retail in McMinnville. Downtown businesses are not expected to be negatively affected by retail that will eventually be developed on the Property because the future retailers will provide goods and services that will capture the community's existing retail leakage.

4. Project Rationale:

A. Industrial Land Surplus, Commercial Land Deficit, and Existing Retail Sales Leakage

(1) Adopted Economic Opportunities Analysis

On February 5, 2014, the McMinnville City Council adopted Ordinance No. 4976, which is the Economic Opportunities Analysis completed in November 2013 (2013 EOA), which has been acknowledged. The 2013 EOA concludes that the City has a deficit of 35.8 acres of commercial land and surplus of 235.9 acres of industrial land. (2013 EOA, pg 56, Table 26) The 2013 EOA's data and policies support the need to re-designate and rezone the 33.5-acre Property to C-3. The proposed amendment is consistent with the 2013 EOA because following the proposed zone change, the City will be closer to accommodating the commercial land need, and the supply of industrial land will remain adequate because it will continue to be in excess of (but closer to) the adopted industrial land need.

McMinnville's commercial land deficit is a combination of the land needed to accommodate projected population growth and the pent-up demand for specific retail needs that are not being met within the trade area. This means consumers go elsewhere to shop resulting in retail leakage to areas outside the City. Factors that contribute to the City's retail leakage are that there are no available vacant or re-developable commercial sites that are adequately sized and have the necessary locational factors and site characteristics to support the leaking retail categories. The available commercial land or vacancies in existing buildings are not suitable in format or scale to attract tenants that fulfill these unmet retail leakage needs.

The City's deficit of commercial land generally, and specifically the lack of commercial land suitable for major comparison retail was determined in the 2013 EOA to be a disadvantageous factor that affects the community's economic development potential. The result is retail sales leakage, which is created when demand for a specific product is not being met within a trade area, so consumers go elsewhere to shop or do not shop at all. The 2013 EOA concluded that "there is considerable retail sales leakage of an estimated \$192 million annually throughout Yamhill County – as residents travel to other counties for a significant 23% of their shopping needs." (2013 EOA, pg 32) In the seven years since this report was completed, this continued leakage has potentially cost the City over \$1.3 billion in consumer spending that could have benefited the local economy.

(2) Updated Analyses as Additional Evidence

The 2013 EOA is the binding analysis of the City's adequacy of commercial land and provides an adequate factual base for the proposed rezone. Analyses of commercial land needs since the 2013 EOA provide further support for the application because those analyses show that the deficit is growing, including Leland Consulting's January 2020 EOA Land Supply Update (Leland

2020 Update) **Attachment 4**, the 2020 EOA drafted by EcoNorthwest Consulting (2020 EOA)² **Attachment 5**, and Three Mile Lane Area Plan documents **Attachments 6** and **7**.

(a) Leland 2020 Update

The Leland 2020 Update provides current data on the supply of commercial land by analyzing all zone changes since the 2013 EOA was adopted that impacted commercially zoned land. The Leland 2020 Update concluded that the deficit of commercially zoned land has grown to 39 acres and the surplus of industrial land has also increased. The impacts of zone changes since the 2013 EOA is summarized in the following table in the Leland 2020 Update:

Table 4. Comparison of Land Demand to Supply (2013/2019-2033)

Acres by Plan Designation			
	Commercial	Industrial	Total
Vacant Land Demand			
Commercial	164.6	0.0	164.6
Industrial	0.0	145.1	145.1
Institutional	2.2	8.0	10.2
Totals	166.8	153.2	319.9
Available Land Supply			
2013 EOA	130.9	389.7	520.0
2013 Surplus/(Deficit)	(35.9)	235.9	200.1
2019 Revision	127.8	389.7	
2019 Surplus/(Deficit)	(39.0)	236.5	197.5

(b) 2020 EOA

The 2020 EOA has not been adopted, but its data provides further support for the demand for commercially zoned land to accommodate retail leakage and population growth, the lack of supply of suitable commercial land, and the surplus of industrial land.

The updated 2020 EOA demand data indicates that the commercial land deficit is projected to grow to at least 286 acres by 2041 (which includes at least **12-acres** to accommodate retail leakage), at which time there will be a surplus of 159 acres of industrial land. (2020 EOA, pg 106, Exhibit 59)

(c) Three Mile Lane Area Plan (3MLAP)

As part of the City’s long range planning efforts, it has initiated the Three Mile Lane Area Plan (3MLAP) project, which is intended to result in the adoption of an area plan for the

² All citations to the 2020 EOA are to the February 2020 track changes draft.

approximately 1,340 acre area along the Three Mile Lane corridor that will integrate land uses and a multi-modal transportation system, updating the Three Mile Overlay District (amended in 1994) and the 1996 Highway 18 Corridor Refinement Plan. The 3MLAP is still in the planning phase and is not binding on this application, but the proposed amendments are consistent with the data, policies and goals in the most recent draft of the 3MLAP. Accordingly, the 3MLAP provides additional evidence in support of approving the proposed comprehensive plan and zoning map amendments.

The 3MLAP is intended to support the 2020 EOA by analyzing the forecasts and demand for a variety of land needs, and how they may be accommodated within the Three Mile Lane area. As part of that effort, the 3MLAP Market Analysis (April 16, 2019 Final Draft) (**Attachment 6**) conducted a detailed analysis of the incredible amount of retail leakage within certain categories, which includes:

3MLAP Market Analysis Table 8 Summary

Estimated Retail Leakage			
	Current Sales	Household Demand	Current Leakage (\$)
Underserved Sectors of Retail			
Furniture and Home Furnishings	\$9,815,869	\$25,459,215	(\$15,643,346)
Electronics and Appliance	\$10,205,468	\$25,779,334	(\$15,573,866)
Clothing and Accessories	\$5,785,467	\$39,384,538	(\$33,599,071)
Sporting Goods, Hobby, Books, Music	\$12,792,050	\$27,981,058	(\$15,189,008)
General Merchandise	\$41,383,114	\$138,540,476	(\$97,157,362)
Food Service and Drinking Places	\$53,618,658	\$83,233,240	(\$29,614,582)
Other (Cinema, Banks, Small Office)	\$91,325,675	\$92,535,592	(\$1,209,917)
Total Demand and Leakage	\$224,926,301	\$432,913,453	(\$207,987,152)

3MLAP Market Analysis, *Table 8, pg. 33.*

The above table highlights the difference in current sales in retail sales within McMinnville versus the estimated household demand. The difference in red represents the outflow of spending that is likely going to communities where space for these types of merchants are readily available. Potentially \$207,987,152 of annual consumer spending is leaving McMinnville because there is no land with necessary locational or site characteristics available. This not only deprives residents of McMinnville choices in where to shop, but further burdens many families with the economic hardship of driving great distances to purchase what they need.

The 2020 EOA and 3MLAP Market Analysis conclude that accommodating retail leakage will require 12-acres in addition to the growth-related land needs, and that in the next 10 years the Three Mile Lane area could capture 150,000 square feet of the market area’s demand for

539,000 square feet of leakage retail development. (2020 EOA, pg 47 and 102; 3MLAP Market Analysis, pg 4, Table ES-3)

B. Suitability of the Property for Conversion from Industrial to Commercial

A compact urban form is maintained when the identified commercial land deficit is addressed by converting excess industrial land to commercial. Accordingly, the 2013 EOA recommends re-designating “excess industrial or other lands to commercial uses (focused on those sites with greatest suitability for commercial development.)” (2013 EOA, pg 62) Suitability for commercial development must consider the site characteristics for the proposed use (OAR 660-009-0005(12)), which here the use is retail that can capture retail leakage and can accommodate population-related growth.

The 2013 EOA and comprehensive plan describe a property’s suitability for re-designation to commercial, each of which is responded to in the findings narrative (**Attachment 2**). The 3MLAP also details the site characteristics necessary for prospective underserved leaking retailers. Some of the suitability factors and site characteristics that are relevant include transportation access, compatibility with neighboring uses, infrastructure capacity and site size. (2013 EOA, pgs 57 and 73) Examples of the Property’s suitability for conversion from industrial to retail include:

- Visibility from and access to Highway 18. Traffic patterns are “of particular importance for retail and service businesses” which are “reliant on high traffic counts.” (2013 EOA, pg 33) Trends show increasing traffic counts on Highway 18 and shifting away from Highway 99W. “Recapture [of retail sales leakage] is dependent on the ability to identify sites that attract retailers that could serve much of the county’s population from locations readily accessible to major travel corridors.” (2013 EOA, pg 32)
- Proximity to retail leakage markets. “Sites in the McMinnville UGB offer the potential to serve a local and regional market...Centrally located [within the County] with good highway access and street visibility can be instrumental to attract commercial business that may require market areas of 50,000-100,000+ population.” (2013 EOA, pg 32)

The 3MLAP includes extensive analysis of the that area’s suitability for retail development aptly describes this Property’s suitability for commercial conversation:

“Retail prospects are relatively strong for certain retail sectors, despite relatively weak market conditions (including rent, vacancy, absorption, etc.). The Three Mile Lane study area likely checks off many site selection criteria and market characteristics typically desired by prospective retailers. While there are few retailers currently in the aera, desired physical characteristics, such as visibility, vacant developable land, and ease of

access are all present. Further, McMinnville's central location between the Oregon Coast, the Portland Metro, and Salem provides access to a wide variety of markets. Significant household growth and the burgeoning tourism industry will continue to improve retail prospects." (3MLAP Market Analysis, Pg 2).

"The Three Mile Lane project area is relatively well-positioned for retail development due to high visibility, ease of access, high traffic counts along Highway 18, and there are few alternative urban areas between McMinnville and the coast, providing opportunities to capture spending from those visiting the Oregon coast.

Additionally, as one of the few locations in the market area with large, contiguous, vacant tracts of land within city limits, Three Mile Lane should be able to capture a significant portion of market area demand over the next 10 years." (3MLAP Market Analysis, Pg 51-52)

The Project is envisioned to be a retail "town center" that is compatible with the current draft 3MLAP Land Use concept numbers one and two (**Attachment 7**):

"This concept includes a significant retail center south of Three Mile Lane at Cumulus Avenue. This could take the form of a large-format retail anchor that would take advantage of traffic on OR SH 18 with additional smaller retail uses. While serving as a regional retail attractor, it would also function as an important local amenity, providing convenient access to shopping and services for adjacent office and residential development. Considerations for how this center is designed, and how it relates to existing commercial centers such as the Third Street/Downtown District, will need to be examined in further detail at a later phase of the process. Depending upon its design and other factors, a new retail center could provide services for residents and employees in the Three Mile Lane area without directly competing with existing businesses in McMinnville's downtown. The core of the center should be walkable if possible, with extensive pedestrian connections through associated parking lots to ensure safe circulation. Parking lots should be designed in a way that does not forgo future redevelopment with more mixed uses, reflecting the uncertain future of retail development." (3MLAP Memorandum 6, Land Use Concepts 1 and 2 pg 10-13)

The requested map amendments are the first step to fulfill the 2013 EOA deficit of commercial land and developing a project that furthers the objectives of the 3MLAP. The future discretionary PDO land use process that will apply to the Project will further ensure consistency with the 3MLAP.

C. Traffic Impacts and Circulation

Kittelsohn & Associates, Inc., prepared a transportation impact analysis (TIA) report, which analyzes the transportation impacts associated with the proposed rezone. (**Attachment 3**). The TIA's scope, methodology, findings and recommendations have been coordinated with the City

of McMinnville and the Oregon Department of Transportation (ODOT) and is intended to address City and state review criteria, including compliance with the Transportation Planning Rule (TPR). The TIA analyzed the reasonable worst-case development scenario under the proposed rezone a short-term (2022) and long-term (2037) operational analysis of the roadway network surrounding the site, finding that the proposed rezone can be approved assuming implementation of the recommended mitigation measures. Mitigation measures that will be constructed at the time of development will include construction of the collector streets and a new intersection with SH-18. As part of the design of these roadways, sidewalks and bicycle lanes will be provided. With required improvements to occur at the time of development, the proposed rezone results in no significant impacts, in compliance with the TPR.

For the development of larger scale retail like the Project is expected to include, the Property's location is superior to other potential properties because of the minimal impact on surrounding neighborhoods. For example, any proposed development at the intersection of SH-18 and SH-99W (Linfield Property) would raise serious traffic infrastructure problems if it is to be developed with intense retail uses. This would include reconstruction of the Old Sheridan Road intersection and a reconfiguration and widening of the interchange between the two state highways. In that immediate vicinity, SH 99W is an interior arterial in McMinnville, and the regional traffic generated by major retail at this location would be disruptive to the internal city traffic patterns and the McMinnville "feel."

As detailed in the TIA, rezoning the Property would allow for the scale of retail development associated with capturing retail leakage with minor upgrades to surrounding streets and a new intersection. There would be minimal impacts to the overall urban fabric of the more established and densely developed areas of McMinnville. The Property's location on OR 18 provides easy access to residents and employees of downtown McMinnville on their way to or from work, in some cases eliminating the need for out-of-direction travel. It is also anticipated that some people will stop at the site on their way to or from the coast. In addition, the retail uses that could be developed in the future may also reduce regional transportation demand by capturing existing trips that travel to the greater Portland and Salem area for these uses today.

5. Conclusion:

The application meets the requirements for a rezone based on the following:

- Complies with the applicable approval criteria in the code, Comprehensive Plan and state law, as detailed in the findings at **(Attachment 2)**.
- The 2013 EOA shows a surplus of over 235 acres of industrial land and deficit of 35.8 acres in commercial land inventory, exhibiting an economic need for retail land use within the City that can be partially met through converting excess industrial land to

commercial. Updated data in the 2020 EOA, 2020 Leland Update and 3MLAP demonstrate that the commercial land deficit is growing.

- Studies from the 3MLAP have revealed that the City loses over \$200 million annually in consumer spending to retail destinations such as Salem and SW Portland, burdening families with the cost of driving quite a distance for essential needs.
- The Property includes site characteristics that make it suitable for conversion to C-3 zoning, which will allow retail development that captures retail leakage and growth-related retail needs. Retail development on this site would be at a scale that is not suitable for downtown McMinnville or existing centers within the City. Based on the traffic analysis completed, the proposed rezone would have minimal impact on the City's existing infrastructure and would not fundamentally alter the urban fabric of the community (**Attachment 3**).
- Inclusion of a Planned Development (PD) overlay will ensure the future development project is compliant with City's long-term policies and goals, supported by municipal services and infrastructure, and subject to community input through discretionary review by the City Council.

Attachments:

- 1. Site Plan**
- 2. Required Findings for Comprehensive Plan Map and Zoning Map Amendment**
- 3. Traffic Impact Analysis, 12/18/2020 by Kittelson & Associates**
- 4. Leland Consulting's January 2020 EOA Land Supply Update**
- 5. 2020 EOA drafted by Eco-Northwest Consulting**
- 6. Three Mile Lane Area Plan Market Analysis**
- 7. Three Mile Lane Area Plan Memo 6 (Land Use Concepts)**
- 8. Proof of 11/19 Neighborhood Meeting (Noticing and Notes from Meeting)**

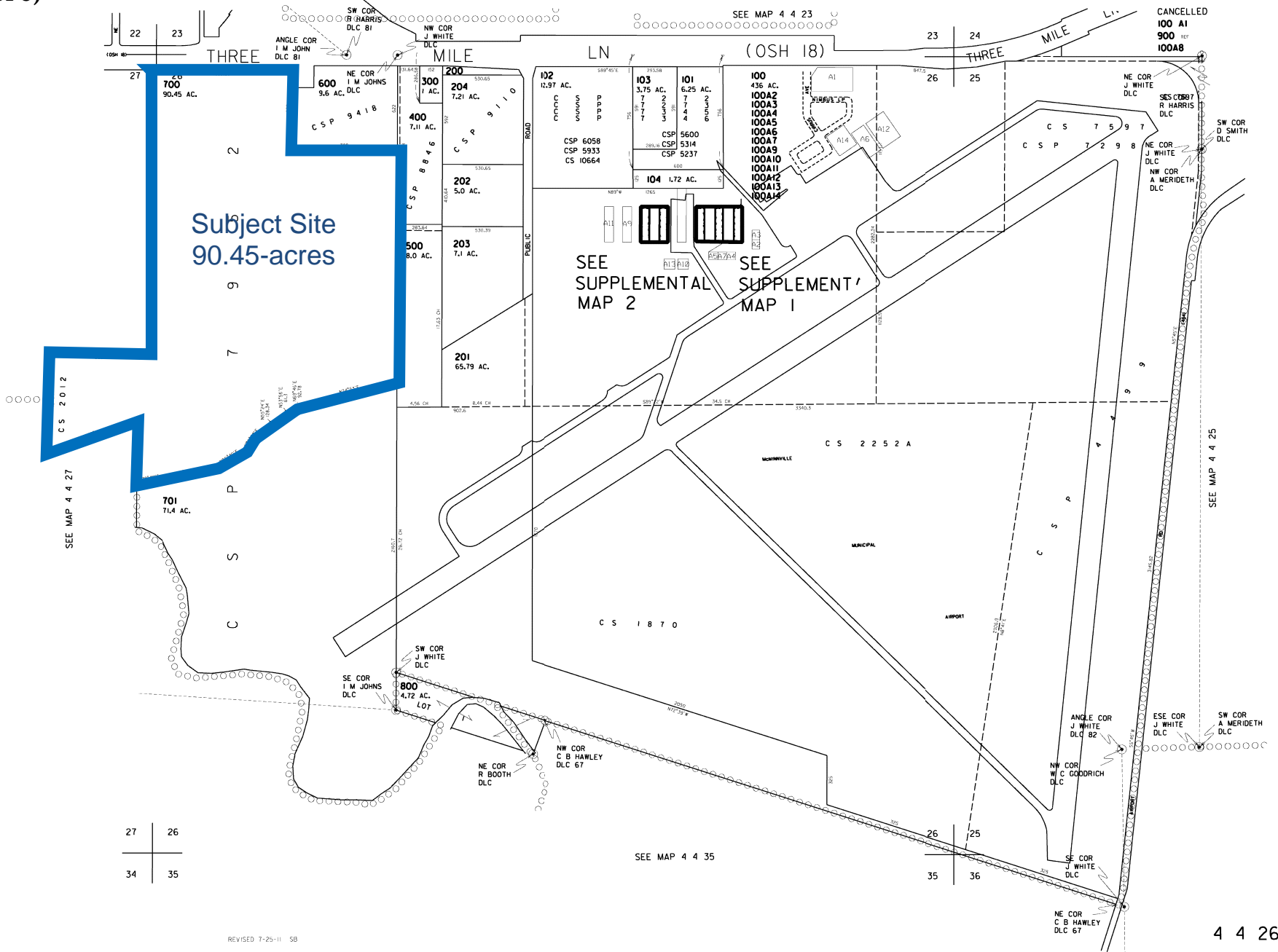
Attachment 1

Site Plan (1 of 5)

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSE ONLY

SECTION 26 T4S R4W W.M.
YAMHILL COUNTY
1" = 400'

4 4 26



27	26
34	35

REVISED 7-29-11 58

4 4 26

Attachment 1

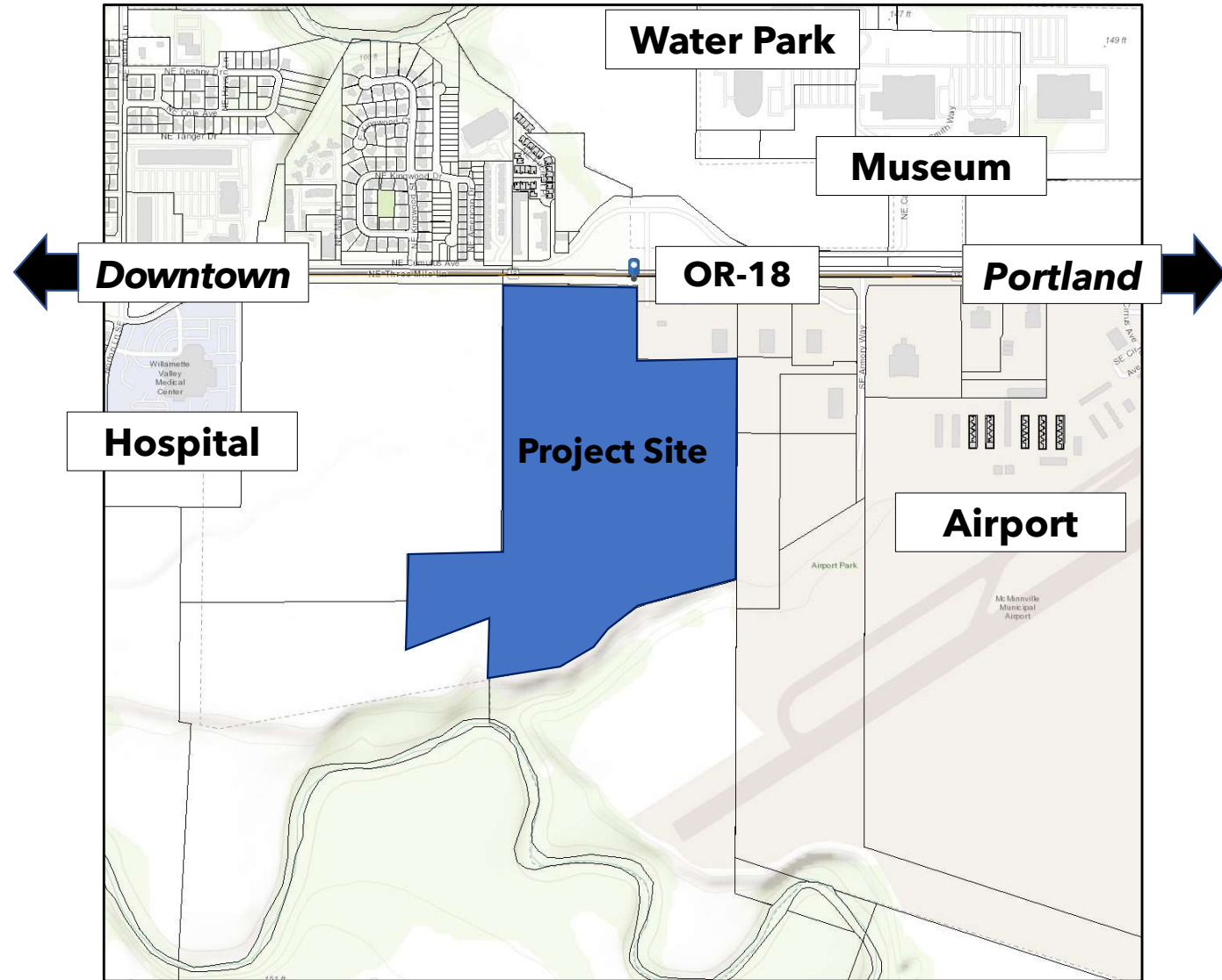
Site Plan (2 of 5)

PROJECT LOCATION

3310 SE Three Mile Lane
McMinnville, OR 97128

Tax Lot ID: R4426 00700

Lot size: 90.45 acres

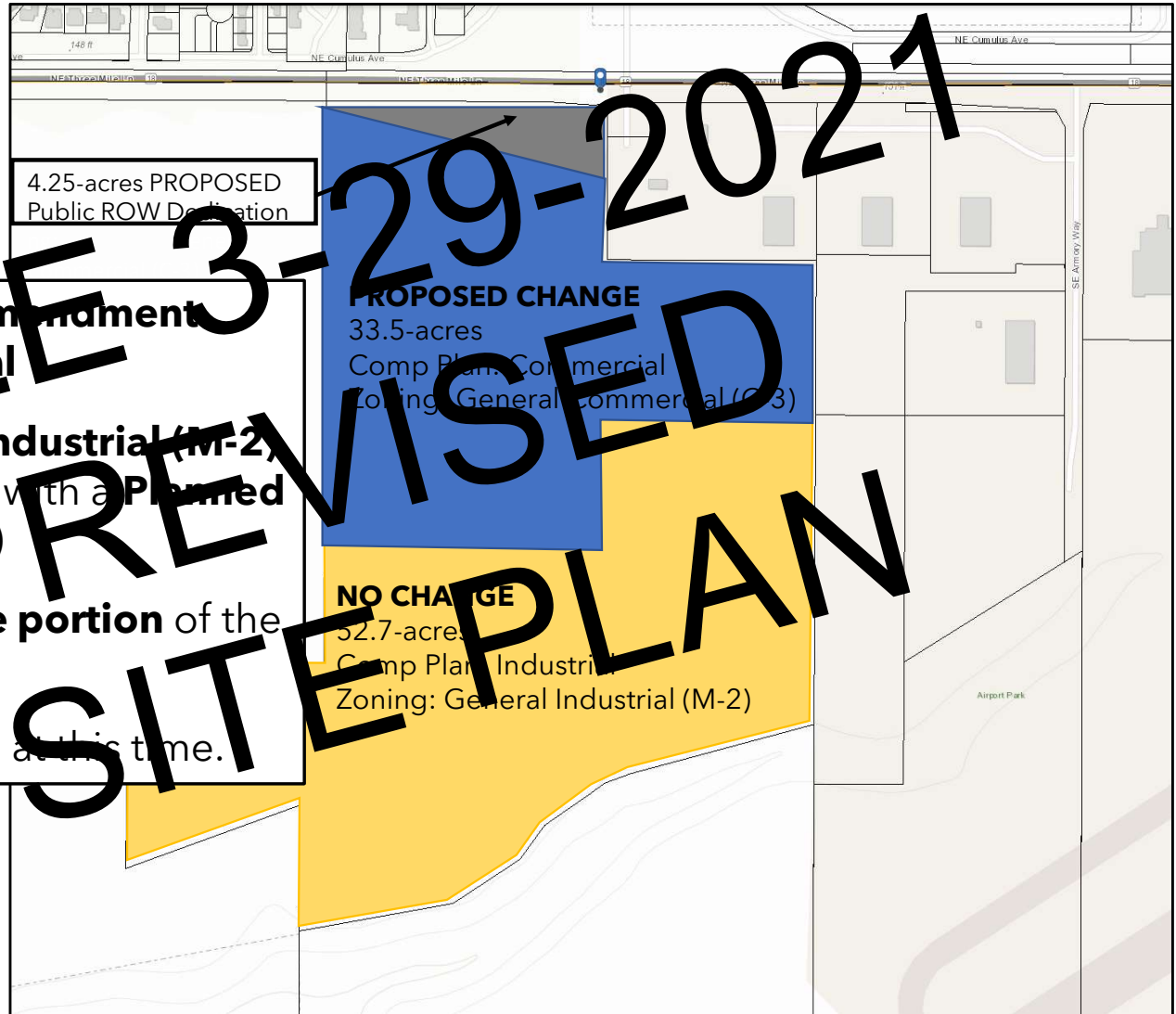


Attachment 1

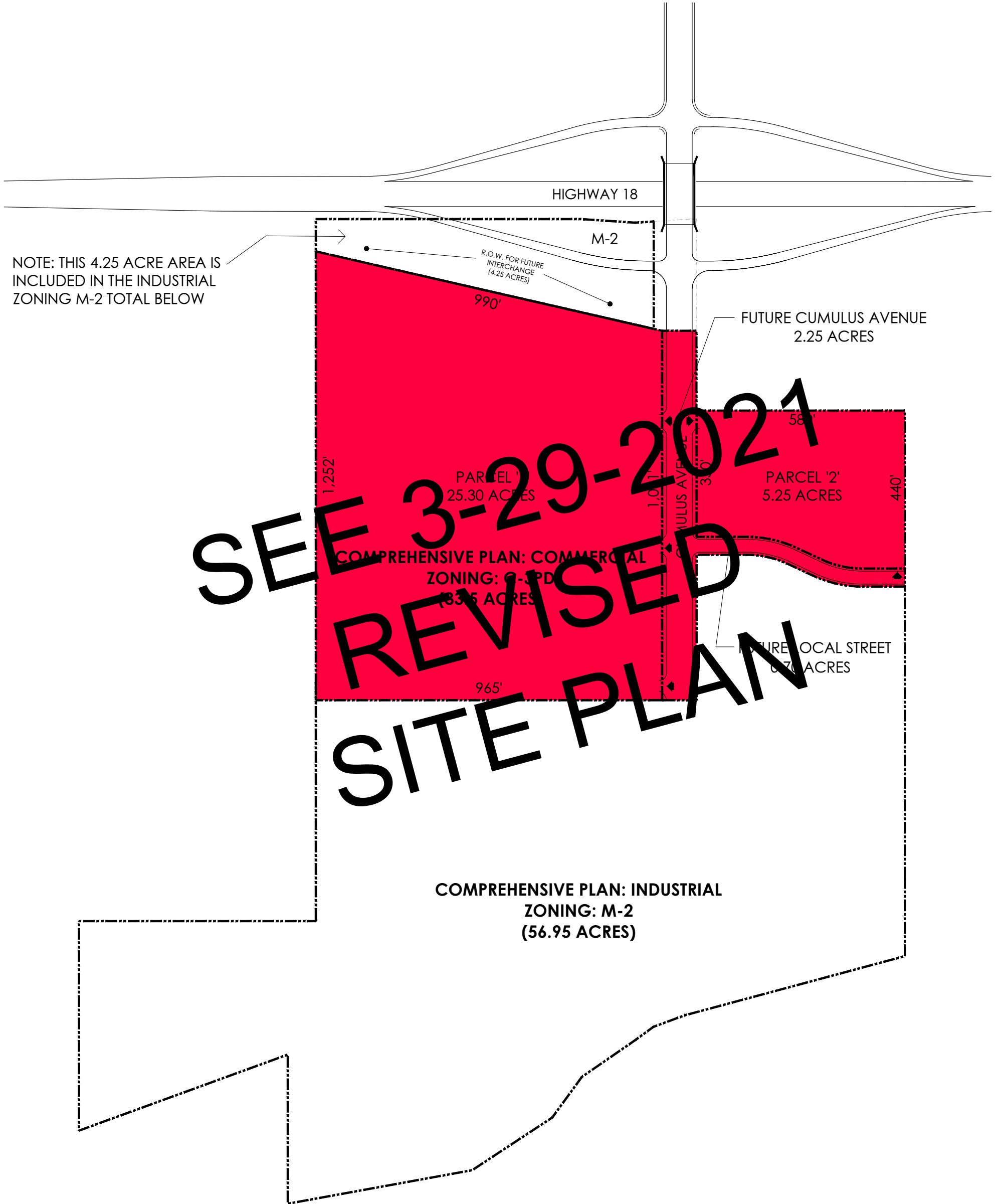
Site Plan (3 of 5)

PROJECT PROPOSAL

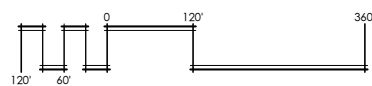
- **Comprehensive Plan Map Amendment** from **Industrial** to **Commercial**
- **Zone Change** from **General Industrial (M-2)** to **General Commercial (C-3)** with a **Planned Development Overlay (PDO)**
- Applies to **northern 33.5-acre portion** of the site along State Highway 18
- **No development** is proposed at this time.



Attachment 1
Site Plan (4 of 5)



COMPREHENSIVE PLAN MAP and ZONING MAP AMENDMENT



DIMENSION NOTE: DIMENSIONS ARE APPROXIMATE

December 10, 2020



RPS Development Company, Inc.
 Developer

3310 SE THREE MILE LANE
APN R4426 00700 (90.45 ACRES)
McMinnville, Oregon

BENNER STANGE ASSOCIATES ARCHITECTS, P.C.
 80 SE MADISON STREET SUITE 430
 PORTLAND, OR 97124
 (503) 670-0234
 FAX (503) 670-0235
 bsa@bsaarch.com



Attachment 1

Site Plan (5 of 5)

FD. 3" BRASS DISK IN MON. BOX INSCRIBED "YAMHILL CO. SURVEYOR 1986 22/23/27/26 T4S R4W MARKING THE NW CORNER OF SECTION 26, T4S, R4W - HELD

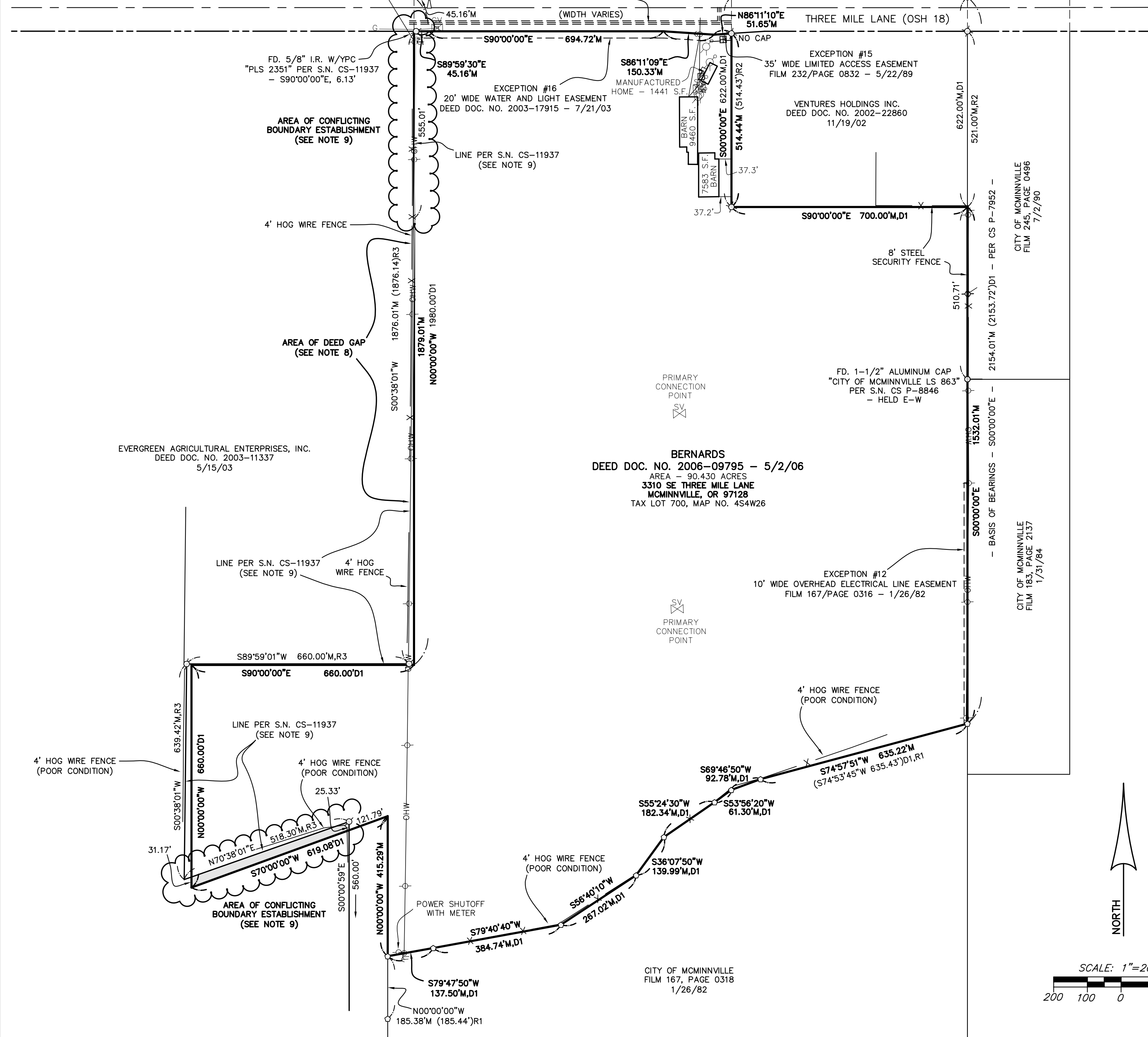
EXCEPTION #11
10' WIDE SANITARY SEWER EASEMENT
FILM 155/PAGE 0329 - 10/7/80
DOES NOT AFFECT THE SUBJECT TRACT

N90°00'00"W 1641.42'M,D2

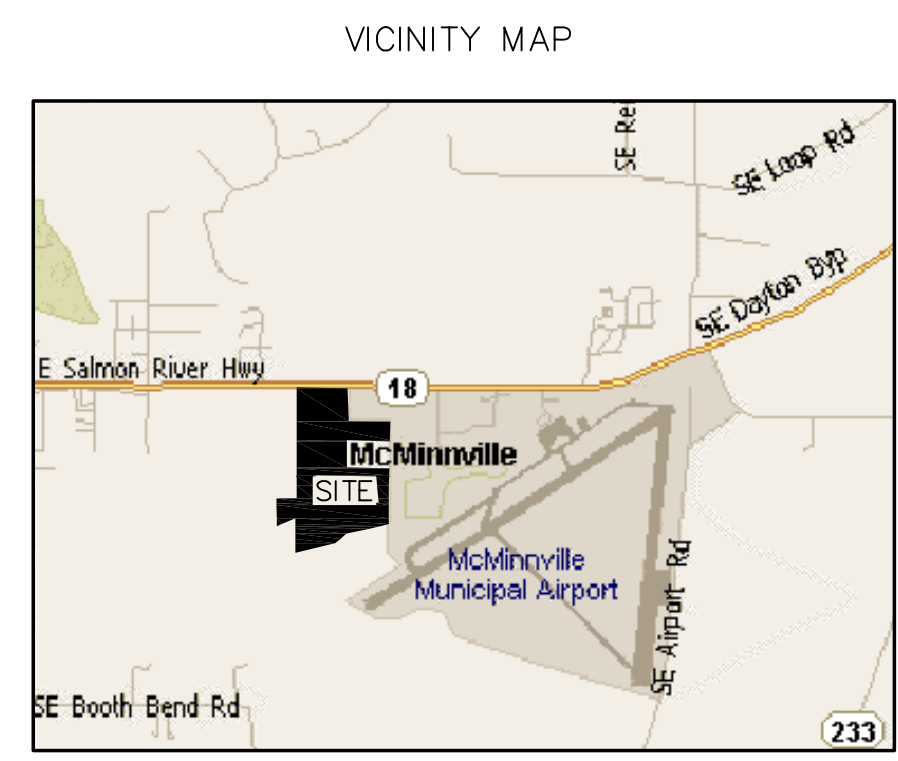
700.00'M,D1

FD. 3" BRASS DISK IN MON. BOX INSCRIBED "YAMHILL CO. SURVEYOR DLC 80/81/82 T4S R4W 1996" MARKING THE NE CORNER OF THE ISAIAH M. JONES D.L.C. NO 81 - HELD

ALTA/ACSM LAND TITLE SURVEY
LOCATED IN THE WEST ONE-HALF OF SECTION 26 AND
THE EAST ONE-HALF OF SECTION 27,
TOWNSHIP 4 SOUTH, RANGE 4 WEST, W.M.,
CITY OF MCMINNVILLE, YAMHILL COUNTY, OREGON
FIELD SURVEYED: NOVEMBER 24, 2006



- LEGEND:**
- - - - - EXISTING BOUNDARY LINE
 - — — — EXISTING CENTERLINE
 - - - - - EXISTING RIGHT-OF-WAY LINE
 - - - - - EASEMENT LINE
 - X - - - - - FENCE LINE, TYPE AS NOTED
 - SS - - - - - SANITARY SEWER LINE
 - OHW - - - - - OVERHEAD WIRE
 - G - - - - - UNDERGROUND GAS LINE
 - ~~~~~ AREA OF CONFLICTING BOUNDARY
 - DENOTES FOUND SECTION CORNER, AS NOTED
 - DENOTES FOUND MONUMENT AS NOTED. HELD UNLESS OTHERWISE NOTED
 - DENOTES FOUND 5/8" IRON ROD WITH A YELLOW PLASTIC CAP INSCRIBED "PLS 2351" PER S.N. CS-11937
 - DENOTES FOUND 5/8" IRON ROD WITH A YELLOW PLASTIC CAP INSCRIBED "S & K INC. LS 447 LS 548" PER S.N. CSP-9418 - HELD
 - DENOTES FOUND 5/8" IRON ROD PER S.N. CS P-7952 - HELD
 - YPC DENOTES YELLOW PLASTIC CAP
 - S.F. DENOTES SQUARE FEET
 - S.N. DENOTES SURVEY NUMBER PER YAMHILL COUNTY SURVEY RECORDS
 - FD. DENOTES FOUND
 - I.R. DENOTES IRON ROD
 - MON. DENOTES MONUMENT
 - DENOTES GAS VALVE
 - DENOTES SANITARY SEWER MANHOLE
 - DENOTES WATER METER
 - DENOTES WATER SPIGOT
 - DENOTES SPRINKLER VALVE
 - DENOTES ELECTRICAL RISER
 - DENOTES GUY WIRE
 - DENOTES UTILITY POLE
 - M DENOTES MEASURED DATA
 - (#)D1 DENOTES DATA PER DEED DOC. NO. 2006-09795
 - (#)R1 DENOTES RECORD DATA PER S.N. CS P-7952
 - (#)R2 DENOTES RECORD DATA PER S.N. CS P-9418
 - (#)R3 DENOTES RECORD DATA PER S.N. CS-11937



NOT TO SCALE

LEGAL DESCRIPTION PER TITLE REPORT (REPORT NO. 40-0252604, DATED OCTOBER 30, 2006)

BEGINNING AT THE NORTHEAST CORNER OF THE I.M. JOHNS DONATION LAND CLAIM, NOTIFICATION #1238, CLAIM #81 IN TOWNSHIP 4 SOUTH, RANGE 4 WEST OF THE WILLAMETTE MERIDIAN IN YAMHILL COUNTY, OREGON, AND RUNNING THENCE WEST, 25.08 CHAINS TO THE NORTHEAST CORNER OF 30 ACRE TRACT OF LAND CONVEYED TO ANNA HANNA BY HOWARD B. KAUFFMAN AND OTHERS; THENCE SOUTH, 30 CHAINS; THENCE WEST, 10 CHAINS; THENCE SOUTH, 10 CHAINS; THENCE NORTH 70° EAST, 9.38 CHAINS; THENCE SOUTH TO THE CENTER OF THE YAMHILL RIVER; THENCE UP THE CENTER OF THE SAID RIVER IN A SOUTHEASTERLY COURSE ABOUT 14 CHAINS TO THE SOUTH LINE OF SAID JOHNS DONATION LAND CLAIM; THENCE SOUTH 86° EAST ALONG THE SOUTH LINE OF SAID DONATION LAND CLAIM ABOUT 10 CHAINS TO THE SOUTHWEST CORNER OF SAID JOHNS DONATION LAND CLAIM; THENCE NORTH 65.37 CHAINS TO THE PLACE OF BEGINNING.

EXCEPTING THEREFROM THE FOLLOWING DESCRIBED PORTION OF THE ABOVE DESCRIBED TRACT:

BEGINNING AT THE NORTHEAST CORNER OF THE I.M. JOHNS DONATION LAND CLAIM, NOTIFICATION #1238, CLAIM #81 IN TOWNSHIP 4 SOUTH, RANGE 4 WEST OF THE WILLAMETTE MERIDIAN IN YAMHILL COUNTY, OREGON; THENCE WEST 700 FEET TO A POINT; THENCE SOUTH 622 FEET TO A POINT; THENCE EAST 700 FEET TO THE EAST LINE OF SAID JOHNS DONATION LAND CLAIM; THENCE NORTH ALONG THE EAST LINE OF SAID CLAIM, 622 FEET TO THE PLACE OF BEGINNING.

EXCEPTING THEREFROM THAT PORTION DESCRIBED IN DEED TO THE CITY OF MCMINNVILLE RECORDED JANUARY 26, 1982 IN FILM VOLUME 167, PAGE 318, DEED RECORDS.

AND FURTHER EXCEPTING THAT PORTION CONVEYED TO THE STATE OF OREGON BY DEED RECORDED MAY 22, 1989 IN FILM VOLUME 232, PAGE 831, DEED RECORDS.

EASEMENT EXCEPTIONS

11. AN EASEMENT CREATED BY INSTRUMENT, INCLUDING THE TERMS AND PROVISIONS THEREOF.
DATED: SEPTEMBER 30, 1980
RECORDED: OCTOBER 7, 1980
DOCUMENT NO.: 155 / 329
IN FAVOR OF: CITY OF MCMINNVILLE
FOR: SANITARY SEWER
DOES NOT AFFECT THE SUBJECT TRACT
12. AN EASEMENT CREATED BY INSTRUMENT, INCLUDING THE TERMS AND PROVISIONS THEREOF.
DATED: JANUARY 25, 1982
RECORDED: JANUARY 26, 1982
DOCUMENT NO.: 167 / 316
IN FAVOR OF: CITY OF MCMINNVILLE
FOR: OVERHEAD ELECTRICAL
15. LIMITED ACCESS IN DEED TO STATE OF OREGON, BY AND THROUGH ITS DEPARTMENT OF TRANSPORTATION, HIGHWAY DEPARTMENT WHICH PROVIDES THAT NO RIGHT OR EASEMENT OR RIGHT OF ACCESS TO, FROM OR ACROSS THE STATE HIGHWAY OTHER THAN EXPRESSLY PROVIDED THEREIN SHALL ATTACH TO THE ADJUTING PROPERTY.
RECORDED: MAY 22, 1989
DOCUMENT NO.: 232 / 831
16. THE TERMS & PROVISIONS OF EASEMENT, INCLUDING THE TERMS AND PROVISIONS THEREOF.
DATED: APRIL 17, 2003
RECORDED: JULY 21, 2003
DOCUMENT NO.: 200317915
BETWEEN: BERNARDS FAMILY LIMITED PARTNERSHIP
AND: CITY OF MCMINNVILLE WATER & LIGHT

SURVEYOR'S CERTIFICATE

RPS DEVELOPMENT COMPANY, KIMCO MCMINNVILLE LLC AND WESTERN TITLE AND ESCROW COMPANY:
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS" JOINTLY ESTABLISHED AND ADOPTED BY ALTA, ACSM AND NSPS IN 2005, AND INCLUDES ITEMS 2, 3, 4, 7(B)1, 7(B)2, 8, 10, 11(A) AND 13. PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA AND NSPS AND IN EFFECT ON THE DATE OF THIS CERTIFICATION, UNDERSIGNED FURTHER CERTIFIES THAT IN MY PROFESSIONAL OPINION, AS A LAND SURVEYOR IN THE STATE OF OREGON, THE RELATIVE POSITIONAL ACCURACY OF THIS SURVEY DOES NOT EXCEED THAT WHICH IS SPECIFIED THEREIN.
DATE _____
MICHAEL D. FRANK PLS NO. 53850

- NOTES**
1. THE HORIZONTAL DATUM IS ASSUMED.
 2. THE LEGAL DESCRIPTION AND EXCEPTIONS SHOWN HEREON ARE BASED ON THE PRELIMINARY TITLE REPORT (SUPPLEMENTAL #3), REPORT NUMBER 40-0252604, DATED OCTOBER 30, 2006, PREPARED BY WESTERN TITLE & ESCROW COMPANY.
 3. THE LAND REPRESENTED BY THIS SURVEY APPEARS TO BE LOCATED IN ZONE "C" (AREAS OF MINIMAL FLOODING) ON FLOOD INSURANCE RATE MAP COMMUNITY-PANEL NUMBER 410249 0309C DATED SEPTEMBER 30, 1983.
 4. SITE CONTAINS 90.430 ACRES, MORE OR LESS.
 5. SITE ADDRESS:
3310 SE THREE MILE LANE
MCMINNVILLE, OR 97128
 6. SITE IS SUBJECT TO FEDERAL AVIATION REGULATION (FAR) SEC. 77.25 (OBJECTS AFFECTING NAVIGABLE AIRSPACE - SUBPART C: OBSTRUCTION STANDARDS).
 7. TAX LOT 700, ASSESSOR'S MAP NO. 454W26.
 8. A DEED GAP APPEARS TO EXIST ADJACENT TO THE WEST LINE OF THE SUBJECT TRACT. DEED FOR EVERGREEN AGRICULTURAL ENTERPRISES, INC., PARCEL 3 OF DEED DOC. NO. 2003-11337, RECORDED MAY 15, 2003 AND THE DEED FOR THE SUBJECT TRACT BEGIN AT THE "NORTHEAST CORNER OF A 30 ACRE TRACT OF LAND CONVEYED TO ANNA HANNA". HOWEVER, THE DEED FOR THE ADJOINER CALLS FOR A LINE DEPARTING FROM SAID COMMON NORTHEAST CORNER SOUTH 00°39'00" WEST, WHEREAS THE DEED FOR THE SUBJECT TRACT CALLS FOR A LINE SOUTH 00°00'00" WEST FROM SAID COMMON NORTHEAST CORNER. NEITHER DEED MAKES REFERENCE CALLS TO OTHER. THE RESULTING GAP INCREASES FROM NORTH TO SOUTH WITH NO OVERLAP.
 9. A CONFLICT IN BOUNDARY ESTABLISHMENT EXISTS ALONG THE WEST LINE OF THE SUBJECT TRACT. IT IS THE OPINION OF THIS SURVEYOR THAT THE LINE AS ESTABLISHED IN CS-11937, YAMHILL COUNTY SURVEY RECORDS, BY TOM NELSON & ASSOCIATES, LLC IS IN ERROR. AS STATED IN NOTE 8 ABOVE, RECORDED DEEDS INDICATE A GAP BUT NO OVERLAP EXISTS AS TOM NELSON & ASSOCIATES, LLC HAS PURPORTED. DISCREPANCIES IN THE LINE POSITION ARE DEPICTED HEREON. CHAIN OF TITLE ANALYSIS IS RECOMMENDED TO QUIET TITLE.

UTILITY NOTE
THE UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON LOCATE PAINT MARKINGS TIED IN THE FIELD OR AVAILABLE AS-BUILT DRAWINGS. THIS SURVEY MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPREHEND ALL SUCH UTILITIES IN THE AREA. THE UNDERGROUND UTILITIES SHOWN MAY NOT BE IN THE EXACT LOCATION AS NOTED ON THIS SURVEY, BUT ARE LOCATED AS ACCURATELY AS POSSIBLE FROM VISIBLE SURFACE FEATURES OR AS-BUILT INFORMATION AS PROVIDED.

UTILITY LOCATIONS SHOULD BE VERIFIED BY OREGON UTILITY NOTIFICATION CENTER PRIOR TO ANY EXCAVATION.

BASIS OF BEARINGS
THE BASIS FOR BEARINGS IN THIS SURVEY IS THE EAST LINE OF THE ISAIAH M. JONES D.L.C. NO. 81 BETWEEN A FOUND 5/8 INCH IRON ROD MARKING THE MOST EASTERLY SOUTHEAST CORNER OF THAT TRACT DESCRIBED IN DEED DOCUMENT NO. 2006-09795, RECORDED MAY 2, 2006 AND SET PER SURVEY NUMBER CS P-7952, YAMHILL COUNTY SURVEY RECORDS AND A FOUND 3 INCH BRASS DISK IN A MONUMENT BOX INSCRIBED "YAMHILL CO. SURVEYOR DLC 80/81/82 T4S R4W 1996" MARKING THE NE CORNER OF THE ISAIAH M. JONES D.L.C. NO. 81. BEARING OF S00°00'00"E WAS HELD PER SAID SURVEY NUMBER CS P-7952.

Surtech LLC
4575 SE 108th Place
Portland, OR 97266
Tel. 503.761.8923
Fax 503.922.3351

ALTA/ACSM LAND TITLE SURVEY
3310 SE THREE MILE LANE
WRG DESIGN, INC.
CITY OF MCMINNVILLE, YAMHILL COUNTY, OREGON

BY	DATE	DESCRIPTION

REGISTERED
**PROFESSIONAL
LAND SURVEYOR**

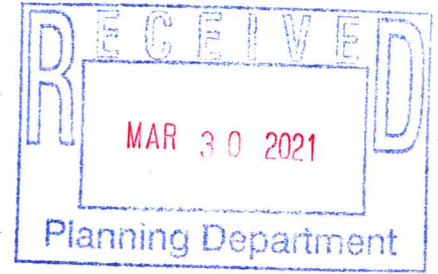
OREGON
NOV. 16, 1998
MICHAEL D. FRANK
53854

RENEWAL DATE 12-31-07

DATE	11/28/06
DRAWN	IMF
SURVEYOR	IMF
CHECKED	IMF
PROJECT #	WRG0033
SHEET TITLE	WRG0033 AL 112106.DWG
SHEET NUMBER	1 OF 1

SHEET 1 OF 1
JOB NO. WRG0033
Surtech LLC
4575 SE 108th Place
Portland, OR 97266
Tel. 503.761.8923
Fax 503.922.3351

**Kimco McMinnville, LLC
15 Southgate Ave, Suite 201
Daly City, CA 94015**



March 29, 2021

Tom Schauer
Senior Planner
City of McMinnville
Planning Department
231 NE Fifth Street
McMinnville, OR 97218

**Re: Response to CPA 2-20 and ZC 3-20 Application Completeness Review Letter
3310 SE Three Mile Lane, Map & Tax Lot R4426 00700**

Dear Tom:

Thank you for your January 20, 2021 completeness review of the above referenced application. This packet provides the information identified as completeness items, responds to the discussion of the Planned Development Overlay in the "Background Information" section of your letter, and requests that our application be deemed complete.

Completeness Items

1. Acreage and Right-of-Way Dedication Clarifications

We request that the 4.25-acre right-of-way dedication be included as a part of our request for a Comprehensive Plan Amendment from Industrial to Commercial and a Zone Change from M-2 to C-3 PD, as depicted on the updated Exhibit 1. We also request that a condition of approval be imposed and/or findings be included that explain that this 4.25-acre area is intended to be dedicated as a public right-of-way at the time of development.

With the additional 4.25-acre area, the total land area subject to the Comprehensive Plan Amendment and Zone Change is 37.74 acres. Because the additional 4.25 acres will be used exclusively for right-of-way purposes, it is not necessary to change to the application's assumptions about the future development of approximately 33.49 acres, such as traffic impacts or satisfying the existing commercial land deficiency with surplus industrial land.

2. Conflict Between Pages 3 and 4 of Attachment 1

We have consolidated the diagrams showing our Comprehensive Plan Amendment and Zone Change request into one exhibit to eliminate any inconsistencies in our application. This should add clarity to the precise land areas within our parcel that will be redesignated and rezoned through approval of this application. Please see **Exhibit 1** attached.

3. Dimensions

To further affirm the land areas included on the diagram as shown within **Exhibit 1**, we have attached legal descriptions that lend support to the dimensions intended for each land use designation and zone area. Please see **Exhibits 2, 3, and 4** attached containing these descriptions.

Background Item: Planned Development Overlay Options and Requirements

As noted in your completeness review letter, we have proposed a Planned Development Overlay designation using the provisions in Section 17.51.010(B) of the Zoning Ordinance, which means no development plan must be submitted at this time. Instead, a development plan will be proposed once the redevelopment of the property is more certain.

The letter of incompleteness noted that additional analysis was needed to explain the unique conditions that support deferring submittal of the development plan (Subsection (B)(1)) and items that must be addressed when final plans are submitted (Subsection (B)(2)).

(B)(1) A planned development overlay may be approved under these circumstances for a property which has unique characteristics (e.g., geological, ecological, location, or the nature of the surrounding property) and the development of which may have an impact upon the surrounding area or the city as a whole. A planned development overlay initiated by the Council or the Planning Commission shall address itself to the purposes set forth herein.

The primary rationale for allowing a deferred submittal of the development plan under the proposed PD designation is to ensure that development that is proposed on the property is consistent with and implements the future Three Mile Lane Area Plan (TMLAP).

Your letter provided an excellent summary of this unique condition: "It is reasonable to conclude there are unique conditions to allow deferred submittal of a final plan to ensure consistency and coordination of the design and development standards, circulation plan, and other considerations with a future Three Mile Lane Area Plan (TMLAP) given the sale of that plan as well as the scale of the potential development on the subject property."

(B)(2) The Council and Planning Commission shall set forth the reasons for approval and the areas of concern that must be addressed when final plans are submitted.

We understand that the review process will identify areas of potential concerns and proposed conditions and standards to address those concerns that will need to be included in the development plan that is submitted.

We agree with the categories of items to be included outlined in your January 20, 2021 completeness letter (with the clarifications described below), and that the TMLAP will provide important guidance on the design and development standards that will be expected of future development on the property. However, because no development is under consideration at this time, we request that the conditions and standards identified during this process be flexible so that further refinement can occur once more is known about feasible development.

Clarification: Great Neighborhood Principles in the Comprehensive Plan. We agree that some of these principles should be incorporated into the development plan and project. We request that this process provide clarity about which principles are applicable. For example, the following are not applicable: Principles 11 and 12 are directed at housing, so are irrelevant to commercial development and Principle 10 is not applicable because the property is not located on the on the edge of the UGB.

Clarification: Land Division. We understand and agree that the portions of the property subject to the PD overlay cannot be divided or have portions sold prior to when the master plan is approved. However, the property subject to the to the proposed amendments is only a portion of a larger, undivided approximately 90.43-acre property. We anticipate that prior to when a master plan is approved, the 90.43-acre parcel may be partitioned so that the 37.74-acre commercial portion and remaining industrial areas are divided into separate lots that may be held in separate ownership. It is possible that this partition may require an access drive or street that connects the industrial parcel to SH 18. We request that the findings clarify that the land division limitation does not preclude dividing the parent parcel into a commercial lot and industrial lot(s) or related required access improvements, and that it is intended to limit divisions of the 37.74-acre area into smaller lots prior to when the master plan is approved.

Next Steps

This packet addresses each of the completeness items from the January 20, 2021 letter. We request that you deem our application complete.

We look forward to working with the City and public as our application proceeds through the public process.

Sincerely,



Michael Strahs
Authorized Agent
Kimco McMinnville, LLC

Attachments:

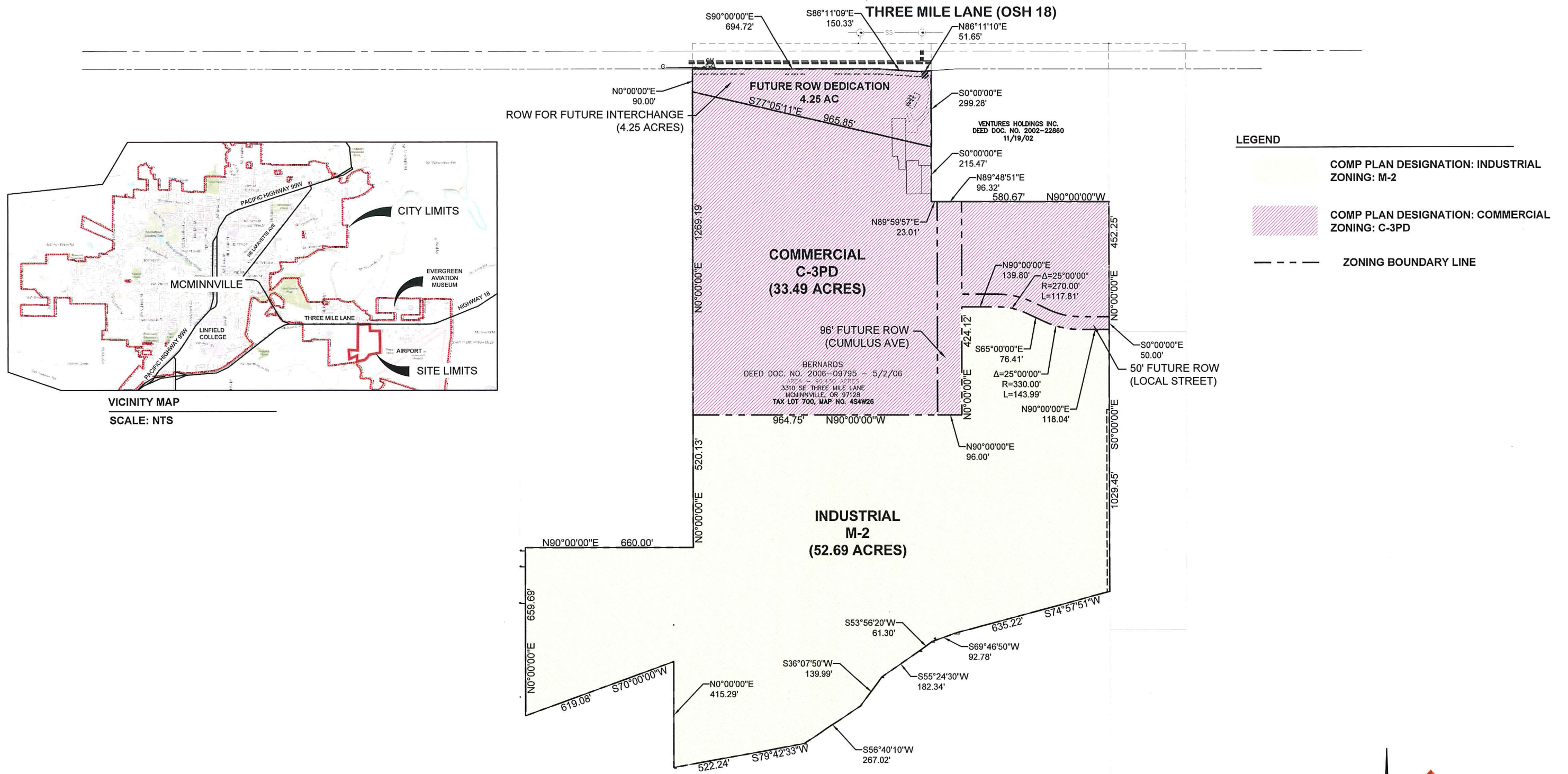
Exhibit 1: Proposed Comprehensive Plan Amendment and Zone Change

Exhibit 2: Legal Description for Commercial/C-3PD Land Area

Exhibit 3: Legal Description for Industrial/M-2 Land Area

Exhibit 4: Legal Description for future Public ROW Land Area

Exhibit 1



PROPOSED COMPREHENSIVE PLAN AMENDMENT AND ZONE CHANGE - THREE MILE LANE

Address: 3310 SE Three Mile Lane (Map & Tax Lot R4426 00700)
 Applicant: Kimco McMinnville, LLC

03/25/2021
 SCALE IN FEET

DOWL

720 SW Washington Street, #750
 Portland, Oregon 97205
 971-280-8645

Project #: 2322.14783.01
 Contact: Mike Towle, PE
 503-679-1769

McMinnville, OR

Exhibit 2

S&F Land Services

4858 SW Scholls Ferry Rd, Ste A Portland, OR 97225
(503) 345-0328 - www.sflands.com

2021-014-63
3/22/21
TLB


LEGAL DESCRIPTION COMMERCIAL ZONE

A TRACT OF LAND SITUATED IN THE NORTHWEST QUARTER OF SECTION 26 AND THE NORTHEAST QUARTER OF SECTION 27, TOWNSHIP 4 SOUTH, RANGE 4 WEST OF THE WILLAMETTE MERIDIAN, CITY OF MCMINNVILLE, OREGON, BEING A PORTION OF THAT PROPERTY CONVEYED TO KIMCO MCMINNVILLE LLC., PER WARRANTY DEED DOCUMENT NUMBER 2006-67470, YAMHILL COUNTY DEED RECORDS, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A 3" BRASS DISK MARKING THE NORTHWEST CORNER OF SAID SECTION 26; THENCE NORTH 90°00'00" WEST 45.16 FEET; THENCE SOUTH 00°00'00" EAST 100.99 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF E SALMON RIVER HWY (OSH 18) (BEING 70.00 FEET FROM THE CENTERLINE THEREOF, WHEN MEASURED PERPENDICULAR THERETO); THENCE ALONG THE WESTERLY LINE OF SAID DOCUMENT NUMBER 2006-67470, SOUTH 00°00'00" EAST 90.00 FEET TO THE **POINT OF BEGINNING**; THENCE CONTINUING SOUTH 00°00'00" EAST 1269.19 FEET; THENCE LEAVING SAID WESTERLY LINE, NORTH 90°00'00" EAST 1060.75 FEET; THENCE NORTH 00°00'00" EAST 424.12 FEET; THENCE NORTH 90°00'00" EAST 139.80 FEET TO THE BEGINNING OF A 270.00 FOOT RADIUS CURVE TO THE RIGHT; THENCE ALONG SAID CURVE 117.81 FEET, THROUGH A CENTRAL ANGLE OF 25°00'00" (THE LONG CHORD BEARING SOUTH 77°30'00" EAST, 116.88 FEET); THENCE SOUTH 65°00'00" EAST 76.41 FEET TO THE BEGINNING OF A 330.00 FOOT RADIUS CURVE TO THE LEFT; THENCE ALONG SAID CURVE 143.99 FEET, THROUGH A CENTRAL ANGLE OF 25°00'00" (THE LONG CHORD BEARING SOUTH 77°30'00" EAST, 142.85 FEET); THENCE NORTH 90°00'00" EAST 118.04 FEET TO THE EASTERLY LINE OF SAID DOCUMENT NUMBER 2006-67470; THENCE ALONG SAID EASTERLY LINE, NORTH 90°00'00" EAST 502.57 FEET; THENCE NORTH 90°00'00" WEST 700.00 FEET; THENCE NORTH 00°00'00" EAST 215.16 FEET; THENCE LEAVING SAID EASTERLY LINE, NORTH 77°05'11" WEST 965.85 FEET TO THE **POINT OF BEGINNING**.

CONTAINING 1,458,887 SQUARE FEET OR 33.491 ACRES, MORE OR LESS.

REGISTERED
PROFESSIONAL
LAND SURVEYOR


Digitally signed by
Jered McGrath
Date: 2021.03.24
19:04:50 -07'00'

OREGON
JUNE 13, 2008
JERED MCGRATH
79419

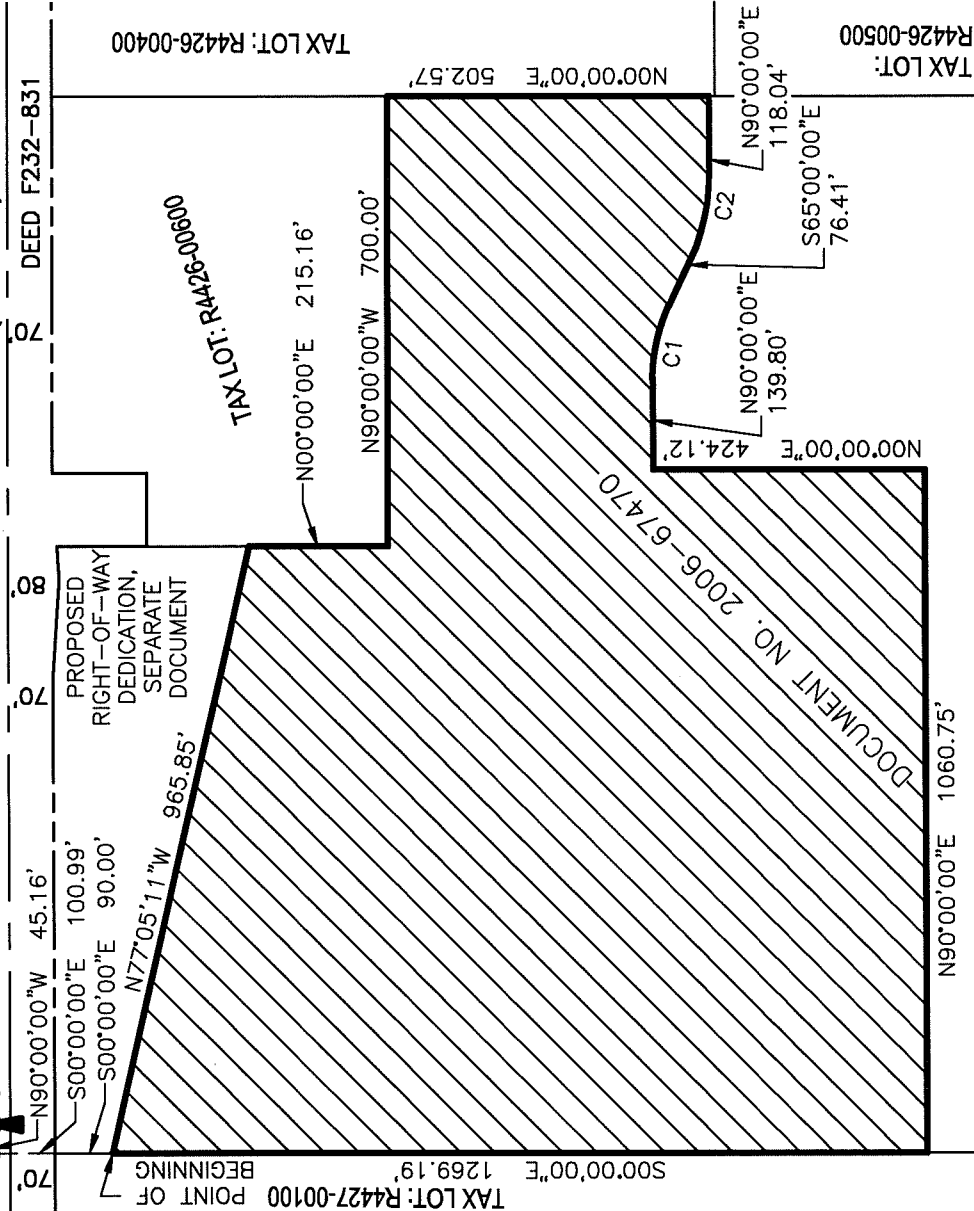
RENEWS: 12/31/2021

POINT OF COMMENCEMENT A FD. 3" BRASS DISK
IN MON. BOX INSCRIBED "YAMHILL CO. SURVEYOR
1986 22/23/27/26 T4S R4W" MARKING THE NW
CORNER OF SECTION 26, T4S, R4W - HELD

E SALMON RIVER HWY (OSH 18)

**EXHIBIT B
COMMERCIAL ZONE**

NW 1/4 SECTION 26 & NE 1/4 SECTION
27, T4S, R4W, W.M., CITY OF
MCMINNVILLE, YAMHILL COUNTY,
OREGON



1 INCH = 300 FEET

LEGEND:

AREA OF COMMERCIAL ZONE
1,458,887 SQUARE FEET OR
33.491 ACRES MORE OR LESS

CURVE TABLE					
CURVE #	DELTA	RADIUS	LENGTH	CHORD	CHORD LEN
C1	25°00'00"	270.00'	117.81'	S77°30'00"E	116.88'
C2	25°00'00"	330.00'	143.99'	S77°30'00"E	142.85'

S&F Land Services

Date: 3/22/21
Proj No: 2021-014-63
4858 SW SCHOLLS FERRY ROAD, SUITE A
PORTLAND, OR 97225
www.sflands.com
info@sflands.com
503-345-0328

Exhibit 3

S&F Land Services

4858 SW Scholls Ferry Rd, Ste A Portland, OR 97225
(503) 345-0328 - www.sflands.com

2021-014-63

3/22/21

TLB

LEGAL DESCRIPTION INDUSTRIAL ZONE

A TRACT OF LAND SITUATED IN THE WEST HALF OF SECTION 26 AND THE EAST HALF OF SECTION 27, TOWNSHIP 4 SOUTH, RANGE 4 WEST OF THE WILLAMETTE MERIDIAN, CITY OF MCMINNVILLE, OREGON, BEING A PORTION OF THAT PROPERTY CONVEYED TO KIMCO MCMINNVILLE LLC., PER WARRANTY DEED DOCUMENT NUMBER 2006-67470, YAMHILL COUNTY DEED RECORDS, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A 3" BRASS DISK MARKING THE NORTHWEST CORNER OF SAID SECTION 26; THENCE NORTH 90°00'00" WEST 45.16 FEET; THENCE SOUTH 00°00'00" EAST 100.99 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF E SALMON RIVER HWY (OSH 18) (BEING 70.00 FEET FROM THE CENTERLINE THEREOF, WHEN MEASURED PERPENDICULAR THERETO); THENCE ALONG THE WESTERLY LINE OF SAID DOCUMENT NUMBER 2006-67470, SOUTH 00°00'00" EAST 1359.19 FEET TO THE POINT OF BEGINNING; THENCE LEAVING SAID WESTERLY LINE, NORTH 90°00'00" EAST 1060.75 FEET; THENCE NORTH 00°00'00" EAST 424.12 FEET; THENCE NORTH 90°00'00" EAST 139.80 FEET TO THE BEGINNING OF A 270.00 FOOT RADIUS CURVE TO THE RIGHT; THENCE ALONG SAID CURVE 117.81 FEET, THROUGH A CENTRAL ANGLE OF 25°00'00" (THE LONG CHORD BEARING SOUTH 77°30'00" EAST, 116.88 FEET); THENCE SOUTH 65°00'00" EAST 76.41 FEET TO THE BEGINNING OF A 330.00 FOOT RADIUS CURVE TO THE LEFT; THENCE ALONG SAID CURVE 143.99 FEET, THROUGH A CENTRAL ANGLE OF 25°00'00" (THE LONG CHORD BEARING SOUTH 77°30'00" EAST, 142.85 FEET); THENCE NORTH 90°00'00" EAST 118.04 FEET TO THE EASTERLY LINE OF SAID DOCUMENT NUMBER 2006-67470; THENCE ALONG SAID EASTERLY LINE, SOUTH 90°00'00" EAST 1029.45 FEET TO THE SOUTHERLY LINE OF SAID DOCUMENT NUMBER 2006-67470; THENCE ALONG SAID SOUTHERLY LINE, SOUTH 74°57'51" WEST 635.22 FEET; THENCE SOUTH 69°46'50" WEST 92.78 FEET; THENCE SOUTH 53°56'20" WEST 61.30 FEET; THENCE SOUTH 55°24'30" WEST 182.34 FEET; THENCE SOUTH 36°07'50" WEST 139.99 FEET; THENCE SOUTH 54°57'51" WEST 267.02 FEET; THENCE SOUTH 79°40'40" WEST 384.74 FEET; THENCE SOUTH 79°47'50" WEST 137.50 FEET TO THE WESTERLY LINE OF SAID DOCUMENT NUMBER 2006-67470; THENCE ALONG SAID WESTERLY LINE, NORTH 00°00'00" EAST 415.29 FEET; THENCE SOUTH 70°00'00" WEST 619.08 FEET; THENCE NORTH 00°00'00" EAST 660.00 FEET; THENCE NORTH 90°00'00" EAST 660.00 FEET; THENCE NORTH 00°00'00" EAST 519.82 FEET TO THE POINT OF BEGINNING.

CONTAINING 2,295,098 SQUARE FEET
OR 52.688 ACRES, MORE OR LESS.

REGISTERED
PROFESSIONAL
LAND SURVEYOR



Digitally signed by
Jered McGrath
Date: 2021.03.24
18:59:00 -07'00'

OREGON
JUNE 13, 2008
JERED MCGRATH
79419

RENEWS: 12/31/2021

POINT OF COMMENCEMENT
 A FD. 3" BRASS DISK IN
 MON. BOX INSCRIBED
 "YAMHILL CO. SURVEYOR
 1986 22/23/27/26 T4S
 R4W" MARKING THE NW
 CORNER OF SECTION 26,
 T4S, R4W - HELD

E SALMON RIVER HWY (OSH 18)

N90°00'00"W 45.16' R
 S00°00'00"E 100.99' PROPOSED
 S00°00'00"E 1359.19' RIGHT-OF-WAY
 DEDICATION
 N90°00'00"E 1060.75'

POINT OF BEGINNING
 N00°00'00"E 519.82'

TAX LOT: R4427-00200

N90°00'00"E 660.00'

TAX LOT: R4427-00200

S70°00'00"W 919.08'
 N00°00'00"E 415.29'

N90°00'00"E 139.80'
 C1
 S65°00'00"E 76.41'
 N90°00'00"E 118.04'
 C2
 N00°00'00"E 424.12'

TAX LOT: R4426-00500

S00°00'00"E 1029.45'

DOCUMENT NO. 2006-67470



1 INCH = 300 FEET

LEGEND:



AREA OF INDUSTRIAL ZONE
 2,295,098 SQUARE FEET OR
 52.688 ACRES MORE OR LESS

**EXHIBIT B
 INDUSTRIAL ZONE**

W 1/2 SECTION 26 & E 1/2 SECTION 27,
 T4S, R4W, W.M., CITY OF MCMINNVILLE,
 YAMHILL COUNTY, OREGON

TAX LOT: R4426-00701

S69°46'50"W 92.78'
 S53°56'20"W 61.30'
 S55°24'30"W 182.34'
 S36°07'50"W 139.99'

S56°40'10"W 267.02'
 S79°40'40"W 384.74'
 S79°47'50"W 137.50'

CURVE TABLE

CURVE #	DELTA	RADIUS	LENGTH	CHORD	CHORD LEN
C1	25°00'00"	270.00'	117.81'	S77°30'00"E	116.88'
C2	25°00'00"	330.00'	143.99'	S77°30'00"E	142.85'



Date: 3/22/21
 Proj No: 2021-014-63
 4858 SW SCHOLLS FERRY ROAD, SUITE A www.sflands.com
 PORTLAND, OR 97225 info@sflands.com
 503-345-0328

Exhibit 4

EASEMENT FOR RIGHT-OF-WAY PURPOSES

A TRACT OF LAND SITUATED IN THE NORTHWEST QUARTER OF SECTION 26 AND THE NORTHEAST QUARTER OF SECTION 27, TOWNSHIP 4 SOUTH, RANGE 4 WEST OF THE WILLAMETTE MERIDIAN, CITY OF MCMINNVILLE, OREGON, BEING A PORTION OF THAT PROPERTY CONVEYED TO KIMCO MCMINNVILLE LLC., PER WARRANTY DEED DOCUMENT NUMBER 2006-67470, YAMHILL COUNTY DEED RECORDS, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A 3" BRASS DISK MARKING THE NORTHWEST CORNER OF SAID SECTION 26; THENCE NORTH 90°00'00" WEST 45.16 FEET; THENCE SOUTH 00°00'00" EAST 100.99 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF E SALMON RIVER HWY (OSH 18) (BEING 70.00 FEET FROM THE CENTERLINE THEREOF, WHEN MEASURED PERPENDICULAR THERETO), ALSO BEING THE **POINT OF BEGINNING**; THENCE ALONG THE WESTERLY LINE OF SAID DOCUMENT NUMBER 2006-67470, SOUTH 00°00'00" EAST 90.00 FEET; THENCE LEAVING SAID WESTERLY LINE, SOUTH 77°05'11" EAST 965.85 FEET TO THE EASTERLY LINE OF SAID DOCUMENT NUMBER 2006-67470; THENCE ALONG SAID EASTERLY LINE, NORTH 00°00'00" EAST 299.28 FEET TO SAID SOUTHERLY RIGHT-OF-WAY LINE OF E SALMON RIVER HWY (OSH 18) (BEING VARIABLE IN WIDTH); THENCE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, SOUTH 86°11'10" WEST 51.65 FEET; THENCE NORTH 86°11'09" WEST 150.33 FEET; THENCE NORTH 90°00'00" WEST 694.72 FEET; THENCE NORTH 89°59'30" WEST 45.16 FEET TO THE **POINT OF BEGINNING**.

CONTAINING 185,147 SQUARE FEET OR 4.250 ACRES, MORE OR LESS.

REGISTERED
PROFESSIONAL
LAND SURVEYOR



Digitally signed by
Jered McGrath
Date: 2021.03.24
18:50:30 -07'00'

OREGON
JUNE 13, 2008
JERED MCGRATH
79419

RENEWS: 12/31/2022

S&F Land Services

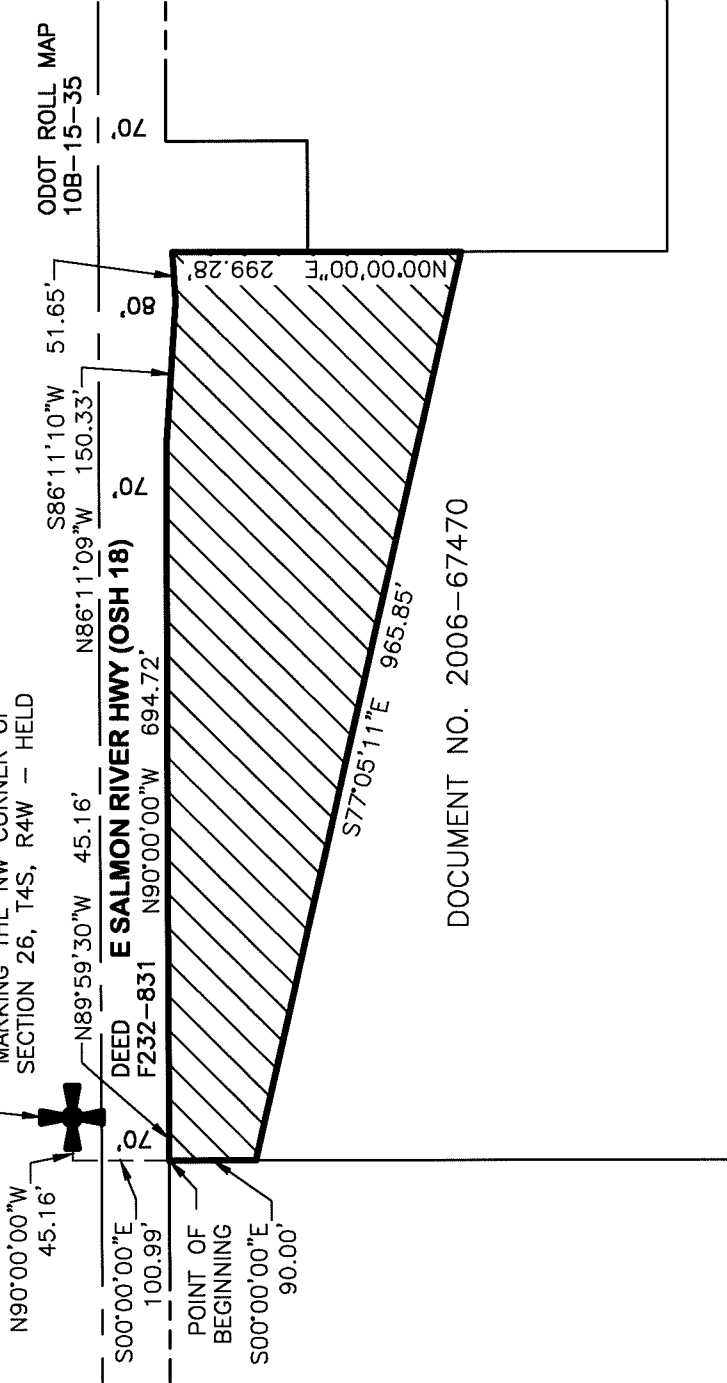
4858 SW Scholls Ferry Rd, Ste A Portland, OR 97225
(503) 345-0328 - www.sflands.com

2021-014-63
3/22/21
TLB

EXHIBIT B

**EASEMENT FOR RIGHT-OF-WAY PURPOSES
NW 1/4 SECTION 26 & NE 1/4 SECTION 27, T4S, R4W,
W.M., CITY OF MCMINNVILLE, YAMHILL COUNTY, OREGON**

POINT OF COMMENCEMENT A FD.
3" BRASS DISK IN MON. BOX
INSCRIBED "YAMHILL CO. SURVEYOR
1986 22/23/27/26 T4S R4W"
MARKING THE NW CORNER OF
SECTION 26, T4S, R4W - HELD



ODOT ROLL MAP
10B-15-35



1 INCH = 200
FEET

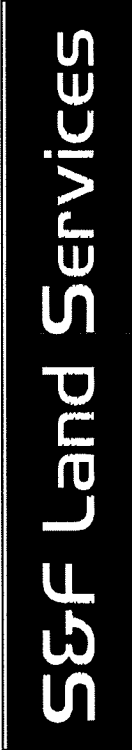
DOCUMENT NO. 2006-67470

LEGEND:

PARCEL - 1



AREA OF RIGHT-OF-WAY
185,147 SQUARE FEET OR
4.250 ACRES MORE OR LESS.



Date: 3/24/21
Proj No: 2021-014-63
4858 SW SCHOLLS FERRY ROAD, SUITE A
PORTLAND, OR 97225
www.sflands.com
info@sflands.com
503-345-0328

Attachment 3

Applicable Required Findings

This narrative includes Kimco's findings of compliance with the applicable Statewide Planning Goals, McMinnville Comprehensive Plan. The applicable criteria are in **bold** with the relevant applicant response following in *italics*.

These findings incorporate and are intended to supplement the summary provided in the application narrative. Terms capitalized in these findings but not specifically defined, such as Property and Project, are defined in the application summary.

Sections:

- 1. Summary of Applicable Criteria**
- 2. Statewide Planning Goals**
- 3. McMinnville Comprehensive Plan**
- 4. McMinnville Zoning Ordinance**

1. Summary of Applicable Criteria

The City of McMinnville is currently engaging in several long-range planning efforts that are at various stages of adoption, and rely upon different planning documents and assumptions. From the outset of Kimco's quasi-judicial application, it is important to clarify what are the applicable criteria, what may be relevant as supporting evidence, and what is not applicable to this application.

The applicable approval criteria include relevant provisions of the zoning ordinance and comprehensive plan that are in effect and acknowledged, and Statewide Planning Goals (including implementing statutes and administrative rules). These findings list and address only the relevant provisions of these criteria.

The comprehensive plan includes incorporated plans, such as an economic opportunities analysis. As detailed below, Goal 2 and implementing case law, as well as some of the administrative rules, provide that in order to be applicable to a quasi-judicial planning process, an incorporated study must be acknowledged. However, the data and analyses in furtherance of planning processes that are not applicable can be relied upon as evidence, which as explained in these findings, provides further support for this application. As applied here:

- Economic Opportunities Analysis:
 - The adopted and acknowledged **2013 EOA** (Ordinance No. 4976) is binding on and applicable to this application.
 - Superseded EOA's, such as the 2001 EOA (Ord. 4795) and the reversed and remanded 2003 McMinnville Growth Management and Urbanization are not applicable.
 - Draft but unadopted and unacknowledged updated EOA, such as the **draft 2020 EOA** update, is not applicable.
- 2020 UGB Expansion:
 - Amendment to McMinnville Urban Growth Boundary (the "**2020 UGB Expansion**"): Ordinance 5098, adopted December 8, 2020: amends the McMinnville Comprehensive Plan Map, McMinnville Comprehensive Plan and McMinnville Municipal Code (Chapter 17), approving the McMinnville Growth Management and Urbanization Plan (**MGMUP**) and its appendices, and expanding McMinnville's' UGB. This decision is in response to Oregon Court of Appeal's remand of the 2003 UGB

Expansion, which was based in part on the then-applicable 2001 EOA. Ordinance 5098 has not yet been acknowledged and is not applicable.

- Three Mile Lane Area Plan
 - The Three Mile Lane Area Plan (the “**3MLAP**”) is a draft that has not been adopted or acknowledged. It is not binding upon this application.

A. Summary of Goal 2 and Case Law

Oregon Statewide Planning Goal 2, Part I, requires that a local land use authority’s quasi-judicial decision must be based on “an adequate factual base.” A study or assessment constitutes an adequate factual base for purposes of Goal 2 when it is “incorporated” into the jurisdiction’s comprehensive plan or acknowledged planning documents. *1000 Friends v Dundee*, 203 Or App 207, 216 (2005). For an assessment to be “incorporated” into these authorities, it must be both adopted and effective. *1000 Friends v Dundee*, LUBA Nos. 2004-144 and 2004-145, 2006 WL 559077 (Feb. 23, 2006) (on remand, interpreting that “incorporate[ion]” requires “adopt[ion]”); *Craig Realty Group v. City of Woodburn*, 39 Or LUBA 384, 396 (Feb. 2, 2001) (affirming City’s use of then- effective housing inventory, despite that new inventory was being developed, because only the current inventory “describe[d] the . . . provisions of the comprehensive plan”).

Though these Goal 2 requirements apply to all “land use actions,” they are particularly important when an action involves “estimat[ing] the amount of needed land.” See *D. S. Parklane Development, Inc. v. Metro*, 165 Or App 1, 22-23 (2000) (holding Metro could not rely on urban growth report not yet adopted as part of the comprehensive plan because, “[u]nder Goal 2, the computation of need must be based upon the functional plan and/or Metro’s other applicable planning documents”). Nor may a jurisdiction avoid these requirements by attempting to merely “update” an assessment that was previously adopted and incorporated by reference into planning standards. See *Lengkeek v. City of Tangent*, 54 Or LUBA 160, 166 (Apr. 25, 2007) (city could not “rely on [an] updated [buildable lands inventory (“BLI”)] without first amending the [comprehensive plan] to replace the expired BLI with the updated BLI”).

The Court of Appeals has explained the purpose behind these requirements:

The comprehensive plan is the fundamental document that governs land use planning. Citizens must be able to rely on the fact that the acknowledged comprehensive plan and information integrated in that plan will serve as the basis for land use decisions, rather than running the risk of being “sandbagged” by government’s reliance on new data that is inconsistent with the information on which the comprehensive plan was based.

1000 Friends v Dundee, 203 Or App at 216.

Unadopted planning efforts, such as the draft 2020 EOA or 3MLAP, which are not adopted, effective and acknowledged do not constitute an “adequate factual base” on which the City may base its land use findings during this quasi-judicial planning process. Simply put, the draft 2020 EOA is not a valid land use criterion and cannot be the sole basis for consideration of Kimco’s application. To employ it as such would pose the very risk the *1000 Friends v. Dundee* court warned against — that stakeholders in the land use process would be “sandbagged” by having to interpret and apply information inconsistent with the information that informed the operative comprehensive plan. However, these unadopted analyses and the supporting data may be relied upon to confirm or further support approval of Kimco’s application, so long as the primary basis for the approval is the adopted and acknowledged information, such as the 2013 EOA. *McDougal Bros. Investments v. City of Veneta*, 59 Or LUBA 207 (2009); *Shamrock Homes LLC v. City of Springfield*, 68 Or LUBA 1, 12 (2013); *see also Gunderson, LLC v. City of Portland*, 62 Or LUBA 403, rev’d in part on other grounds and remanded, 243 Or App 612, 259 P3d 1007 (2011), other grounds aff’d 352 Or 648, 290 P3d 803 (2012).

In summary, so long as the acknowledged information such as the 2013 EOA provides an adequate primary basis for the City’s approval, the decision can be further supported with new unacknowledged data. The findings below comply with this mandate. The 2013 EOA and acknowledged portions of the adopted comprehensive plan support the conclusion that some of the City’s excess industrial land should be converted to satisfy the deficit of commercial land and describe conversion suitability factors. While Kimco’s analysis could stop there, the application also evaluates the data and analysis in updated but unadopted planning efforts, such as the 3MLAP, which provide further support for the application because those analyses show that the commercial deficit is growing and that the Three Mile Lane area is a suitable location for commercial development.

2. Statewide Planning Goals

A post-acknowledgement comprehensive plan amendment, such as this application, must comply with all applicable Statewide Planning Goals. The Goals that will be most relevant to this application are (A) Goals 9 and (B) 12.

A. Goal 9: Economy of the State

The state’s Goal 9 resource page can be accessed at:
<https://www.oregon.gov/lcd/OP/Pages/Goal-9.aspx>

The requirements of Goal 9 are detailed in the administrative rules in OAR Chapter 660, Division 9:
<https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=3059>

- **Applicant Response:** *Goal 9 requires the City to “[t]o provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and*

prosperity of Oregon’s citizens.” See www.oregon.gov/LCD/docs/goals/goal9.pdf) and ORS 197.712(1). As relevant to this application, Goal 9 requires the City to provide for at least an adequate supply of sites of suitable sizes, types, locations, and service levels for industrial and commercial uses consistent the City’s comprehensive plan and the acknowledged 2013 EOA. *Shamrock Homes LLC v. City of Springfield*, 68 Or LUBA 1 (2013) (a proposed amendment must be consistent with the City’s “most recent economic opportunities analysis and the parts of its acknowledged comprehensive plan” which address Goal 9).

The 2013 EOA determined that the City has a deficit of 35.8 acres of commercial land and a surplus of 235.9 acres of industrial land¹ and concludes that excess industrial land should be converted to commercial land to address the unfulfilled need. 2013 EOA, pg 56, Table 26. Goal 9’s requirement for an adequate land supply requires that the land need in the 2013 EOA be met, meaning that the identified deficit of commercial land must be remedied. Goal 9 does not prohibit providing land in excess of the adopted land need. For example, hypothetically, converting 50 acres of industrial land to commercial land is consistent with Goal 9 because post-amendment, there is an adequate supply (meaning no deficit) of industrial and commercial land. Simply stated, conversion from one category of land to another can result in a surplus in one or both categories, so long as a deficit is not created in any category.

Goal 9 does not consider only the total acreage needed in a particular category. The suitability of the land to meet an identified need is also relevant. “Suitable” land is defined as “serviceable land designated for industrial or other employment use that provides, or can be expected to provide the appropriate site characteristics for the proposed use.” OAR 660-009-0005(12). “Site characteristics” relate to features that a site needs to accommodate a particular use, and is defined to mean “the attributes of a site necessary for a particular industrial or other employment use to operate. Site characteristics include, but are not limited to, a minimum acreage or site configuration including shape and topography, visibility, specific types or levels of public facilities, services or energy infrastructure, or proximity to a particular transportation or freight facility such as rail, marine ports and airports, multimodal freight or transshipment facilities, and major transportation routes.” OAR 660-009-0005(11).

As applied here, the 2013 EOA recommends to re-designate “at least” 36 acres from industrial to commercial use, which will allow retail development that captures retail leakage and growth related retail needs. The 2013 EOA (see pg. 57, 62, and 73) describes the suitability factors to consider when determining which sites to redesignate,

¹ Although not applicable, as reference, the 2001 EOA concluded that the City has a deficit of 106 acres of commercial land and the draft 2020 EOA estimates that the commercial land deficit ranges from 286 to 295 acres, with a surplus of 159 acres of industrial land.

which these findings refer to as the “**2013 EOA Conversion Suitability Factors**,” as including:

- “sites with the greatest suitability for commercial development” (2013 EOA, pg. 62)
 - The 2013 EOA lays the groundwork for subsequent and more detailed analysis of “**retail leakage**” when it notes:
 - “Retail sales leakage occurring due to lack of major comparison retail. As described by the 2007 MEDP Strategic Plan, there is considerable retail sales leakage of an estimated \$192 million annually throughout Yamhill County – as residents travel to other counties for a significant 23% of their shopping needs. Full recapture of this sales leakage together with anticipated population growth that was anticipated through 2011 was estimated to support as much as 800,000 square feet of added commercial retail space in Yamhill County. Recapture is dependent on the ability to identify sites and attract retailers that could serve much of the county’s population from locations readily accessible to major travel corridors.” (2013 EOA, Pg 32)
 - “...the ability to provide a full range of commercial services in McMinnville may reduce the need for out-shopping from this trade area – with area customers at present often traveling further to more distant destinations as in the Portland Tri-County or Salem area.” 2013 EOA, pg. 71.
 - Retail leakage, and related suitability considerations are described in detail in the 3MLAP and 2020 EOA. These studies provide evidence in support of the Property’s suitability for commercial development, particularly retail leakage:
 - “Retail prospects are relatively strong for certain retail sectors, despite relatively weak market conditions (including rent, vacancy, absorption, etc.). The Three Mile Lane study area likely checks off many site selection criteria and market characteristics typically desired by prospective retailers. While there are few retailers currently in the area, desired physical characteristics, such as visibility, vacant developable land, and ease of access are all present. Further, McMinnville’s central location between the Oregon Coast, the Portland Metro, and Salem provides access to a wide variety of markets. Significant household growth and the burgeoning tourism industry will continue to improve retail prospects.” 3MLAP, pg. 2.

- *3MLAP, Table ES-3 summarizes that the market area demand is for 539,200 sf of retail and estimates that the Three Mile Lane area will provide 150,000 sf of that demand, noting “the study area is well-position for new retail development, particularly large-format retail. Neighborhood-serving retail may be a mid-to long-term aspiration when additional residential construction occurs.” However, the plan emphasizes that “it is important to note that these numbers are not specific recommendations; rather they simply provide an indication of the potential program mix based on market strength. Changes to the mix and specific numbers are anticipated with changes to the zoning, land supply, and public interventions, among other market disrupters.” 3MLPA, 4.*
- *The 2020 EOA refers back to the 3MLAP and retail leakage to conclude “an additional 539,000 square feet of retail development in the McMinnville market area over the coming decade, with 150,000 square feet (or about 28%) being captured in the Three Mile Lane area.” 2020 EOA, pg. 47.*
- *“transportation access” (2013 EOA, pg. 57)*
 - *The Property’s frontage on and access to Highway 18 is an important site characteristic that contributes to its suitability for commercial development, particularly retail leakage. The 2013 EOA notes that traffic patterns are “of particular importance for retail and service businesses” which are “reliant on high traffic counts,” and that trends show increasing traffic counts on Highway 18, shifting away from Highway 99W. 2013 EOA, 33.*
 - *The 2013 EOA concludes that “recapture [of retail sales leakage] is dependent on the ability to identify sites that attract retailers that could serve much of the county’s population from locations readily accessible to major travel corridors.” 2013 EOA, pg. 32.*
 - *Moreover, “sites in the McMinnville UGB offer the potential to serve a local and regional market...Centrally located [within the County] with good highway access and street visibility can be instrument to attract commercial business that may require market area of 50,000-100,000+ population.” 2013 EOA, pg. 32.*
 - *The 3MLAP provide additional evidentiary support for the Property’s suitability for retail development, based upon its frontage on and access to Highway 18 when the plan concludes:*

“The Three Mile Lane project area is relatively well-positioned for retail development due to high visibility, ease of access, high traffic counts along Highway 18, and there are few alternative urban areas between McMinnville and the coast, providing opportunities to capture spending from those visiting the Oregon coast.

“Additionally, as one of the few locations in the market area with large, contiguous, vacant tracts of land within city limits, Three Mile Lane should be able to capture a significant portion of market area demand over the next 10 years.” 3MLAP, pg. 51-52.

- *“compatibility with neighboring uses” (2013 EOA, pg. 57)*
 - *The only existing neighboring uses south of Highway 18 are the Jackson Family Winery and the US Army National Guard Armory and Recruiting Office, which are located on M-2 and M-1 land east of the Property, farming activity on the M-L zoned land to the west, and farming activity on the land zoned M-2 to the south. Given the width of Highway 18, land north of the highway is not “neighboring” the Property. Nevertheless, the uses north and north east of the Property include a senior housing development and single family development (R1 and R-4 zoning) and to the northwest is the Evergreen Aviation & Space Museum (C-3PD zoning).*
 - *The 2013 EOA supports the conclusion that industrial and commercial zoning are compatible with one another, and suggest that a new hybrid industrial-commercial zoning designation could be appropriate for areas transitioning from industrial to commercial. 2013 EOA, pg. 57.*
 - *For the development of larger scale retail like the Project is expected to include, the Property’s location is superior to other potential properties because of the minimal impact on surrounding neighborhoods. The only potential offsite impact is traffic. As detailed in the TIA, rezoning the Property would allow for the scale of retail development associated with capturing retail leakage with minor upgrades to surrounding streets and a new intersection. There would minimal impacts to the overall urban fabric of the more established and densely developed areas of McMinnville. In comparison, any proposed development at the intersection of SH-18 and SH-99W (Linfield Property) would raise serious traffic infrastructure problems if it is to be developed with intense retail uses. This would include reconstruction of the Old Sheridan Road intersection and a reconfiguration and widening of the interchange between the two state highways. In that immediate vicinity, SH 99W is an interior arterial in McMinnville, and the regional traffic generated by major retail at this location would be disruptive to the internal city traffic patterns and the McMinnville “feel.”*

- *The Property is within the City’s Three Mile Lane Plan area updating 1981 Three Mile Lane Overlay District (amended in 1994) and the 1996 Highway 18 Corridor Refinement Plan. The area contains approximately 1,340 acres of land with a variety of existing land uses and several large vacant parcels. Though the timeline for the adoption of this plan is unknown, the current draft “includes a significant retail center south of Three Mile Lane at Cumulus Avenue. This could take the form of a large-format retail anchor that would take advantage of traffic on OR SH 18 with additional smaller retail uses. While serving as a regional retail attractor, it would also function as an important local amenity, providing convenient access to shopping and services for adjacent office and residential development.” (3MLAP Memorandum 6, pg 10-13)*
 - *“infrastructure capacity” (2013 EOA, pg. 57)*
 - *The 2013 EOA, pg. 66, notes that “as a general condition, no major deficiencies have been identified through this EOA update process to date with respect to adequacy of public transportation and utility facilities to serve vacant and underutilized commercial and industrial properties.”*
 - *The TIA concludes that with required improvements to occur at the time of development, the proposed rezone results in no significant impacts.*
 - *As noted above in the “compatibly with neighboring uses” section, the Property is more suitable for commercial development than some existing C-3 zoned parcels because of the lack of negative impact that the Property’s traffic mitigation measures will have to the vicinity.*
 - *“site size distribution” (2013 EOA, pg. 57)*
 - *The 2013 EOA, pg. 61 notes that the commercial lands shortfalls “can be expected across a wide range of parcel sizes.”*
 - *The average parcel size of the 131 acres of commercially designated land studied in the 2013 EOA is about 2 acres, and Figure 27 indicates there is one vacant commercially designated parcels that is 11 acres, and 2 over 20 acres. 2013 EOA.*
 - *The limited supply of large, buildable, commercially designated vacant land is confirmed by the 2020 EOA, which notes that 27 acres (approximately 30% of the buildable commercial land) is subject to the Evergreen Aviation & Space Museum Planned Development, which limits uses to tourism-related uses consistent with the master plan. 2020 EOA, pg. 72. 2020 EOA, Exhibit 39 shows that there are zero vacant or partially vacant C-3 lots, and a single 12.1 acre partially vacant C-3 lot.*

- *The 2020 EOA notes that the deficit of needed site sizes for commercial land is for sites between 0.5 and 5 acres, as well as between 10 and 20 acres. 2020 EOA, pg. 102 and Exhibit 57. The Property's two parcels are approximately 25.3 acres and 5.25 acres.*

Because Kimco's application will convert over two acres of industrial land to a non-industrial use, the application must comply with one of the alternatives in OAR 660-009-0010(4), which provides:

Section 4 - OAR 660-009-0010(4): For a post-acknowledgement plan amendment under OAR chapter 660, division 18, that changes the plan designation of land in excess of two acres within an existing urban growth boundary from an industrial use designation to a non-industrial use designation, or another employment use designation to any other use designation, a city or county must address all applicable planning requirements, and:

(a) Demonstrate that the proposed amendment is consistent with its most recent economic opportunities analysis and the parts of its acknowledged comprehensive plan which address the requirements of this division; or

(b) Amend its comprehensive plan to incorporate the proposed amendment, consistent with the requirements of this division; or

(c) Adopt a combination of the above, consistent with the requirements of this division

- **Applicant Response:** *The 2013 EOA determined that the City has a deficit of 35.8 acres of commercial land and a surplus of 235.9 acres of industrial land and concludes that excess industrial land should be converted to commercial land to address the unfulfilled need. 2013 EOA, pg 56, Table 26. These findings detail how the proposal to convert 33.5 acres of industrial land to commercial land is consistent with the 2013 EOA and comprehensive plan. When the application is approved, the City will be closer to accommodating the commercial land need, and the supply of industrial land will remain adequate because it will continue to be in excess of (but closer to) the adopted industrial land need. Additionally, Figure 27 of the 2013 EOA indicates that there are 5 industrial parcels that are 20+ acres in size, so the City will continue to have an adequate supply of larger industrial parcels.*

B. Goal 12: Transportation

Goal 12 is intended to “provide and encourage a safe, convenient and economic transportation system.” See www.oregon.gov/LCD/docs/goals/goal12.pdf). Goal 12 is implemented by the administrative rules in OAR chapter 660, division 12, which is known as the “Transportation Planning Rule” or “TPR.”

<https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=3062>

- **Applicant Response:** *Kittelson & Associates Transportation Impact Analysis (TIA) includes detailed findings in response to the TPR, which are incorporated herein.*

3. McMinnville Comprehensive Plan (Volume 2: Goals and Policies)

Chapter IV: Economy of McMinnville

Goal IV 1: To encourage the continued growth and diversification of McMinnville's economy in order to enhance the general well-being of the community and provide employment opportunities for its citizens.

Goal IV 2: To encourage the continued growth of McMinnville as the commercial center of Yamhill County in order to provide employment opportunities, goods, and services for the city and county residents.

Policy 21.00: Commercial uses and services which are not presently available to McMinnville residents will be encouraged to locate in the City. Such uses shall locate according to the goals and policies in the comprehensive plan.

- **Applicant Response:** *The 2013 EOA's conclusion about retail leakage, which is supported by the 2020 EOA and 3MLAP, is quoted above. The application summary findings in the "Property Description" and Project Background" sections and these findings describe the Property's suitability for capturing retail leakage and accommodate population-growth related retail demand. The proposed rezone will allow (upon subsequent land use reviews) which are not presently available or are underserved, to locate on the Property.*

Policy 21.01: The City shall periodically update its economic opportunities analysis to ensure that it has within its urban growth boundary (UGB) a 20-year supply of lands designated for commercial and industrial uses. The City shall provide an adequate number of suitable, serviceable sites in appropriate locations within its UGB. If it should find that it does not have an adequate supply of lands designated for commercial or industrial use it shall take corrective actions which may include, but are not limited to, re-designation of lands for such purposes, or amending the UGB to include lands appropriate for industrial or commercial use.

- **Applicant Response:** *In support of the requested land use change designation, the adopted 2013 EOA stated:*

"As with the prior 2001/03 EOA projections, an anticipated surplus is indicated for industrial lands versus a shortfall associated with commercial lands:

- *Commercial land demand is expected to exceed supply – resulting in a forecast shortfall of an estimated 36 acres through 2033.*

- *Industrial land demand is anticipated to come in well under the BLI supply – resulting in a surplus forecast at close to 236 acres over the 20-year planning horizon.*

In summary, this (2013) EOA update indicates that industrial land needs can be more than amply met over the next 20 years while commercial land supply will fall short of meeting anticipated demand.” (2013 EOA, Pg 56)

The proposal to rezone 33.5 excess industrial acres to commercial is consistent with Policy 21.01 and the 2013 EOA. The Property is suitable for commercial zoning, as described in the “Suitability of the Property for Conversion from Industrial to Commercial” section of the application findings and detailed throughout these findings, the Property includes site characteristics which are conducive to capturing retail leakage and accommodating population growth-related retail, such as visibility from and access to Highway 18 and proximity to retail leakage markets.

Policy 21.03: The City shall support existing businesses and industries and the establishment of locally owned, managed, or controlled small businesses.

- **Applicant Response:** *The 2013 EOA indicates that there will be an annual leakage of \$192 million in consumer spending in Yamhill County to areas outside its boundaries (Pg 32) along with a shortfall of 36 commercially designated acres through 2033 (Pg 56). Furthermore, the 2013 EOA states local businesses suffer from “Limited duration of tourism visitation & low expenditure capture. While the McMinnville area and Yamhill County can now boast some of the state’s top tourism attractions, visitor spending does not appear to match visitation. This is because visitors tend not to stay overnight (but are often day visitors) and do not appear to be making substantial expenditures while in the area. A key challenge for the future is to provide more and better value-added opportunities for visitors to spend more time and money while visiting the McMinnville area.” (2013 EOA Pg 32-33)*

The Property is suitable for capturing retail leakage documented in the 2013 EOA and further supported by the 2020 EOA and 3MLAP, as quoted above. Because the leakage sales are not being met in the market, existing businesses do not rely upon those sales, which means that satisfying the leakage will not impact existing business. Instead, existing businesses could be supported by retail development of the Property because consumers will stay within and be drawn to the market area.

Policy 21.05: Commercial uses and services which are not presently available to McMinnville residents will be encouraged to locate in the city. Such uses shall locate according to the goals and policies in the comprehensive plan

- **Applicant Response:** *See response to Policy 21.00.*

Goal IV 3: To ensure commercial development that maximizes efficiency of land use through utilization of existing commercially designated lands, through appropriately locating future commercial lands, and discouraging strip development.

- **Applicant Response:** *The 2013 EOA concluded that utilizing existing commercially designated lands are not sufficient to accommodate the demonstrated commercial land need, and that re-designating excess industrial land is the solution.*

No specific development is proposed with this application. Once a formal project application is submitted to the City, the requested Planned Development overlay designation means that the development will be subject to the Planned Development Ordinance. The project application will be open to public comment, be reviewed by the Planning Commission, and approved at the discretion of the City Council. The project layout and design elements shall be assessed at that time.

General Policies:

Policy 22.00: The maximum and most efficient use of existing commercially designated lands will be encouraged as will the revitalization and reuse of existing commercial properties.

- **Applicant Response:** *The types of retail that is leaking from the City requires parcels that range from 5 to 20+ acres. The City's inventory of vacant and partially vacant commercially designated properties in that size range are very limited: the 2013 EOA, Figure 27 indicates there is one vacant commercially designated parcels that is 11 acres, and 2 over 20 acres, one of which is the Evergreen Aviation & Space Museum, which is encumbered with a tourism-related PUD; 2020 EOA, Exhibit 39 shows that there are zero vacant or partially vacant C-3 lot. This lack of inventory led the s, and a single 12.1 acre partially vacant C-3 lot the 2013 EOA concluded that utilizing existing commercially designated lands was not sufficient to accommodate the demonstrated commercial land need, and that re-designating excess industrial land is the solution. Therefore, the ability of existing commercial lands to be revitalized and reused will not be impacted by this amendment, because the needed retail uses that will be facilitated by this amendment cannot be accommodated on existing commercially zoned parcels.*

Policy 24.00: The cluster development of commercial uses shall be encouraged rather than auto-oriented strip development.

- **Applicant Response:** *No specific development is proposed with this application. Once a formal project application is submitted to the City, pursuant to the requested Planned Development overlay, it will be subject to the Planned Development Ordinance which will discourage auto-oriented strip development. The project application will be open to public*

comment, be reviewed by the Planning Commission, and approved at the discretion of the City Council. The project layout and design elements shall be assessed at that time.

Locational Policies:

Policy 24.50: The location, type, and amount of commercial activity within the urban growth boundary shall be based on community needs as identified in the Economic Opportunities Analysis.

Applicant Response: *The 2013 EOA identified a deficit of at least 36 acres of commercial land, which should be accommodated by redesignating excess industrial land. The 2013 EOA Conversion Suitability Factors (detailed above), as well as the 3MLAP and 2020 EOA, support the conclusion that the Property is suitable to accommodate retail leakage and growth-related retail uses. Among the Property's key site characteristics are site size, proximity to retail leakage markets, and visibility and access to Highway 18.*

Policy 25.00 Commercial uses will be located in areas where conflicts with adjacent land uses can be minimized and where city services commensurate with the scale of development are or can be made available prior to development.

Applicant Response: *The only existing adjacent uses south of Highway 18 are the Jackson Family Winery and the US Army National Guard Armory and Recruiting Office, which are located on M-2 and M-1 land east of the Property, farming activity on the M-L zoned land to the west, and farming activity on the land zoned M-2 to the south. Given the width of Highway 18, land north of the highway is not "adjacent" to the Property. Nevertheless, the uses north and north east of the Property include a senior housing development and single family development (R1 and R-4 zoning) and to the northwest is the Evergreen Aviation & Space Museum (C-3PD zoning).*

The Property is within the City's Three Mile Lane Plan area updating 1981 Three Mile Lane Overlay District (amended in 1994) and the 1996 Highway 18 Corridor Refinement Plan. The area contains approximately 1,340 acres of land with a variety of existing land uses and several large vacant parcels. Though the timeline for the adoption of this plan is unknown, the current draft "includes a significant retail center south of Three Mile Lane at Cumulus Avenue. This could take the form of a large-format retail anchor that would take advantage of traffic on OR SH 18 with additional smaller retail uses. While serving as a regional retail attractor, it would also function as an important local amenity, providing convenient access to shopping and services for adjacent office and residential development." (3MLAP Memorandum 6, pg 10-13)

For the development of larger scale retail like the Project is expected to include, the Property's location is superior to other potential properties because of the minimal impact on surrounding neighborhoods. The only potential offsite impact is traffic. As detailed in the TIA, rezoning the Property would allow for the scale of retail development associated with

capturing retail leakage with minor upgrades to surrounding streets and a new intersection. There would minimal impacts to the overall urban fabric of the more established and densely developed areas of McMinnville. In comparison, any proposed development at the intersection of SH-18 and SH-99W (Linfield Property) would raise serious traffic infrastructure problems if it is to be developed with intense retail uses. This would include reconstruction of the Old Sheridan Road intersection and a reconfiguration and widening of the interchange between the two state highways. In that immediate vicinity, SH 99W is an interior arterial in McMinnville, and the regional traffic generated by major retail at this location would be disruptive to the internal city traffic patterns and the McMinnville “feel.”

Specifically for the Property, Kittelson & Associates, Inc. prepared a transportation impact analysis (TIA) and Transportation Planning Rule (TPR) analysis for the proposed project. (Attachment XX) The OR 18 corridor has the capacity to accommodate trips to the proposed site without widening to six (6) lanes. The traffic impact analysis (TIA) supports this finding and recommends some access modifications to existing roadways intersecting OR 18 to improve the safety and flow of traffic in the vicinity of the site with the proposed rezoning and subsequent commercial development. These modifications are consistent with the future improvements identified in the adopted 1996 McMinnville (OR-18) Corridor Refinement Plan.

No specific development is proposed with this application. Once a formal project application is submitted to the City, pursuant to the requested Planned Development overlay, it will be subject to the Planned Development Ordinance and Zoning Ordinance. The project application will be reviewed in a public process, which will address and minimize potential conflicts, if any, through revisions or conditions of approval, and any deficiencies in city services can be addressed through conditions of approval.

Policy 26.00: **The size of, scale of, and market for commercial uses shall guide their locations. Large-scale, regional shopping facilities, and heavy traffic-generating uses shall be located on arterials or in the central business district, and shall be located where sufficient land for internal traffic circulation systems is available (if warranted) and where adequate parking and service areas can be constructed.**

- **Applicant Response:** *As detailed in response to Policy 25.00 the Property is an appropriate location for commercial development. No specific development is proposed with this application. However, the type of retail that could be developed on the property that is intended to capture retail leakage would likely be considered large-scale or a regional shopping facility by Policy 26.00. The Property is a suitable location for these commercial uses based upon Policy 25.00's and 26.00's considerations. The Property is located on OR 18, which McMinnville's TSP classifies as a Major Arterial and a State Highway. The 33.5 acre Property is adequately sized to accommodate internal traffic circulation and parking. For example, the site plan at Exhibit XX includes an internal road system.*

Design Policies

Policy 29.00: New direct access to arterials by large-scale commercial developments shall be granted only after consideration is given to the land uses and traffic patterns in the area of development as well as at the specific site. Internal circulation roads, acceleration/deceleration lanes, common access collection points, signalization, and other traffic improvements shall be required wherever necessary, through the use of planned development overlays.

Policy 30.00: Access locations for commercial developments shall be placed so that excessive traffic will not be routed through residential neighborhoods and the traffic-carrying capacity of all adjacent streets will not be exceeded.

Policy 31.00: Commercial developments shall be designed in a manner which minimizes bicycle/pedestrian conflicts and provides pedestrian connections to adjacent residential development through pathways, grid street systems, or other appropriate mechanisms. (Ord.4796, October 14, 2003)

Policy 32.00: Where necessary, landscaping and/or other visual and sound barriers shall be required to screen commercial activities from residential areas.

Policy 33.00: Encourage efficient use of land for parking; small parking lots and/or parking lots that are broken up with landscaping and pervious surfaces for water quality filtration areas. Large parking lots shall be minimized where possible. All parking lots shall be interspersed with landscaping islands to provide a visual break and to provide energy savings by lowering the air temperature outside commercial structures on hot days, thereby lessening the need for inside cooling. (Ord.4796, October 14, 2003)

- **Applicant Response:** *No specific development is proposed with this application. Once a formal project application is submitted to the City, pursuant to the requested Planned Development overlay, it will be subject to the Planned Development Ordinance and Zoning Ordinance. The project application will be reviewed in a public process, which will address*

the Project's access, bicycle/pedestrian connections, landscaping/screening, parking, layout and design elements shall be assessed at that time.

Goal IV 4: To promote the downtown as a cultural, administrative, service, and retail center of McMinnville.

Downtown Development Policies

Policy 36.00: The City of McMinnville shall encourage a land use pattern that:

- 1. Integrates residential, commercial, and governmental activities in and around the core of the city;**
- 2. Provides expansion room for commercial establishments and allows dense residential development;**
- 3. Provides efficient use of land for adequate parking areas;**
- 4. Encourages vertical mixed commercial and residential uses; and,**
- 5. Provides for a safe and convenient auto-pedestrian traffic circulation pattern. (Ord.4796, October 14, 2003)**

- **Applicant Response:** *This application for designating additional land as "Commercial" in Comprehensive Plan under a C-3 zoning district would potentially permit additional retail development within the City that cannot be accommodated in the format of downtown merchant spaces. One fundamental goal of this land use change application is to maintain consumer spending within the City limits and will contribute to the overall vibrancy and well being of residents. Rather than cannibalizing retail dollars from the downtown district, alleviating the shortage of commercial acreage that is attributable to retail leakage could draw shoppers to McMinnville for a spectrum of needs that currently cannot be found within the City limits.*

Policy 41.00: The City of McMinnville shall encourage the expansion of retail and other commercial enterprises east of the railroad tracks and north and south of Third Street consistent with the adopted "Downtown Improvement Plan."

- **Applicant Response:** *The area included in the Downtown Improvement Plan adopted in 2000 focused on a targeted collection of parcels on the eastside of McMinnville's commercial business district. Despite this land being designated "Commercial" land use and within the C-3 zoning district, the 2013 EOA indicates there remains a shortage of available commercial acreage within the City limits. The proposed amendment is targeted at satisfying the existing land need, which includes retail leakage. The amendment has no impact on the development potential of the area east of the railroad tracks and north and south of Third Street.*

Policy 46.00: The City shall work to implement the recommendations of the adopted “McMinnville Downtown Improvement Plan.”

- **Applicant Response:** *The area included in the Downtown Improvement Plan adopted in 2000 focused on a targeted collection of parcels on the eastside of McMinnville’s commercial business district. Despite this land being designated “Commercial” land use and within the C-3 zoning district, the 2013 EOA indicates there remains a shortage of available commercial acreage within the City limits. The proposed amendment is targeted at satisfying the existing land need, which includes retail leakage. The amendment has no impact on the development potential of the McMinnville Downtown Improvement area.*

Proposals

Policy 6.00: A planned development overlay should be placed on the large cluster commercial development areas and the entrances to the City to allow for review of site design, on-site and off-site circulation, parking, and landscaping. The areas to be overlaid by this designation shall be noted on the zoning map and/or comprehensive plan map.

- **Applicant Response:** *The application requests a Planned Development overlay, consistent with Policy 6.00. No specific development is proposed with this application. Once a formal project application is submitted to the City, pursuant to the requested Planned Development overlay, it will be subject to the Planned Development Ordinance and Zoning Ordinance. The project application will be reviewed in a public process, which will address the Project’s site design, on-site and off-site circulation, parking, and landscaping, shall be assessed at that time.*

Policy 8.00: The City of McMinnville should encourage the development of a commercial planned development center in the southwestern portion of the city large enough in scale to serve the needs of the area’s population. The center should be in proximity of the intersection of Old Sheridan Road, U.S. Highway 99W, and Oregon Highway 18.

- **Applicant Response:** *This area is already zoned C-3, which allows large scale commercial development, and is currently undeveloped. The 2013 EOA included this area as a part of the City’s inventory of available commercial land and concluded that there is nevertheless a 35.8 acre deficit. The proposed amendment is targeted at satisfying the existing land need, which includes retail leakage. The amendment has no impact on the development potential of the southwestern portion of the city.*

Industrial Development

Goal IV 5: To continue the growth and diversification of McMinnville’s industrial base through the provision of an adequate amount of properly designated lands.

- **Applicant Response:** *In support of the requested land use change designation, the adopted 2013 EOA stated:*

“As with the prior 2001/03 EOA projections, an anticipated surplus is indicated for industrial lands versus a shortfall associated with commercial lands:

- *Commercial land demand is expected to exceed supply – resulting in a forecast shortfall of an estimated 36 acres through 2033.*
- *Industrial land demand is anticipated to come in well under the BLI supply – resulting in a surplus forecast at close to 236 acres over the 20-year planning horizon.*

In summary, this (2013) EOA update indicates that industrial land needs can be more than amply met over the next 20 years while commercial land supply will fall short of meeting anticipated demand.” (2013 EOA, Pg 56). Figure 27 of the 2013 EOA indicates that there are 5 industrial parcels that are 20+ acres in size, so the City will continue to have an adequate supply of larger industrial parcels if the Property is converted from Industrial to Commercial.

Goal IV 6: To ensure industrial development that maximizes efficiency of land uses, that is appropriately located in relation to surrounding land uses, and that meets necessary environmental standards.

Locational Policies

Policy 49.00: The City of McMinnville shall use its zoning and other regulatory methods to prevent encroachment into industrial areas by incompatible land uses.

- **Applicant Response:** *The 2013 EOA concluded that there is an excess amount of industrial land. Converting some of that surplus land to commercial will have no impact on the uses permitted in the remaining industrial land. Further, 3MLP that is currently moving through the community and legislative review process recommends a mix of commercial and industrial uses within this area, specifically focusing commercial districts along the OR-18 frontage.*

Policy 49.01: The City shall designate an adequate supply of suitable sites to meet identified needs for a variety of different parcel sizes at locations which have direct access to an arterial or collector street without having to pass through residential neighborhoods.

Policy 49.02: The location, type, and amount of industrial activity within the Urban Growth Boundary shall be based on community needs as identified in the Economic Opportunities Analysis.

Policy 50.00: The City of McMinnville shall encourage industrial uses to locate adjacent to the airport and south of Three Mile Lane, adjacent to the existing Riverside Drive industrial area, and in existing industrial areas through proper designation of lands on the comprehensive plan and zoning maps. Comprehensive plan and/or zoning map changes to industrial designations in other areas may be granted if all the applicable goals and policies of the plan can be met.

- **Applicant Response:** Policies 49.01, 49.02 and 50.00 are directed at the suitability of sites for industrial development. The 2013 EOA has “recommended to better match the commercial inventory to current and anticipated needs include re-designating a portion of the excess industrial inventory to commercial use including focus on needs for commercial sites across a range of size classes, increasing emphasis on redevelopment and density of development, and greater flexibility of use for mixed commercial/industrial areas. Also needed may be parcelization of some larger 20+ acre industrial sites for which there is no readily apparent demand to meet demonstrated needs for smaller industrial sites, especially in the 1-9- acre size ranges.” (2013 EOA, Pg 67).

The 2013 EOA Conversion Suitability Factors (detailed above) confirm that the Property has site characteristics that are more appropriate for commercial development than industrial development. Redesignating the Property from Industrial to Commercial will not impact the adequacy of the supply of suitable industrial sites; the City will continue to have a surplus of over 200 acres of industrial land, including four parcels that are 20+ acres. 2013 EOA, Figure 27.

The Property is within the City’s Three Mile Lane Plan area updating 1981 Three Mile Lane Overlay District (amended in 1994) and the 1996 Highway 18 Corridor Refinement Plan. The area contains approximately 1,340 acres of land with a variety of existing land uses and several large vacant parcels. Though the timeline for the adoption of this plan is unknown, the current draft “includes a significant retail center south of Three Mile Lane at Cumulus Avenue. This could take the form of a large-format retail anchor that would take advantage of traffic on OR SH 18 with additional smaller retail uses. While serving as a regional retail attractor, it would also function as an important local amenity, providing convenient access to shopping and services for adjacent office and residential development.” (3MLAP Memorandum 6, pg 10-13)

Policy 51.00: The City of McMinnville shall encourage the location of airport-related industrial uses only on the industrial land which is adjacent to the

airport. Those lands so reserved shall be designated in the planned development overlay covering this area.

- **Applicant Response:** *The Property is near the airport, but does not abut it, and is separated from the airport by a public park (Galen McBee Airport Park), the South Yamhill River, a military base and the Jackson Family Winery. The portion of the Property closest to the airport is the southerly 52.5 acres that will retain an Industrial land use designation.*

Policy 52.00: **The City of McMinnville shall create a new "limited light industrial" zone which shall be placed on the industrial areas on the south side of Three Mile Lane in those areas where residential development is expected on the north side of the road. The new zone will allow only those types of industrial uses that will not conflict with the residential uses.**

- **Applicant Response:** *Policy 52.00 is directed at the City pursuing a legislatively created new zoning designation. Policy 52.00 reflects the City's desire to minimize conflicts with residential uses north of Three Mile Lane. As detailed elsewhere in these findings, the uses allowed by the proposed C-3PD designation are more compatible with residential uses than those uses permitted allowed by the current M-3 zoning, which is consistent with Policy 52.00. Further, the City is in the process of re-evaluating the Three Mile Lane Area through the 3MLAP. That city-led long range planning process is the forum for addressing Policy 52.00.*

Chapter VI: Transportation System

Air

Policies:

Policy 115.00: **The City of McMinnville shall encourage the development of compatible land uses in the vicinity of the airport as identified in current and future airport and comprehensive plans**

- **Applicant Response:** *The Property is within .5 miles of the McMinnville Municipal Airport. While the Airport Layout Plan completed in 2004 discourages the expansion of residential use near the airport and encourages agricultural and manufacturing areas, it does not explicitly address commercial use (McMinnville Municipal Airport Layout Plan Study – December 2004, 1-9). The request to add a commercial element through the land use designation and zoning change would not run incongruent to the future sustainability and potential expansion of the airport.*

Streets

Policies:

Policy 119.00 The City of McMinnville shall encourage utilization of existing transportation corridors, wherever possible, before committing new lands.

- **Applicant Response:** *The OR 18 corridor has the capacity to accommodate trips to the proposed site without widening to six (6) lanes. The traffic impact analysis (TIA) supports this finding and recommends some access modifications to existing roadways intersecting OR 18 to improve the safety and flow of traffic in the vicinity of the site with the proposed rezoning and subsequent commercial development. These modifications are consistent with the future improvements identified in the adopted 1996 McMinnville (OR-18) Corridor Refinement Plan.*

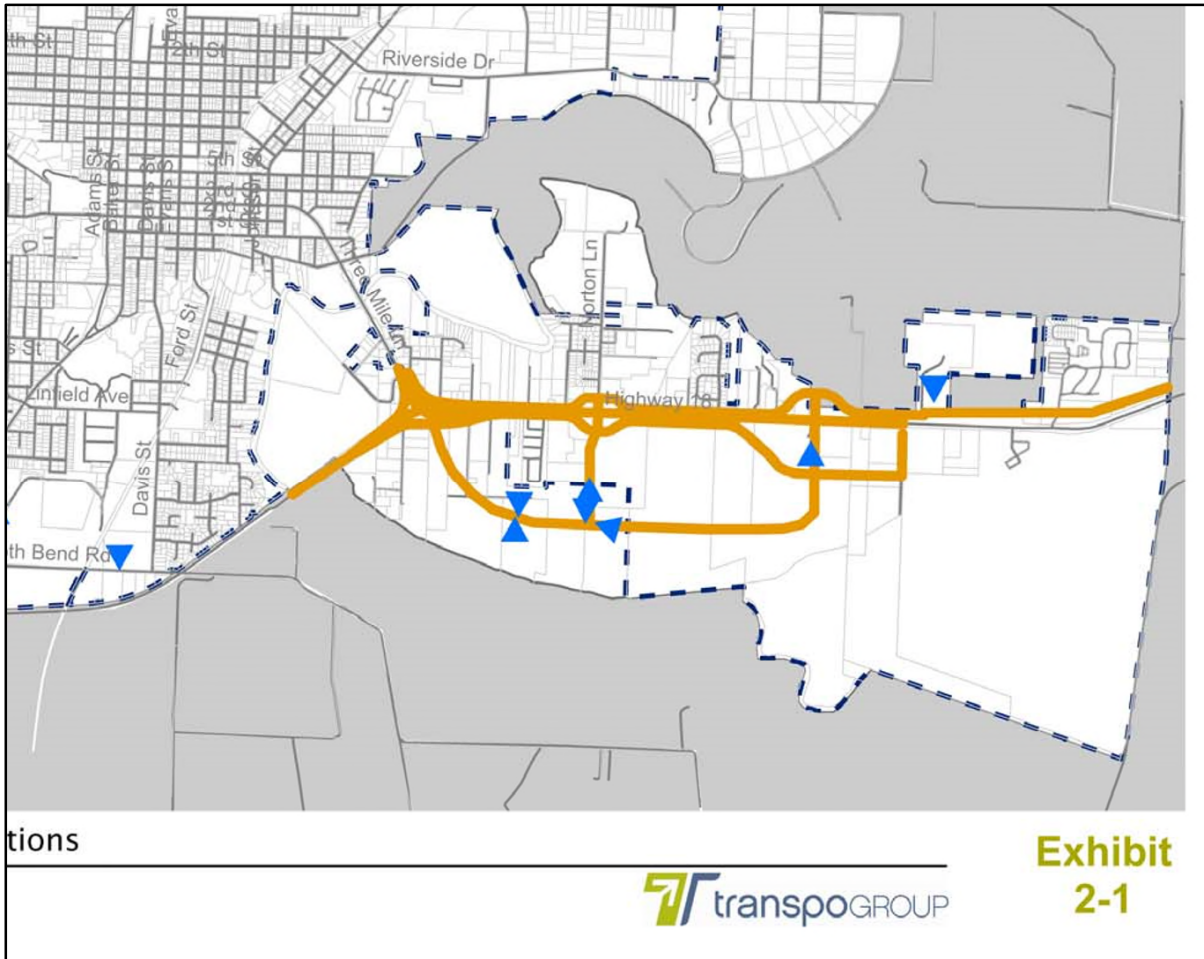
Policy 123.00: The City of McMinnville shall cooperate with other governmental agencies and private interest to insure the proper development and maintenance of the road network within the urban growth boundary.

- **Applicant Response:** *Kittelson & Associates, Inc. prepared a transportation impact analysis (TIA) and Transportation Planning Rule (TPR) analysis for the proposed project. The scope, methodology, findings and recommendations have been coordinated with the City of McMinnville and the Oregon Department of Transportation (ODOT). In addition, at the time development is proposed on the Property in the future, the City of McMinnville will notice the ODOT, surrounding project owners, and the city at-large, issue a staff report and conduct planning commission and city council hearings to assess that proper development and maintenance of the road network is ensured.*

Connectivity and Circulation

Policy 132.26.05: New street connections, complete with appropriately planned pedestrian and bicycle features, shall be incorporated in all new developments consistent with the Local Street Connectivity map.

- **Applicant Response:** *The Local Street Connectivity (Exhibit 2-1 of the TSP) map identifies future east/west frontage road and back road connections south of OR 18, as shown in the figure below. The subsequent development of the Property under the proposed zoning will require the development of collector streets consistent with the transportation system plan and McMinnville (OR-18) Corridor Refinement Plan which require sidewalks and bicycle lane. The proposed development plan will need to show these connections as well as how pedestrians and bicyclists access the buildings on-site.*



Supportive of General Land Use Plan Designations and Development Patterns

Policy 132.27.00: The provision of transportation facilities and services shall reflect and support the land use designations and development patterns identified in the McMinnville Comprehensive Plan. The design and implementation of transportation facilities and services shall be based on serving current and future travel demand—both short-term and long-term planned uses.

- **Applicant Response:** *The TIA provided a short-term (2022) and long-term (2037) operational analysis of the roadway network surrounding the site, finding that the proposed rezone can be approved assuming implementation of the recommended mitigation measures. With the proposed improvements, the proposed rezone results in no significant impacts under Oregon Administrative Rule (OAR) 660-012-0060. Additionally, the proposed transportation facility modifications are consistent with the future improvements identified in the adopted 1996 McMinnville (OR-18) Corridor Refinement Plan. Development will include construction of the collector streets identified in the TSP Exhibit 2-1 (frontage and back roads). As part of the design of these roadways, sidewalks and bicycle lanes will be provided.*

Growth Management

Policy 132.40.00: Mobility standards will be used to evaluate the transportation impacts of long-term growth. The City should adopt the intersection mobility standards as noted in Chapter 2 of the Transportation System Plan.

- **Applicant Response:** *The TIA study intersections within the City's jurisdiction and ODOT's jurisdiction and applied each jurisdiction's applicable mobility standard as a basis for recommending mitigation measures. See, for example, TIA Table 2 and 18.*

McMinnville TSP Implementation

Policy 132.62.00: (TSP as Legal Basis) The City of McMinnville shall use the McMinnville TSP as the legal basis and policy foundation for actions by decision-makers, advisory bodies, staff, and citizens in transportation issues. The goals, objectives, policies, implementation strategies, principles, maps, and recommended projects shall be considered in all decision-making processes that impact or are impacted by the transportation system.

- **Applicant Response:** *The proposed rezone and subsequent development of the subject property is consistent with the goals, objectives, policies, implementation strategies, principles, maps, and recommended projects within the McMinnville TSP as shown below:*

Goal: To encourage development of a transportation system that provides for the coordinated movement of people and freight in a safe and efficient manner.

The proposed rezone and subsequent commercial development work in the direction of achieving this goal by providing intersection improvements to increase the safety and traffic flow of the surrounding roadway network for all users. The proposed modifications are consistent with the implementation strategies (McMinnville (OR-18) Corridor Refinement Plan) as shown in Exhibit 4-6 (Projects and Programs) in the TSP, as well as the Street System, Pedestrian, Bicycle, Public Transportation, Freight, Rail, Air and Pipeline Plan maps set forth in the TSP.

Policies:

1. Transportation System Plan

The proposed site plan will be developed consistent with the Street System, Pedestrian, Bicycle, Public Transportation, Freight, Rail, Air and Pipeline Plans set forth in the TSP. The proposed rezoning and subsequent commercial development will fund transportation improvements which will work toward implementing the TSP.

2. Complete Streets

The traffic signals and intersection improvements identified in the TIA will be designed and constructed in compliance with the Americans with Disabilities (ADA) guidelines. Site development will aim to create a pedestrian and bicycle friendly environment.

3. Multi-Modal Transportation System

The site plan review process will ensure that the proposed site is consistent with the Local Street Connectivity map and provides connections for pedestrians and bicycles.

4. Connectivity and Circulation

The Local Street Connectivity map identifies a future east/west connection south of OR 18. The site plan will be developed consistent with this plan and providing this connection. Pedestrian and bicycle facilities will be provided as appropriate for each roadway classification. Site development will preserve right-of-way for design of a future interchange at OR 18 and Cumulus Avenue.

5. Supportive of General Land Use Plan Designations and Development Patterns

The TIA provided a short-term (2022) and long-term (2037) operational analysis of the roadway network surrounding the site, finding that the proposed rezone can be approved assuming implementation of the recommended mitigation measures. With the proposed improvements, the proposed rezone results in no significant impacts under Oregon Administrative Rule (OAR) 660-012-0060. Additionally, the proposed modifications are consistent with the future improvements identified in the adopted 1996 McMinnville (OR-18) Corridor Refinement Plan.

6. Regional Mobility

The location of the proposed site along OR 18 provides ease of access to regional centers such as downtown McMinnville, Lafayette, and Newberg. It is also anticipated that some people will stop at the site on their way to or from the coast. In addition, the proposed uses may reduce regional transportation demand by capturing existing trips that travel to the greater Portland and Salem area for these uses today.

7. Growth Management

The proposed rezone meets the needs of the surrounding community. A recent market study indicated an over-abundance of industrial land and high demand for commercial uses in the area. Additionally, the improvements recommended in the TIA bring local intersections (some of which do not meet level of service standards under existing conditions) up to standard. The proposed uses may also reduce regional transportation demand by capturing existing trips that travel to the greater Portland and Salem area for these uses today.

8. Transportation System and Energy Efficiency

The location of the proposed site along OR 18 provides opportunity for transportation system and energy efficiency with easy access to residents and employees of downtown McMinnville on their way to or from work, in some cases eliminating the need for out-of-direction travel. In addition, the proposed uses may also reduce regional transportation demand by capturing existing trips that travel to the greater Portland and Salem area for these uses today

9. Transportation Safety

The traffic impact analysis (TIA) recommends modifications to improve the safety of the OR 18 corridor and other intersections within the study area.

10. Public Safety

The site plan review process will ensure that emergency vehicle access is provided on the proposed site. In addition, the safety improvements identified in the TIA should result in crash reductions as a number of intersections within the study area.

11. Accessibility for Persons with Disabilities

On-site connections, as well as traffic signal and intersection improvements identified in the TIA, will be designed and constructed in compliance with the Americans with Disabilities (ADA) guidelines.

12. Economic Development

The proposed rezone meets the needs of the surrounding community. A recent market study indicated an over-abundance of industrial land and high demand for commercial uses in the area.

13. Livability

The site plan review process will incorporate multi-modal facilities to increase the livability of the greater McMinnville area.

14. Health and Welfare

The proposed site will be accessible via many modes of transportation, including transit and active transportation (by bicycle and by foot).

15. Transportation Sustainability

The location of the proposed site along OR 18 provides easy access to residents and employees of downtown McMinnville on their way to or from work, in some cases eliminating the need for out-of-direction travel. It is also anticipated that some people will stop at the site on their way to or from the coast. In addition, the proposed uses may also

reduce regional transportation demand by capturing existing trips that travel to the greater Portland and Salem area for these uses today. The traffic impact analysis (TIA) recommends some modifications to existing roadways intersecting OR 18 to improve the safety and flow of traffic in the vicinity of the site.

16. Aesthetics and Streetscaping

The site plan review process will incorporate aesthetics and streetscaping to enhance visitor experience and livability of the greater McMinnville area.

17. Intergovernmental Coordination and Consistency

Kittelson & Associates, Inc., prepared a transportation impact analysis (TIA) and Transportation Planning Rule (TPR) analysis for the proposed project. The methodology, findings and recommendations have been coordinated with the City of McMinnville and ODOT Region 2.

Chapter VII: Community Facilities and Services

Goal VII-1: *To provide necessary public and private facilities and utilities at levels commensurate with urban development, extended in a phased manner, and planned and provided in advance of or concurrent with development, in order to promote the orderly conversion of urbanizable and future urbanizable lands to urban lands within the McMinnville Urban Growth Boundary.*

- **Applicant Response:** *This Goal is targeted primarily at rural land that is included in the UGB and is transitioning to urbanizable and urban land, and directs the City to plan utilities for that transition. The Property is in the UGB, so this Goal is not applicable. Nevertheless, when development is proposed and evaluated through a public process in the future, the adequacy of public and private facilities for the development will be determined.*

Sanitary Sewer System

Policies:

Policy 138.00: **The City of McMinnville shall develop, or require development of, sewer system facilities capable of servicing the maximum levels of development envisioned in the McMinnville Comprehensive Plan**

- **Applicant Response:** *This Goal is targeted primarily at the City's facility planning. There are no known sanitary sewer deficiencies in the vicinity of the Property. No development is proposed as a part of this application. When development is proposed and evaluated through a public process in the future, the adequacy of sewer system facilities will be confirmed, and if necessary, conditions of approval will be imposed to address any deficiencies.*

Storm Drainage

Policies:

Policy 142.00: The City of McMinnville shall insure that adequate storm water drainage is provided in urban developments through review and approval of storm drainage systems, and through requirements for connection to the municipal storm drainage system, or to natural drainage ways, where required.

- **Applicant Response:** *No specific development is proposed with this application. Once a formal project application is submitted to the City, pursuant to the requested Planned Development overlay, it will be subject to the Planned Development Ordinance and Zoning Ordinance. The project application will be reviewed in a public process, which will address the Project's storm drainage shall be assessed at that time.*

Water and Sewer—Land Development Criteria

Policies

Policy 151.00: The City of McMinnville shall evaluate major land use decisions, including but not limited to urban growth boundary, comprehensive plan amendment, zone changes, and subdivisions using the criteria outlined below:

1. Sufficient municipal water system supply, storage and distribution facilities, as determined by McMinnville Water and Light, are available or can be made available, to fulfill peak demands and insure fire flow requirements and to meet emergency situation needs.
2. Sufficient municipal sewage system facilities, as determined by the City Public Works Department, are available, or can be made available, to collect, treat, and dispose of maximum flows of effluents.
3. Sufficient water and sewer system personnel and resources, as determined by McMinnville Water and Light and the City, respectively, are available, or can be made available, for the maintenance and operation of the water and sewer systems.
4. Federal, state, and local water and waste-water quality standards can be adhered to.
5. Applicable policies of McMinnville Water and Light and the City relating to water and sewer systems, respectively, are adhered to.

- **Applicant Response:** *There are no known water or sewage deficiencies in the vicinity of the Property. No development is proposed as a part of this application. When development is proposed and evaluated through a public process in the future, the adequacy of water and sewer system facilities will be confirmed, and if necessary, conditions of approval will be imposed to address any deficiencies.*

Police and Fire Protection

Policies

Policy 155.00: **The ability of existing police and fire facilities and services to meet the needs of new service areas and populations shall be a criterion used in evaluating annexations, subdivision proposals, and other major land use decisions.**

- **Applicant Response:** *There are no known police or fire facility or service deficiencies in the vicinity of the Property. No development is proposed as a part of this application. When development is proposed and evaluated through a public process in the future, the adequacy of these facilities and services will be confirmed, and if necessary, conditions of approval will be imposed to address any deficiencies.*

Chapter VIII Energy

Energy Conservation

Goal VIII 2: To conserve all forms of energy through utilization of land use planning tools.

- **Applicant Response:** *One of the fundamental policies backing the rationale for this land use change request is the consumer spending leakage highlighted in the 2013 EOA. By allowing more potential retail development within the City, residents will no longer be required to drive longer distances to destinations such as Salem or southwest Portland for their needs, which conserves energy.*

Policies

Policy 178.00: **The City of McMinnville shall encourage a compact urban development pattern to provide for conservation of all forms of energy.**

- **Applicant Response:** *Statewide Planning Goal 14 and its implementing statutes and rules require a jurisdiction to first determine whether an identified land need can be accommodated within the UGB prior to expanding the UGB to accommodate the need. The 2013 EOA demonstrates a need for retail and an excess of industrial land, and the proposed comp plan designation and zoning map amendments satisfy a portion of this need. Accommodating the identified land need within the UGB is consistent with Goal 14 and encourages a compact urban development pattern.*

Chapter IX: Urbanization

Goal IX 1: To provide adequate lands to service the needs of the projected population to the year 2023, and to ensure the conversion of these lands in an orderly, timely manner to urban uses.

- **Applicant Response:** *The 2013 EOA quantifies the industrial and commercial land needs for the projected population and concludes that there is a need for retail and an excess of industrial land. The proposed Comprehensive Plan land use designation and zoning map amendments accommodate a portion of the commercial land need. Converting excess industrial land to needed commercial land is consistent with Statewide Planning Goal 14 and its implementing statutes and rules, which require a jurisdiction to first determine whether an identified land need can be accommodated within the UGB prior to expanding the UGB to accommodate the need.*

Land Use Development Tools

Policies

Policy 186.00: The City of McMinnville shall place planned development overlays on areas of special significance identified in Volume I of the McMinnville Comprehensive Plan. Those overlays shall set forth the specific conditions for development of the affected properties. Areas of significance identified in the plan shall include but not be limited to:

1. Three Mile Lane (north and south).

- **Applicant Response:** *The application requests a Planned Development overlay, consistent with Policy 186.00.1. No specific development is proposed with this application. Once a formal project application is submitted to the City, pursuant to the requested Planned Development overlay, it will be subject to the Planned Development Ordinance and Zoning Ordinance. Those ordinances require specific conditions for development of the Property, and will be reviewed in a public process.*

Chapter X: Citizen Involvement and Plan Amendment

Goal X 2: To periodically review and amend the McMinnville Comprehensive Plan to reflect changes in community circumstances, in citizen desires, and in the statewide goals.

- **Applicant Response:** *This Goal obligates the City to periodically review its Comprehensive Plan, so is not applicable to this application. Nevertheless, the application is consistent with this Goal because the proposal to revise the comprehensive land use plan designation for the site is responsive to the oversupply of industrial and demand for retail as addressed in the 2013 EOA. While consistent with the Three Mile Line Area Plan currently moving through the*

legislative process, the timing on adoption of this larger policy document is unknown. The current application seeks to address the current deficit in available commercial land in a more directed and expedient manner.

4. McMinnville Zoning Ordinance

17.74.020 Comprehensive Plan Map Amendment and Zone Change - Review Criteria.

An amendment to the official zoning map may be authorized, provided that the proposal satisfies all relevant requirements of this ordinance, and also provided that the applicant demonstrates the following:

- A. The proposed amendment is consistent with the goals and policies of the Comprehensive Plan.**
 - **Applicant Response:** *The analysis provided in Section 3 of this attachment demonstrates the application's compliance with the City's Comprehensive Plan and other adopted policies.*

- B. The proposed amendment is orderly and timely, considering the pattern of development in the area, surrounding land uses, and any changes which may have occurred in the neighborhood or community to warrant the proposed amendment;**
 - **Applicant Response:** *Criterion B is supported by the 2013 EOA, which found that the City could benefit from a regional retail center, that recapture of retail sales leakage could be achieved by concentrating retail along major highways, and that excess industrial land should be re-designated to commercial use when opportunities arise. While consistent with the Three Mile Line Area Plan currently moving through the legislative process, the timing on adoption of this larger policy document is unknown. The current application seeks to address the current deficit in available commercial land in a more directed and expedient manner.*

- C. Utilities and services can be efficiently provided to serve the proposed uses or other potential uses in the proposed zoning district.**
 - **Applicant Response:** *There are no known utility or service deficiencies. No specific development is proposed with this application. Once a formal project application is submitted to the City, pursuant to the requested Planned Development overlay, it will be subject to the Planned Development Ordinance and Zoning Ordinance. The project application will be reviewed in a public process, which will demonstrate the improvements required for City utilities and services to efficiently serve the site.*

17.51 Planned Development Overlay:

17.51.010 Purpose

* * *

B. The Council, the Commission, or the property owner of a particular parcel may apply for a planned development designation to overlay an existing zone without submitting any development plans; however, no development of any kind may occur until a final plan has been submitted and approved. (The Planning Director shall note such properties and direct that no building permit be issued in respect thereto.)

1. A planned development overlay may be approved under these circumstances for a property which has unique characteristics (e.g., geological, ecological, location, or the nature of the surrounding property) and the development of which may have an impact upon the surrounding area or the city as a whole. A planned development overlay initiated by the Council or the Planning Commission shall address itself to the purposes set forth herein.

- **Applicant Response:** *Comprehensive Plan Policy 6.00 recommends placing a Planned Development overlay on large cluster commercial development areas, and other policies encourage heightened review of proposed development to ensure compatibility with nearby uses. These policies provide a basis for imposing a planned development overlay on the Property, which has the unique characteristics of accommodating needed retail uses to accommodate retail leakage and growth related demand.*

C. The Council and Planning Commission, with the assistance of the Planning Director, shall ensure that no planned development overlay granted under Section A or B above which is merely a guise to circumvent the intent of the zoning ordinance shall be approved. A denial of such a zone request based upon this principle shall be enunciated in the findings of fact adopted by the Planning Commission;

- **Applicant Response:** *No specific development is proposed at this time, so the requested Planned Development overlay is not an effort to circumvent the intent of the zoning ordinance. Instead, as noted above, the imposition of the Planned Development overlay is consistent with applicable Comprehensive Plan Policies.*

D. A planned development overlay shall be heard and approved under the public hearing procedures set forth in Chapter 17.72 (Applications and Review Process) of this ordinance. (A planned development overlay and change of the underlying zone may be processed simultaneously.)

- **Applicant Response:** *The Planned Development overlay request is being considered concurrent with the Comprehensive Plan designation and Zoning Map designating*

amendment requests, in compliance with the application and review processes in Chapter 17.72.

E. A planned development overlay proposed by the Council, the Planning Commission, or the property owner under subsection B above shall be subject to all of the hearing requirements again at such time as the final plans under Section 17.51.030 are submitted, unless those requirements have been specifically changed in the planned development approval;

- **Applicant Response:** *The property owner will comply with these requirements at the time final plans for development of the Property are submitted.*



MEMORANDUM

EXPIRES: 12/31/2021

Date: December 18, 2020

Project #: 24369

To: Jamie Fleckenstein, PLA, & Heather Richards, PCED, City of McMinnville
Dorothy Upton, PE, Keith Blair, PE, Dan Fricke, & Michael Duncan, ODOT Region 2

Cc: Michael Strahs, Kimco Realty & Alan Roodhouse, RPS Development Company

From: Kristine Connolly, PE, Marc Butorac, PE, PTOE, PMP & Alec Kauffman

Project: Three Mile Lane Rezone

Subject: Transportation Impact Analysis

Kimco McMinnville, LLC (Kimco) is proposing a rezone of approximately 33.5 acres of vacant land in McMinnville, Oregon. The proposed site is located on the southwest corner of OR-18 (Salmon River Highway) and NE Cumulus Avenue. The site is currently zoned M-2 (General Industrial). Kimco is proposing to rezone to C-3 (General Commercial). The site location and overall site vicinity are shown in Exhibit 1. This transportation impact analysis (TIA) report documents the transportation impacts associated with the rezone and a near-term reasonable worst-case development scenario under the proposed rezone. The TIA is intended to address City of McMinnville and Oregon Department of Transportation (ODOT) review criteria and evaluate compliance with the Transportation Planning Rule (TPR). The results of this study indicate that the proposed rezone can be approved assuming implementation of the identified mitigation measures that result in no significant impacts under Oregon Administrative Rule (OAR) 660-012-0060.

Exhibit 1. Site Vicinity and Proposed Study Intersections



SUMMARY OF FINDINGS

Year 2020 Existing Conditions

- Two of the nine study intersections were found to exceed the applicable review agency mobility targets:
 - NE Three Mile Lane/NE 1st Street
 - OR-18/SE Cruickshank Road
- The recent five-year crash history of one study intersection exceeds statewide 90th percentile crash rates:
 - OR-18/SE Cruickshank Road: This unsignalized intersection experienced a large proportion of angle crashes (approximately 80%) over the five-year review period, and approximately 70% of the reported crashes involved a vehicle making a northbound left-turn movement. This suggests a need to potentially restrict left-turns from SE Cruickshank Road onto OR-18 due to the insufficient number gaps in eastbound traffic.

Year 2022 Background Conditions

- The two study intersections that do not satisfy applicable mobility targets under existing conditions experience additional delay with background growth.

Proposed Development Plan

- The 33.5-acre site is currently zoned M-2 (General Industrial). Kimco is proposing to rezone to C-3 (General Commercial).
- Table 1 provides the trip generation estimates under the existing and proposed zoning:

Table 1. Trip Generation Potential Comparison – 33.5-acre Zone Change

Land Use	ITE Code	Size	Daily Trips	PM Peak Hour		
				Total	In	Out
Existing M-2 General Industrial Zone Reasonable Worst-Case Development Scenario						
Medical-Dental Office Building (10 acres at 25%)	720	108,900 SF	4,096	371	104	267
Industrial Park (23.5 acres at 40%)	130	409,464 SF	1,954	164	34	130
Net New Trips			6,050	535	138	397
Proposed C-3 General Commercial Zone Reasonable Worst-Case Development Scenario						
Shopping Center (33.5 acres at 25%) <i>Less Pass-by Trips (34%)</i>	820	364,815 SF	14,496 <i>(4,929)</i>	1,416 <i>(480)</i>	680 <i>(240)</i>	736 <i>(240)</i>
Net New Trips			9,567	936	440	496
Difference = Proposed – Existing			3,517	401	302	99

Year 2022 Total Conditions

- The two study intersections that do not satisfy applicable review agency mobility targets under 2022 background conditions experience additional delay with site development.
- Three additional intersections do not satisfy applicable mobility targets with the addition of site-generated trips:
 - NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
 - OR-18/SE Norton Lane
 - OR-18/NE Cumulus Avenue

Year 2037 Background Conditions (Without Proposed Zone Change)

- Assuming the recommendations to mitigate 2022 site impacts are in place, six of the nine study intersections were found to exceed the applicable review agency mobility targets in the planning horizon year 2037, which was selected to represent fifteen years after opening per guidance in the Oregon Highway Plan (OHP, Reference 1):
 - NE 3rd Street/NE Johnson Street
 - NE Three Mile Lane/NE 1st Street
 - NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
 - OR-18/SE Norton Lane
 - OR-18/NE Cumulus Avenue
 - OR-18/SE Loop Road

Year 2037 Total Conditions (With Proposed Zone Change)

- The six intersections that do not satisfy applicable review agency mobility targets under 2037 background conditions experience additional delay with site development, with the exception of the NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street intersection at which the shift in travel patterns associated with the zone change improve the operating capacity of the intersection.

RECOMMENDATIONS

The following mitigation measures are recommended for implementation in conjunction with the proposed development and to address impacts of the proposed zone change:

- NE Three Mile Lane/NE 1st Street
 - Install a traffic signal and restripe the west leg of the intersection to provide an exclusive right-turn lane with overlap phasing.
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
 - Restrict left-turns from the minor approaches onto Three Mile Lane (left-turns from Three Mile Lane can be maintained). Alternative access can be provided to the approximately ten homes south of Three Mile Lane via an improved connection to SE Mountain View Lane. North of Three Mile Lane, there is alternative access to OR-18 via SE Norton Lane.
- OR-18/SE Norton Lane
 - Optimize signal timing to provide additional time to eastbound and westbound through movements.
- OR-18/NE Cumulus Avenue
 - Modify the existing traffic signal and construct a 275-foot exclusive eastbound right-turn lane and 500-foot northbound left-turn lane (left-turns from NE Cumulus Avenue should have permitted/protected phasing). Optimize signal timing to provide additional time to eastbound and westbound through movements. Note that the addition of a second (dual) northbound left-turn lane at the OR-18/NE Cumulus Avenue would accommodate long-term traffic volumes at the intersection. However, it is not recommended at this time as the future improvements identified in the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) will likely eliminate the need for the lane via the construction of a future interchange.
- OR-18/SE Loop Road
 - Restrict southbound left-turns from SE Loop Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via SE Lafayette Highway.
- OR-18/SE Cruickshank Road
 - Restrict northbound left-turns from SE Cruickshank Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via the OR-99W/OR-18 interchange, SE Lafayette Highway, and/or the OR-221/OR-18 interchange.

The proposed rezone can be approved without creating significant impacts per OAR 660-012-0060 assuming these mitigation measures are implemented.

Regardless of the proposed rezone and subsequent development, the following intersections should continue to be monitored by the responsible agency and may require additional mitigation in future years based on Year 2037 conditions. While these locations are projected to require additional mitigation in the future as a function of continued local and regional growth, the proposed zone change has a negligible long-term impact on intersection operations:

- NE 3rd Street/NE Johnson Street
- NE Three Mile Lane/NE 1st Street
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
- OR-18/SE Norton Lane

Additional details of the study methodology, findings and recommendations are provided in the remaining sections of this report.

STUDY SCOPE & ANALYSIS METHODOLOGY

This section provides an overview of the TIA study scope, study intersections, traffic analysis time periods and scenarios, analysis methodology and applicable review agency mobility targets.

Study Scope

This study identifies the transportation-related impacts associated with the proposed rezone and was prepared in accordance with the City of McMinnville and Oregon Department of Transportation (ODOT) requirements. Details of the TIA assumptions and methodology are documented herein and reflect the outcome of the preliminary scoping meeting held with agency staff on March 19, 2020, and agency feedback on the preliminary scoping letter dated April 23, 2020.

Study Intersections

The study intersections are listed below and are identified by a numerical identification corresponding with the analysis figures in this report. Exhibit 1 illustrates the study intersection locations.

1. NE Three Mile Lane/NE 1st Street
2. NE 3rd Street/NE Johnson Street
3. NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
4. SE Norton Lane/NE Cumulus Avenue
5. OR-18/SE Norton Lane
6. OR-18/NE Cumulus Avenue
7. OR-18/SE Armory Way
8. OR-18/SE Loop Road
9. OR-18/SE Cruickshank Road

Traffic Analysis Time Periods and Scenarios

Based on historical traffic data, the weekday PM peak time period represents both the peak travel times along OR-18 and peak weekday commercial site traffic. Therefore, intersection operations were evaluated during the weekday afternoon peak hour occurring between 3:00 – 6:00 PM.

This report evaluates the following transportation scenarios:

- 2020 Existing traffic conditions;
- Forecast year 2022 background traffic conditions, without development of the subject site;
- Forecast year 2022 total traffic conditions with reasonable worst-case development of the subject site under the proposed commercial zoning;
- Horizon year 2037 background traffic conditions with development of the subject site under the existing industrial zoning; and,

- Horizon year 2037 total traffic conditions with reasonable worst-case development of the subject site under the proposed commercial zoning.

Year 2037 was selected as the planning horizon per guidance in the OHP (Reference 1), which states that the planning horizon shall be “the greater of 15 years or the planning horizon of the applicable local and regional transportation system plans for amendments to transportation plans, comprehensive plans or land use regulations.” The planning horizon of McMinnville’s currently adopted Transportation System Plan (TSP, Reference 3) is 2023.

Analysis Methodology

All intersection capacity analyses described in this report were performed in accordance with the procedures stated in the *Highway Capacity Manual, 6th Edition* (HCM, Reference 4) using PTV Vistro 2020 software in accordance with analysis guidance provided in the ODOT Analysis Procedures Manual (APM, Reference 5). Intersection V/C is the operational performance measures reported in this study. In Vistro, the shared lane volume-to-capacity (V/C) ratio is the sum of the reported V/C for each movement in the shared lane at unsignalized intersections. Overall intersection V/C is reported for signalized intersections.

To ensure that the analyses were based on a reasonable worst-case scenario, peak 15-minute flow rates were used in the evaluation of all intersection levels of service. For this reason, the analyses reflect conditions that are only likely to occur for 15 minutes out of each average peak hour.

Queueing analyses presented in this report reflect 95th percentile queues and were obtained from PTV Vistro 2020 software.

Performance Measures & Operating Standards

Study intersection operating standards adopted by the respective transportation review authorities for the facilities they operate and maintain are summarized below.

City of McMinnville Operating Standards

Four study intersections are within City of McMinnville jurisdiction (Intersections #1 through #4). According to the City’s TSP (Reference 3), a v/c ratio of 0.90 is the acceptable operating standard for these intersections.

ODOT Mobility Targets

The 1999 Oregon Highway Plan (OHP, Reference 1) defines ODOT v/c ratio mobility targets based on facility type. Mobility targets vary for intersections along OR-18 (Intersections #5 through #9).

Summary of Applicable Agency Operating Standards

Table 2 summarizes the operation standards and jurisdiction administering each study intersection.

Table 2. Study Intersection Mobility Targets

	Study Intersection	Traffic Control	Jurisdiction	Mobility Target (V/C) ¹
1	NE 3rd Street/NE Johnson Street	Signalized	City of McMinnville	0.90
2	NE Three Mile Lane/NE 1st Street	Two Way Stop Control	City of McMinnville	0.90
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	Two Way Stop Control	City of McMinnville	0.90
4	SE Norton Lane/NE Cumulus Avenue	Two Way Stop Control	City of McMinnville	0.90
5	OR-18/SE Norton Lane	Signalized	ODOT	0.80
6	OR-18/NE Cumulus Avenue	Signalized	ODOT	0.80
7	OR-18/SE Armory Way	Two Way Stop Control	ODOT	major approaches = 0.80 minor approaches = 0.95
8	OR-18/SE Loop Road	Two Way Stop Control	ODOT	major approaches = 0.80 minor approaches = 0.90
9	OR-18/SE Cruickshank Road	Two Way Stop Control	ODOT	major approaches = 0.70 minor approaches = 0.75

¹Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

EXISTING CONDITIONS

The existing conditions analysis identifies field conditions and the current operational, traffic control, and geometric characteristics of the roadways and other transportation facilities within the study area.

Site Conditions and Adjacent Land Uses

The proposed site is currently vacant and zoned for industrial use. The land uses in the vicinity of the site include Evergreen Aviation and McMinnville Municipal Airport to the east, vacant industrial land immediately west, and a mix of industrial, commercial and residential land uses to the north, including the Evergreen Aviation and Space Museum.

Transportation Facilities

Table 3 summarizes roadways in the site vicinity that will be assessed as part of the TIA.

Table 3. Existing Transportation Facilities

Street	Functional Classification ¹	Jurisdictional Authority	Motor Vehicle Travel Lanes	Posted Speed (mph)	Sidewalks	Striped Bicycle Lanes	On-Street Parking
OR-18	Urban Statewide Expressway (Freight Route) (ODOT) Major Arterial and State Highway (McMinnville)	ODOT	4-5	45-55	No	No	No
NE Three Mile Lane/NE 3 rd Street	Major Collector	City of McMinnville	2-3	20-40	Yes	Partial ²	No
NE Johnson Street	Minor Arterial	City of McMinnville	2-3	25	Yes	Yes	No
NE 1st Street	Minor Collector	City of McMinnville	2	25	Partial ³	No	No
SE Nehemiah Lane	Local Street	City of McMinnville	2	35	Partial ⁴	No	No
NE Cumulus Avenue	Minor Collector (North) Major Collector (South)	City of McMinnville	2	35	Partial ⁵	No	No
SE Norton Lane	Minor Collector	City of McMinnville	2-3	NP	Partial ⁶	No	No
SE Armory Way	Minor Collector	City of McMinnville	2	25	No	No	No
SE Loop Road	N/A	City of McMinnville	2	35	No	No	No
SE Cruickshank Road	N/A	City of McMinnville	2	NP	No	No	No

NP = Not Posted

¹Per Oregon Highway Plan (OHP, Reference 1) and *City of McMinnville Transportation System Plan*, Exhibit 2-3 (Reference 3).

²There is a striped bicycle lane on both side from Johnson Street to 1st Street.

³There are sidewalks on the north side of 1st Street west Three Mile Lane.

⁴There are sidewalks on the north side of Nehemiah west of the intersection of Nehemiah Lane and Three Mile Lane.

⁵There are sidewalks on the north side of Cumulus (north) west of Norton Lane and on the west side of Cumulus north of OR-18.

⁶There are sidewalks on the east side of Norton north of OR-18, and on both sides of Norton south of OR-18.

Transit Facilities

Weekday bus service is currently provided by the Yamhill County Transit Area (YCTA) “East-West” Loops along Three Mile Lane between Norton Lane and west side of McMinnville at approximately 60-minute headways between 7:00 AM to 6:00 PM. Weekday headways are approximately 60 minutes.

Intersection Crash History

Reported crash history for each study intersection was reviewed in an effort to identify potential safety issues. ODOT provided crash records for the five-year period from January 1, 2013 through December 31, 2017. Table 4 summarizes the crash data. Appendix A contains the ODOT crash data. No crashes were reported at OR-18/SE Armory Way (Intersection #7).

Table 4. Intersection Crash History (January 1, 2013 through December 31, 2017)

Intersection	Collision Type					Severity			Total Crashes
	Rear End	Turning	Angle	Bike /Ped	Other	PDO ¹	Injury	Fatal	
1 NE 3rd Street/NE Johnson Street	8	4	3	0	1	9	7	0	16
2 NE Three Mile Lane/NE 1st Street	1	1	1	0	0	0	0	0	3
3 NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	4	0	3	0	1	5	3	0	8
4 SE Norton Lane/NE Cumulus Avenue	1	0	0	0	1	1	1	0	2
5 OR-18/SE Norton Lane	12	2	3	1	1	7	12	0	19
6 OR-18/NE Cumulus Avenue	0	2	0	0	0	0	2	0	2
7 OR-18/SE Armory Way	0	0	0	0	0	0	0	0	0
8 OR-18/SE Loop Road	0	0	1	0	0	0	1	0	1
9 OR-18/SE Cruickshank Road	3	2	33	0	4	14	28	0	42

¹PDO = Property Damage Only

ODOT provides an annual list of safety priority index system (SPIS) locations which are based on reported crash data. The intent of the SPIS list is to identify roadway segments exhibiting an unusually high occurrence of crashes and is used to select locations for investigation. Review of the SPIS list determined that the section of OR-18 near Loop Road and Cruickshank Road is within the top fifteen percent of intersections.

Crash rates were calculated for each of the study intersections following the analysis methodology presented in Exhibit 4-1 of the ODOT Analysis Procedures Manual, Version 2 (APM, Reference 5). The APM provides 90th percentile intersection crash rates at a variety of intersection configurations in Oregon based on the number of approaches and traffic control types. Table 5 below shows the comparison of

the five-year crash history with the 90th percentile intersection crash rates from the APM. Crash rates are reported per million entering vehicles.

Table 5. Intersection Crash Rate Assessment

	Location	Total Crashes	90 th Percentile Intersection Crash Rate	Observed Crash Rate at Intersection	Observed>90 th Percentile Crash Rate?
1	NE 3rd Street/NE Johnson Street	16	0.860	0.51	No
2	NE Three Mile Lane/NE 1st Street	3	0.408	0.08	No
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	8	0.408	0.23	No
4	SE Norton Lane/NE Cumulus Avenue	2	0.408	0.18	No
5	OR-18/SE Norton Lane	19	0.860	0.35	No
6	OR-18/NE Cumulus Avenue	2	0.860	0.04	No
7	OR-18/SE Armory Way	0	0.293	0.00	No
8	OR-18/SE Loop Road	1	0.293	0.02	No
9	OR-18/SE Cruickshank Road	42	0.293	1.03	Yes

As shown in Table 5 and the ODOT SPIS list, the intersection of OR-18/Cruickshank Road exceeds statewide 90th percentile crash rates and is in the top fifteen percent of intersections on the SPIS list. This unsignalized intersection experienced a large proportion of angle crashes (approximately 80%). Upon further review, it was found that a high proportion of the crashes reported at this intersection (approximately 70%) involved a vehicle making a northbound left-turn movement. This suggests a need to restrict the northbound left-turns from SE Cruickshank Road onto OR-18 as identified in the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2).

Existing Traffic Volumes

Given the impacted traffic patterns due to the current COVID-19 pandemic and State of Oregon stay at home order, new traffic counts were not collected for this analysis. Rather, historical and detector data was used. Weekday PM peak hour intersection turning movement counts were collected in 2012 for Intersection #3, and ODOT provided 2018 turning movement counts for intersections #2 and #4 through #9 as well as February 2020 signal detector counts at intersection #1. These traffic counts are included in Appendix B.

A 1.3% linear annual growth rate was applied to the 2018 traffic counts and a 1.5% linear annual growth rate was applied to the 2012 traffic counts to estimate year 2020 existing traffic volumes. This rate was calculated based on the average historical traffic volumes recorded at ODOTs Automatic Traffic Recorder (ATR) 36-006 located southwest of the City of McMinnville on Highway 18 and ATR 36-004 located northeast of the City of McMinnville in Newberg on Highway 99W.

A seasonal adjustment factor was calculated and applied to the 2020 traffic volumes to reflect 30th highest hour conditions, per the APM (Reference 5) using the same ATRs as noted above. This seasonal adjustment factor calculation is included in Appendix C.

Existing Traffic Operations

Existing intersection capacity was assessed using the previously described analysis methodology and compared to the respective agency operating standards. Existing lane configurations and traffic control devices at the study intersections are included in Appendix C.

Table 6 summarizes the existing 2020 traffic operations for the weekday PM peak hour. Appendix C includes the existing conditions intersection operations analysis worksheets.

Table 6. Estimated 2020 Existing Traffic Operations for Weekday PM Peak Hour

Study Intersection		Mobility Target (V/C) ¹	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	0.70
2	NE Three Mile Lane/NE 1st Street	0.90	EBR	0.98
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.74
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.21
5	OR-18/SE Norton Lane	0.80	-	0.68
6	OR-18/NE Cumulus Avenue	0.80	-	0.54
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.12
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.27
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBL	1.09

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

¹Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

As shown in Table 6, all but two study intersections were found to operate acceptably under 2020 existing conditions. The following intersections exceed the applicable performance requirement:

- NE Three Mile Lane/NE 1st Street
 - This intersection (#2) does not satisfy the City of McMinnville’s standard of a V/C ratio ≤ 0.90. Over-capacity conditions on the eastbound approach are related to the high southbound through volume on Three Mile Lane.
- OR-18/SE Cruickshank Road
 - This intersection (#9) does not satisfy ODOT’s mobility target of a V/C ratio ≤ 0.75 on the SE Cruickshank Road approach. As stated previously, the crash history at this intersection shows a high proportion of angle crashes associated with the northbound left-turn movement, which likely reflects an inefficient number of available gaps in eastbound OR-18 traffic.

TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study area's transportation system will operate in the future with and without development of the site under the proposed zone change.

Year 2022 Background Traffic Volumes and Conditions

Future traffic volumes were derived by applying a 2.2% annual background growth rate to the 2020 existing traffic volumes. This annual growth factor was derived from previous studies of the area surrounding the site and the City's EMME 2 model used for the City's TSP, and should thus reflect growth associated with the land use assumptions in the TSP. In addition, the City of McMinnville provided information regarding three recently completed land use actions in the vicinity of the study area. These are generally consistent with existing zoning, and therefore should be included in the 2.2% growth rate associated with the land use assumptions in the TSP.

The City's Transportation System Plan (TSP) calls for two future new interchanges at OR-18/NE Three Mile Lane and OR-18/NE Cumulus Avenue as part of the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2). These two new interchanges are intended to replace the overpass at OR-18/NE Three Mile Lane and signal at OR-18/NE Cumulus Avenue in anticipation of traffic growth. The TSP also identifies a future traffic signal at the NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street intersection. These improvements are not funded at this time and conversations with City and ODOT staff have indicated that the identified improvements cannot be relied upon to receive funding within the timeframe of this TIA.

Year 2022 Background Traffic Operations

Table 7 summarizes the 2022 background traffic conditions for the weekday PM peak hour. Appendix D includes the 2022 background conditions intersection operations analysis worksheets.

As shown in Table 7, the two study intersections that do not satisfy applicable mobility targets under existing conditions experience additional delay with background growth.

Table 7. Estimated 2022 Background Traffic Operations for Weekday PM Peak Hour

Study Intersection		Mobility Target (V/C) ¹	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	0.73
2	NE Three Mile Lane/NE 1st Street	0.90	EBR	1.08
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.84
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.22
5	OR-18/SE Norton Lane	0.80	-	0.70
6	OR-18/NE Cumulus Avenue	0.80	-	0.56
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.13
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.32
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBL	1.20

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

¹Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

Year 2022 Background Traffic Mitigations

The following mitigation measures are recommended to address the impacts of anticipated background growth:

- NE Three Mile Lane/NE 1st Street
 - Install a traffic signal. Preliminary ODOT traffic signal warrants are met assuming up to a 77% reduction in right-turn volumes in the shared eastbound left-through-right lane. At this location on the urban Three Mile Lane corridor, an 85% reduction (which is typically used by ODOT) is unreasonable given the unique nature of the high southbound through volumes with limited gaps for vehicles turning from the minor approaches.
- OR-18/SE Cruickshank Road
 - Restrict northbound left-turns from SE Cruickshank Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via OR-99W/OR-18 interchange, SE Lafayette Highway, and/or the OR-221/OR-18 interchange. Exhibit 2 illustrates these alternatives.

Exhibit 2. Reroute of Northbound Left-Turns at OR-18/SE Cruickshank Road

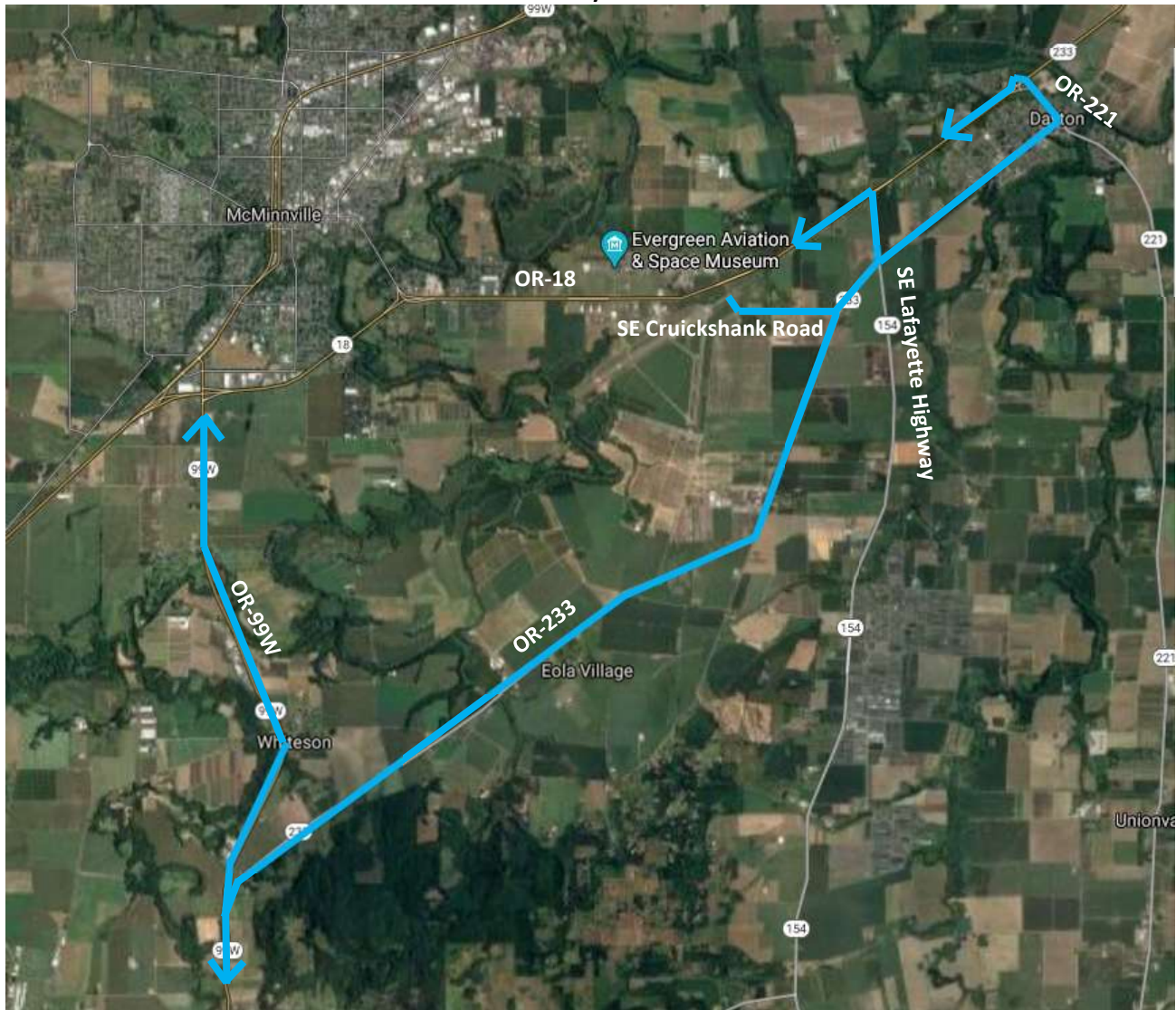


Table 8 summarizes the 2022 background traffic operations for the weekday PM peak hour with the above recommended mitigation. Appendix E includes the 2022 background conditions intersection operations analysis worksheets with mitigation.

As shown in Table 8, all study intersections were found to operate acceptably under 2022 background conditions with the identified mitigation.

Table 8. Estimated 2022 Background Traffic Operations for Weekday PM Peak Hour with Mitigation

Study Intersection		Mobility Target (V/C) ¹	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	0.73
2	NE Three Mile Lane/NE 1st Street	0.90	-	0.85
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.84
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.22
5	OR-18/SE Norton Lane	0.80	-	0.70
6	OR-18/NE Cumulus Avenue	0.80	-	0.56
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.13
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.32
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBR	0.04

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

¹Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

Trip Generation and Assignment

To provide a conservative analysis, this report assumes a reasonable worst case for the existing and proposed zoning in accordance with the City of McMinnville zoning code. Based on the allowable land uses in the code, it was determined that the reasonable worst-case scenario under the existing M-2 (General Industrial) zoning would consist of the following land uses:

- Based on the site’s close proximity to the Willamette Valley Medical Center, 10 out of the 33.5 acres is assumed to be medical office with a floor area ratio (FAR) of approximately 0.25, for a total floor area of approximately 108,900 square feet.
- The remaining 23.5 acres is assumed to be industrial park with a FAR of approximately 0.40, for a total floor area of approximately 409,464 square feet.

The reasonable worst-case scenario under the proposed C-3 (General Commercial) zoning was calculated assuming a retail development with a FAR of approximately 0.25 over the entire site area of 33.5 acres, for a total floor area of approximately 364,815 square feet.

Trip generation estimates for both scenarios were developed using data from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition* (Reference 6). The trip generation estimates were adjusted to reflect pass-by trips, or vehicle trips to the site already traveling along OR-18. Pass-by trips to don’t change the traffic conditions on the overall system, but do change the turning movements at the OR-18/NE Cumulus Avenue intersection. Table 9 compares the trip generation estimates under the existing and proposed zoning for the weekday PM peak hour.

Table 9. Trip Generation Potential Comparison – 33.5-acre Zone Change – Weekday PM Peak Hour

Land Use	ITE Code	Size	Daily Trips	Total	In	Out
Existing M-2 General Industrial Zone Reasonable Worst Case Development Scenario						
Medical-Dental Office Building (10 acres at 25%)	720	108,900 SF	4,096	371	104	267
Industrial Park (23.5 acres at 40%)	130	409,464 SF	1,954	164	34	130
Net New Trips			6,050	535	138	397
Proposed C-3 General Commercial Zone Reasonable Worst Case Development Scenario						
Shopping Center (33.5 acres at 25%)	820	364,815 SF	14,496	1,416	680	736
<i>Less Pass-by Trips (34%)</i>			<i>(4,929)</i>	<i>(480)</i>	<i>(240)</i>	<i>(240)</i>
Net New Trips			9,567	936	440	496
Difference = Proposed - Existing			3,517	401	302	99

As shown in Table 9, the proposed zone change would increase the trip generation potential of the site compared to the existing industrial zoning by 401 trips during the weekday PM peak hour. These new trips were assigned to the study area roadway system based on existing traffic patterns and forecast market data for the proposed development, also maintaining consistency with the scope of study for the site approved by both agencies in 2012. The site will serve local areas such as McMinnville, Dayton, and as far reaching as Newberg and in addition will also provide services to reach currently underserved locations in the Willamette Valley, and along the central northern Oregon coast. The traffic generated by the proposed development is expected to follow this trip distribution pattern:

- 35 percent to the west on OR-18 (serving southern McMinnville, the parts of the central Willamette Valley and the northern Oregon coast);
- 35 percent to the north on Three-Mile Lane (serving downtown and the majority of McMinnville); and
- 30 percent to the east via OR-18 (serving Dayton, outlying areas, and portions of Newberg).

Within the City of McMinnville, it is expected that the commercial uses under the rezoning will result in a re-allocation of trips to/from and within the downtown area. For example, many trips originating from the residential areas along OR-18 and regionally that currently travel to the downtown area today will alter their trips to visit the new commercial businesses and thus reduce trips entering the downtown areas. Conversely, a proportion of the trips already occurring in the downtown areas (e.g., trips from the residential areas to the west of OR-99W that travel to downtown and the southwest commercial areas by the college) may travel to the new commercial area creating new trips on OR-18. The proposed development and type of land uses will also result in capturing more regional trips (e.g., residents in McMinnville that currently travel to Salem or the greater Portland area to shop) that originate in McMinnville and keeping them local. These trips will be shorter in nature and will still travel within the downtown area, but won't represent new trips within that area.

With that in mind, the origins and destinations of commercial trips within McMinnville were assessed to estimate the expected re-routing of some trips at study intersections within the City of McMinnville (Intersections #1 through #3). The details of this analysis assessing the cumulative impacts of new and

re-routed trips within McMinnville are provided in Appendix F. The weekday PM peak hour site-generated trip assignment under the proposed zoning is also included in Appendix F.

Year 2022 Total Traffic Operations

The total traffic conditions analysis forecasts the operation of the study area’s transportation system with the inclusion of traffic generated by site under the proposed commercial zoning. Total traffic conditions were determined by adding the estimated site-generated trips to the year 2022 background traffic volumes for the weekday PM peak hour.

Table 10 summarizes the 2022 total traffic operations for the weekday PM peak hour. Appendix F includes the 2022 total conditions intersection operations analysis worksheets.

Table 10. Estimated 2022 Total Traffic Operations for Weekday PM Peak Hour

Study Intersection		Mobility Target (V/C) ¹	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	0.74
2	NE Three Mile Lane/NE 1st Street	0.90	EBR	1.16
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.98
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.23
5	OR-18/SE Norton Lane	0.80	-	0.82
6	OR-18/NE Cumulus Avenue	0.80	-	1.21
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.18
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.45
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBL	1.53

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

¹Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

As shown in Table 10, the two study intersections that do not satisfy applicable mobility targets under existing or 2022 background traffic conditions experience additional delay with site development. In addition, three other intersections do not satisfy applicable mobility targets with the addition of site-generated trips:

- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
 - The minor street approaches at this intersection (#3) do not satisfy the City of McMinnville’s standard of a V/C ratio ≤ 0.90. Over-capacity conditions on the minor approaches are related to the high through volumes on OR-18.
- OR-18/SE Norton Lane

- This intersection (#5) does not satisfy ODOT's mobility target of a V/C ratio ≤ 0.80 . The overall intersection capacity is reduced below the mobility target due to increased eastbound and westbound traffic through the intersection associated with site development.
- OR-18/NE Cumulus Avenue
 - This intersection (#6) does not satisfy ODOT's mobility target of a V/C ratio ≤ 0.80 . Additional turn lanes are needed to accommodate site-related traffic at this intersection.

Year 2022 Total Traffic Mitigations

The following mitigation measures are recommended for implementation in conjunction with the proposed development:

- NE Three Mile Lane/NE 1st Street
 - Consistent with 2022 background conditions, install a traffic signal.
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
 - Restrict left-turns from the minor approaches onto Three Mile Lane (left-turns from Three Mile Lane can be maintained). Alternative access can be provided to the approximately ten homes south of Three Mile Lane via an enhanced connection to SE Mountain View Lane. North of Three Mile Lane, there is alternative access to OR-18 via SE Norton Lane.
- OR-18/SE Norton Lane
 - Optimize signal timing to provide additional time to eastbound and westbound through movements.
- OR-18/NE Cumulus Avenue
 - Modify the existing traffic signal and construct an exclusive eastbound right-turn lane and northbound left-turn lane (left-turns from NE Cumulus Avenue should have permitted/protected phasing). Optimize signal timing to provide additional time to eastbound and westbound through movements.
- OR-18/SE Cruickshank Road
 - Consistent with 2022 background conditions and historical crash trends at the intersection, restrict northbound left-turns from SE Cruickshank Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via OR-99W/OR-18 interchange, SE Lafayette Highway, and/or the OR-221/OR-18 interchange (see Exhibit 2).

Table 11 summarizes the 2022 total traffic operations for the weekday PM peak hour with the above recommended mitigation. Appendix G includes the 2022 total conditions intersection operations analysis worksheets with mitigation.

Table 11. Estimated 2022 Total Traffic Operations for Weekday PM Peak Hour with Mitigation

Study Intersection		Mobility Target (V/C) ¹	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	0.74
2	NE Three Mile Lane/NE 1st Street	0.90	-	0.87
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.58
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.23
5	OR-18/SE Norton Lane	0.80	-	0.80
6	OR-18/NE Cumulus Avenue	0.80	-	0.79
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.18
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.45
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBL	0.05

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right
V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)
CM= Critical Movement

¹Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

Year 2022 Total Traffic 95th Percentile Queues

Year 2022 total traffic weekday PM peak hour 95th percentile queues at the OR-18/NE Cumulus Avenue intersection with implementation of recommended mitigation measures are summarized in Table 12.

Table 12. Summary of 95th Percentile Queues, 2022 Total Traffic Conditions

Intersection	Movement	Available Queue Storage (feet)	95 th Percentile Queue (feet)	Queue Storage Adequate?
			Weekday PM Peak Hour	
6 OR-18/NE Cumulus Avenue	NBL	New	525	Yes
	NBTR	Continuous	350	Yes
	SBL	125 (Striped) Additional Storage in excess of 300	100	Yes
	SBT	Continuous	0	Yes
	SBR	125 (Exclusive) Additional Storage in excess of 300 ¹	200	Yes
	EBL	125	75	Yes
	EBT	Continuous	425	Yes
	EBR	New	200	Yes
	WBL	125 (Striped) Additional Storage in excess of 300	225	Yes
	WBT	Continuous	525	Yes
	WBR	175	50	Yes

Where: EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left-turn, T = through, R = right-turn

Queues rounded up to the nearest vehicle length, assumed to be 25 feet

¹During occasions of peak queueing, the southbound through lane may be used for overflow storage from the southbound right-turn lane.

As shown in Table 12, all 95th percentile queues during year 2022 total mitigated traffic conditions would be accommodated by the available storage. Based on the anticipated 95th percentile queues, it is recommended that the new northbound left-turn lane be constructed with 525 feet of storage, and the new eastbound right-turn lane be constructed with at least 250 feet of storage (the storage length required for anticipated 2037 95th percentile queues, to be described in more detail later in this report).

Year 2037 Background Traffic Volumes and Conditions

Consistent with the 2022 background traffic volumes, future volumes were derived by applying a 2.2% annual background growth rate to the 2022 existing traffic volumes. However, this growth factor already accounts for development of the site under the existing industrial zoning. Therefore, the growth rate to obtain 2037 background traffic volumes was reduced to approximately 1.7% so as not to double-count site trips through the study intersections.

The 2037 background traffic conditions analysis forecasts the operation of the study area's transportation system with the inclusion of traffic generated by site under the existing industrial zoning. Background traffic conditions were determined by adding the estimated site-generated trips (under existing zoning) and additional 15 years of background growth (at 1.7%) to the year 2022 background traffic volumes for the weekday PM peak hour.

This analysis assumes the implementation of all improvements recommended to mitigate year 2022 total traffic conditions.

Year 2037 Background Operations

Table 13 summarizes the 2037 horizon year background traffic operations for the weekday PM peak hour. Appendix H includes the 2037 background conditions intersection operations analysis worksheets.

As shown in Table 13, the following intersections are expected to exceed the applicable performance requirement in 2037 with the addition of background growth:

- The NE 3rd Street/NE Johnson Street intersection (#1) does not satisfy the City of McMinnville's standard of a V/C ratio ≤ 0.90 .
- The NE Three Mile Lane/NE 1st Street intersection (#2) does not satisfy the City of McMinnville's standard of a V/C ratio ≤ 0.90 .
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street (#3) does not satisfy the City of McMinnville's standard of a V/C ratio ≤ 0.90 .
- OR-18/SE Norton Lane (#5) does not satisfy ODOT's mobility target of a V/C ratio ≤ 0.80 .
- OR-18/NE Cumulus Avenue (# 6) does not satisfy ODOT's mobility target of a V/C ratio ≤ 0.80 .
- The OR-18/SE Loop Road intersection (#8) does not satisfy ODOT's mobility target of a V/C ratio ≤ 0.90 on the SE Loop Road approach.

Table 13. Estimated 2037 Background Traffic Operations for Weekday PM Peak Hour

Study Intersection		Mobility Target (V/C) ¹	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	0.97
2	NE Three Mile Lane/NE 1st Street	0.90	-	1.04
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.98
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.32
5	OR-18/SE Norton Lane	0.80	-	0.93
6	OR-18/NE Cumulus Avenue	0.80	-	0.83
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.37
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.95
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBR	0.08

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

¹Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

Year 2037 Background Traffic Mitigations

The following mitigation measures are recommended to address the impacts of anticipated long-term growth:

- NE Three Mile Lane/NE 1st Street
 - Restripe the west leg of the intersection to provide an exclusive right-turn lane with overlap phasing.
- OR-18/SE Loop Road
 - Restrict southbound left-turns from SE Loop Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via SE Lafayette Highway. Exhibit 3 illustrates these alternatives.

Note that the addition of a second (dual) northbound left-turn lane at the OR-18/NE Cumulus Avenue would accommodate long-term traffic volumes at the intersection. However, it is not recommended at this time as the future improvements identified in 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) will likely eliminate the need for the lane via the construction of a future interchange.

Exhibit 3. Reroute of Southbound Left-Turns at OR-18/SE Loop Road

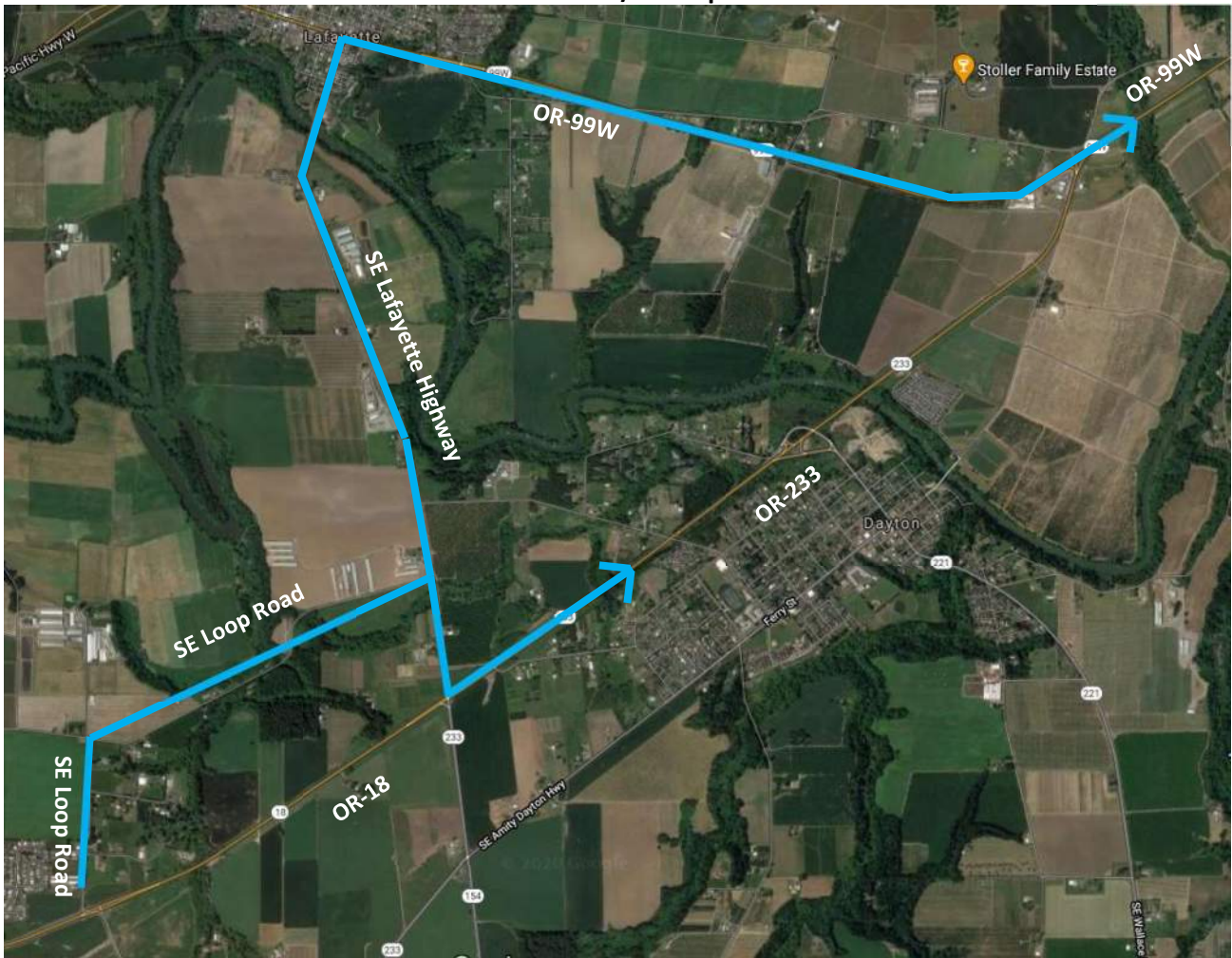


Table 14 summarizes the 2037 background traffic operations for the weekday PM peak hour with the above recommended mitigation. Appendix I includes the 2037 background conditions intersection operations analysis worksheets with mitigation.

Table 14. Estimated 2037 Background Traffic Operations for Weekday PM Peak Hour with Mitigation

Study Intersection		Mobility Target (V/C) ¹	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	0.97
2	NE Three Mile Lane/NE 1st Street	0.90	-	0.98
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.98
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.32
5	OR-18/SE Norton Lane	0.80	-	0.93
6	OR-18/NE Cumulus Avenue	0.80	-	0.77
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.37
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.09
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBR	0.08

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

¹Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

As shown in Table 14, with implementation of the recommended mitigation at NE Three Mile Lane/NE 1st Street, intersection operations are still anticipated to exceed the applicable performance requirement in 2037 with the addition of background growth. However, the V/C under 2037 total traffic conditions is improved from 2037 background traffic conditions (as will be demonstrated later in this report). The following three intersections are also expected to exceed the applicable performance requirement in 2037:

- NE 3rd Street/NE Johnson Street
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
- OR-18/SE Norton Lane

Regardless of the proposed rezone and subsequent development, these intersections should continue to be monitored by the responsible agency and may require additional mitigation in future years based on Year 2037 conditions. While these locations are projected to require additional mitigation in the future as a function of continued local and regional growth, the proposed zone change has a negligible long-term impact on intersection operations. As will be demonstrated later in this report, the change in capacity between 2037 background and 2037 total traffic conditions is less than or equal to +0.03 V/C, and therefore considered to be an insignificant impact per the guidance provided in the May 25, 2011, Oregon Highway Plan – Policy Intent Statements memorandum from ODOT (see Appendix J). Therefore, no additional mitigation is recommended as part of this report at these four intersections which continue to exceed applicable agency mobility targets under 2037 mitigated conditions.

Year 2037 Total Traffic Volumes

The 2037 total traffic conditions analysis forecasts the operation of the study area’s transportation system with the inclusion of additional site trips associated with the proposed rezone. Total traffic conditions were determined by adding the difference in site-generated trips between the existing and proposed zoning to the year 2037 background traffic volumes for the weekday PM peak hour.

Year 2037 Total Traffic Operations

Table 15 summarizes the 2037 horizon year total traffic operations for the weekday PM peak hour. Appendix K includes the 2037 total conditions intersection operations analysis worksheets.

Table 15. Estimated 2037 Total Traffic Operations for Weekday PM Peak Hour

Study Intersection		Mobility Target (V/C) ¹	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	1.00
2	NE Three Mile Lane/NE 1st Street	0.90	-	1.09
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.93
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.33
5	OR-18/SE Norton Lane	0.80	-	0.96
6	OR-18/NE Cumulus Avenue	0.80	-	0.85
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.42
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	1.14
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBR	0.09

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

¹Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

As shown in Table 15, the six intersections that do not satisfy applicable review agency mobility targets under 2037 background conditions experience additional delay with the proposed rezone, with the exception of the NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street intersection at which the shift in travel patterns associated with the zone change improve the operating capacity of the intersection.

Year 2037 Total Traffic Mitigations

The following additional mitigation measures are recommended for implementation in conjunction with the proposed development to account for the long-term impact of the proposed rezone:

- NE Three Mile Lane/NE 1st Street
 - Consistent with 2037 background conditions, restripe the west leg of the intersection to provide an exclusive right-turn lane with overlap phasing.
- OR-18/SE Loop Road
 - Consistent with 2037 background conditions, restrict southbound left-turns from SE Loop Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via SE Lafayette Highway (see Exhibit 3).

Note that the addition of a second (dual) northbound left-turn lane at the OR-18/NE Cumulus Avenue would accommodate long-term traffic volumes at the intersection. However, it is not recommended at this time as the future improvements identified in 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) will likely eliminate the need for the lane via the construction of a future interchange.

Table 16 summarizes the 2037 total traffic operations for the weekday PM peak hour with the above recommended mitigation. Appendix L includes the 2037 total conditions intersection operations analysis worksheets with mitigation.

Table 16. Estimated 2037 Total Traffic Operations for Weekday PM Peak Hour with Mitigation

Study Intersection		Mobility Target (V/C) ¹	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	1.00
2	NE Three Mile Lane/NE 1st Street	0.90	-	1.02
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.93
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.33
5	OR-18/SE Norton Lane	0.80	-	0.96
6	OR-18/NE Cumulus Avenue	0.80	-	0.79
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.42
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.09
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBR	0.09

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

¹Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

As shown in Table 16, with implementation of the recommended mitigation at NE Three Mile Lane/NE 1st Street, intersection operations are still anticipated to exceed the applicable performance requirement in 2037. However, the V/C under 2037 total traffic conditions is improved from 2037 background traffic conditions. The following three intersections are also expected to exceed the applicable performance requirement in 2037:

- NE 3rd Street/NE Johnson Street
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
- OR-18/SE Norton Lane

Regardless of the proposed rezone and subsequent development, these intersections should continue to be monitored by the responsible agency and may require additional mitigation in future years based on Year 2037 conditions. While these locations are projected to require additional mitigation in the future as a function of continued local and regional growth, the proposed zone change has a negligible long-term impact on intersection operations. The change in capacity between 2037 background and 2037 total traffic conditions is less than or equal to +0.03 V/C, and therefore considered to be an insignificant impact per the guidance provided in the May 25, 2011, Oregon Highway Plan – Policy Intent Statements memorandum from ODOT (see Appendix J). Therefore, no additional mitigation is recommended as part of this report at these four intersections which continue to exceed applicable agency mobility targets under 2037 mitigated conditions.

Year 2037 Total Traffic 95th Percentile Queues

Year 2037 total traffic weekday PM peak hour 95th percentile queues at the OR-18/NE Cumulus Avenue intersection with implementation of recommended mitigation measures are summarized in Table 17.

Table 17. Summary of 95th Percentile Queues, 2037 Total Traffic Conditions

Intersection	Movement	Available Queue Storage (feet)	95 th Percentile Queue (feet)	Queue Storage Adequate?
			Weekday PM Peak Hour	
6 OR-18/NE Cumulus Avenue	NBL (Dual)	New	400	Yes
	NBTR	Continuous	600	Yes
	SBL	125 (Striped) Additional Storage in excess of 300	175	Yes
	SBT	Continuous	0	Yes
	SBR	125 (Exclusive) Additional Storage in excess of 300 ¹	300	Yes
	EBL	125	125	Yes
	EBT	Continuous	650	Yes
	EBR	New	250	Yes
	WBL	125 (Striped) Additional Storage in excess of 300	250	Yes
	WBT	Continuous	900	Yes
	WBR	175	50	Yes

Where: EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left-turn, T = through, R = right-turn

Queues rounded up to the nearest vehicle length, assumed to be 25 feet

¹During occasions of peak queueing, the southbound through lane may be used for overflow storage from the southbound right-turn lane.

As shown in Table 17, all 95th percentile queues during year 2037 total mitigated traffic conditions would be accommodated by the available storage. Based on the anticipated 95th percentile queues, it is recommended that the second northbound left-turn lane (if appropriate given other area improvements) be constructed with 350 feet of storage, and the new eastbound right-turn lane be constructed with at least 250 feet of storage.

Traffic Operations Summary

Table 18 compares the traffic operations for all scenarios analyzed in this study.

Table 18. Traffic Operations for all Study Scenarios for Weekday PM Peak Hour

Study Intersection	Mobility Target (V/C) ¹	2020 Existing		2022 Background		2022 Background (Mitigated)		2022 Total		2022 Total (Mitigated)		Year 2022 Mitigations	2037 Background		2037 Background (Mitigated)		2037 Total		2037 Total (Mitigated)		Year 2037 Mitigations
		CM	V/C	CM	V/C	CM	V/C	CM	V/C	CM	V/C		CM	V/C	CM	V/C	CM	V/C	CM	V/C	
1 NE 3rd Street/NE Johnson Street	0.90	-	0.70	-	0.73	-	-	-	0.74	-	-	-	0.97 ²	-	-	-	1.00 ²	-	-	-	-
2 NE Three Mile Lane/NE 1st Street	0.90	EBR	0.98	EBR	1.08	-	0.85	EBR	1.16	-	0.87	Install traffic signal	-	1.04	-	0.98	-	1.09	-	1.02 ³	Add EBR
3 NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.74	WBR	0.84	-	-	WBR	0.98	WBR	0.58	Restrict EBL and WBL, provide neighborhood connection	WBR	0.98 ²	-	-	WBR	0.93 ^{2,4}	-	-	-
4 SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.21	EBL	0.22	-	-	EBL	0.23	-	-	-	EBL	0.32	-	-	EBL	0.33	-	-	-
5 OR-18/SE Norton Lane	0.80	-	0.68	-	0.70	-	-	-	0.82	-	0.80	Signal timing optimization	-	0.93 ²	-	-	-	0.96 ²	-	-	-
6 OR-18/NE Cumulus Avenue	0.80	-	0.54	-	0.56	-	-	-	1.21	-	0.79	Add NBL, signal timing optimization	-	0.83	-	0.77	-	0.85	-	0.79	Add second NBL
7 OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.12	NBL	0.13	-	-	NBL	0.18	-	-	-	NBL	0.37	-	-	NBL	0.42	-	-	-
8 OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.27	SBL	0.32	-	-	SBL	0.45	-	-	-	SBL	0.95	SBR	0.09	SBL	1.14	SBR	0.09	Restrict SBL
9 OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBL	1.09	NBL	1.20	NBR	0.04	NBL	1.53	NBR	0.05	Restrict NBL	NBR	0.08	-	-	NBR	0.09	-	-	-

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

¹Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

²The change in capacity between 2037 background and 2037 total traffic conditions is less than or equal to +0.03 V/C, and therefore considered to be an insignificant impact per the guidance provided in the May 25, 2011, Oregon Highway Plan – Policy Intent Statements memorandum from ODOT (see Appendix J).

³Intersection operations with implementation of the recommended mitigation at Intersection #2 still exceed the mobility target. However, the V/C is improved from 2037 background traffic conditions.

⁴The shift in travel patterns on Three Mile Lane associated with the proposed zone change improve the operating capacity of Intersection #3 by creating more gaps for the critical WBR movement.

TRANSPORTATION PLANNING RULE ANALYSIS

The Transportation Planning Rule (TPR, Oregon Administrative Rule (OAR) 660-012-0060) analysis identifies how the study area’s transportation system would operate in the year 2037 under the existing industrial zoning of M-2 and the proposed commercial zoning of C-3 during the weekday PM peak hour. OAR 660-012-0060(1) and (2) establish a two-step process for evaluating an amendment’s impacts on roads. The first step in assessing an amendment’s potential transportation impact is to compare the trip generation potential of the site assuming a “reasonable worst-case” development scenario under the existing and proposed zoning. If the trip generation potential increases under the proposed zoning, additional operational analysis is required to assess whether the rezone will “significantly affect” the transportation system.

Summary of Applicable Oregon Administrative Rule Criteria

OAR Section 660-12-0060 of the TPR sets forth the relative criteria for evaluating plan and land use regulation amendments. Table 19 summarizes the criteria in Section 660-012-0060 and the applicability to the proposed zoning designation change application.

Table 19. Summary of Criteria in OAR 660-012-0060

Section	Criteria	Applicable?
1	Describes how to determine if a proposed land use action results in a significant effect.	Yes
2	Describes measures for complying with Criteria #1 where a significant effect is determined.	Yes
3	Describes measures for complying with Criteria #1 and #2 without assuring that the allowed land uses are consistent with the function, capacity and performance standards of the facility.	Yes
4	Determinations under Criteria #1, #2, and #3 are coordinated with other local agencies.	Yes
5	Indicates that the presence of a transportation facility shall not be the basis for an exception to allow development on rural lands.	No
6	Indicates that local agencies should credit developments that provide a reduction in trips.	No
7	Outlines requirements for a local street plan, access management plan, or future street plan.	No
8	Defines a mixed-use, pedestrian-friendly neighborhood.	No
9	A significant effect may not occur if the rezone is identified on the City’s Comprehensive Plan and assumed in the adopted Transportation System Plan.	No
10	Agencies may consider measures other than vehicular capacity if within an identified multimodal mixed-use area (MMA).	No
11	Allows agencies to override the finding of a significant effect if the application meets the balancing test.	No

As shown in Table 19, there are eleven criteria that apply to Plan and Land Use Regulation Amendments. Of these, only Criteria #1 through #4 are applicable to the proposed land use action. These criteria are provided below in italics with our response shown in standard font.

OAR 660-12-0060(1) If an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation (including a zoning map) would significantly affect an existing or planned transportation facility, then the local government must put in place measures as provided in section (2) of this rule, unless the amendment is allowed under section (3), (9) or (10)

of this rule. A plan or land use regulation amendment significantly affects a transportation facility if it would:

(a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);

(b) Change standards implementing a functional classification system; or

(c) Result in any of the effects listed in paragraphs (A) through (C) of this subsection based on projected conditions measured at the end of the planning period identified in the adopted TSP. As part of evaluating projected conditions, the amount of traffic projected to be generated within the area of the amendment may be reduced if the amendment includes an enforceable, ongoing requirement that would demonstrably limit traffic generation, including, but not limited to, transportation demand management. This reduction may diminish or completely eliminate the significant effect of the amendment.

(A) Types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;

(B) Degrade the performance of an existing or planned transportation facility such that it would not meet the performance standards identified in the TSP or comprehensive plan; or

(C) Degrade the performance of an existing or planned transportation facility that is otherwise projected to not meet the performance standards identified in the TSP or comprehensive plan.

Response: As demonstrated in the transportation impact analysis detailed in this report, the impact of the 401 additional site-generated trips associated with reasonable worst-case development for the proposed commercial rezoning during the weekday PM peak hour (See Table 8) is expected to have a “significant effect” under year 2037 conditions.

OR 660-12-0060(2) If a local government determines that there would be a significant effect, then the local government must ensure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility measured at the end of the planning period identified in the adopted TSP through one or a combination of the remedies listed in (a) through (e) below, unless the amendment meets the balancing test in subsection (2)(e) of this section or qualifies for partial mitigation in section (11) of this rule. A local government using subsection (2)(e), section (3), section (10) or section (11) to approve an amendment recognizes that additional motor vehicle traffic congestion may result and that other facility providers would not be expected to provide additional capacity for motor vehicles in response to this congestion.

(a) Adopting measures that demonstrate allowed land uses are consistent with the planned function, capacity, and performance standards of the transportation facility.

(b) Amending the TSP or comprehensive plan to provide transportation facilities, improvements or services adequate to support the proposed land uses consistent with the requirements of this division; such amendments shall include a funding plan or mechanism consistent with section (4) or include an amendment to the transportation finance plan so that the facility, improvement, or service will be provided by the end of the planning period.

(c) Amending the TSP to modify the planned function, capacity or performance standards of the transportation facility.

(d) Providing other measures as a condition of development or through a development agreement or similar funding method, including, but not limited to, transportation system management measures or minor transportation improvements. Local governments shall, as part of the amendment, specify when measures or improvements provided pursuant to this subsection will be provided.

(e) Providing improvements that would benefit modes other than the significantly affected mode, improvements to facilities other than the significantly affected facility, or improvements at other locations, if:

(A) The provider of the significantly affected facility provides a written statement that the system-wide benefits are sufficient to balance the significant effect, even though the improvements would not result in consistency for all performance standards;

(B) The providers of facilities being improved at other locations provide written statements of approval; and

(C) The local jurisdictions where facilities are being improved provide written statements of approval

Response: As demonstrated in the transportation impact analysis detailed in this report, there are two intersections anticipated to exceed mobility targets at which the proposed rezone has a “significant effect” on intersection operations under year 2037 conditions:

1. NE Three Mile Lane/NE 1st Street
2. OR-18/SE Loop Road

The impact of site-generated trips associated with the proposed rezone can be mitigated by implementing the mitigation measures recommended in the prior sections of this report.

OAR 660-12-0060 (3) Notwithstanding sections (1) and (2) of this rule, a local government may approve an amendment that would significantly affect an existing transportation facility without assuring that the allowed land uses are consistent with the function, capacity and performance standards of the facility where:

(a) In the absence of the amendment, planned transportation facilities, improvements and services as set forth in section (4) of this rule would not be adequate to achieve consistency with the identified function, capacity or performance standard for that facility by the end of the planning period identified in the adopted TSP;

(b) Development resulting from the amendment will, at a minimum, mitigate the impacts of the amendment in a manner that avoids further degradation to the performance of the facility by the time of the development through one or a combination of transportation improvements or measures;

(c) The amendment does not involve property located in an interchange area as defined in paragraph (4)(d)(C); and

(d) For affected state highways, ODOT provides a written statement that the proposed funding and timing for the identified mitigation improvements or measures are, at a minimum, sufficient to avoid further degradation to the performance of the affected state highway. However, if a local government provides the appropriate ODOT regional office with written notice of a proposed amendment in a manner that provides ODOT reasonable opportunity to submit a written statement into the record of the local government proceeding, and ODOT does not provide a written statement, then the local government may proceed with applying subsections (a) through (c) of this section.

Response: As demonstrated in the prior sections of this report, there are three intersections anticipated to exceed mobility targets at which the proposed rezone does not have a “significant effect” on intersection operations under year 2037 conditions:

1. NE 3rd Street/NE Johnson Street
2. NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
3. OR-18/SE Norton Lane

While these locations are projected to require additional mitigation in the future as a function of continued local and regional growth, the proposed zone change has a negligible long-term impact on intersection operations. The change in capacity between 2037 background and 2037 total traffic conditions is less than or equal to +0.03 V/C, and therefore considered to be an insignificant impact per the guidance provided in the May 25, 2011, Oregon Highway Plan – Policy Intent Statements memorandum from ODOT (see Appendix J). Therefore, no additional mitigation is recommended as part of this report at these three intersections which continue to exceed applicable agency mobility targets under 2037 mitigated conditions.

OAR 660-12-0060 (4) Determinations under sections (1)–(3) of this rule shall be coordinated with affected transportation facility and service providers and other affected local governments.

Response: The transportation impact study and TPR analysis for this project have been coordinated with the City of McMinnville and ODOT Region 2.

SUMMARY OF FINDINGS

Year 2020 Existing Conditions

- Two of the nine study intersections were found to exceed the applicable review agency mobility targets:
 - NE Three Mile Lane/NE 1st Street
 - OR-18/SE Cruickshank Road
- The recent five-year crash history of one study intersection exceeds statewide 90th percentile crash rates:
 - OR-18/SE Cruickshank Road: This unsignalized intersection experienced a large proportion of angle crashes (approximately 80%) over the five-year review period, and approximately 70% of the reported crashes involved a vehicle making a northbound left-turn movement. This suggests a need to potentially restrict left-turns from SE Cruickshank Road onto OR-18 due to the insufficient number gaps in eastbound traffic.

Year 2022 Background Conditions

- The two study intersections that do not satisfy applicable mobility targets under existing conditions experience additional delay with background growth.

Proposed Development Plan

- The 33.5-acre site is currently zoned M-2 (General Industrial). Kimco is proposing to rezone to C-3 (General Commercial).
- Table 20 provides the trip generation estimates under the existing and proposed zoning:

Table 20. Trip Generation Potential Comparison – 33.5-acre Zone Change

Land Use	ITE Code	Size	Daily Trips	PM Peak Hour		
				Total	In	Out
Existing M-2 General Industrial Zone Reasonable Worst-Case Development Scenario						
Medical-Dental Office Building (10 acres at 25%)	720	108,900 SF	4,096	371	104	267
Industrial Park (23.5 acres at 40%)	130	409,464 SF	1,954	164	34	130
Net New Trips			6,050	535	138	397
Proposed C-3 General Commercial Zone Reasonable Worst-Case Development Scenario						
Shopping Center (33.5 acres at 25%) <i>Less Pass-by Trips (34%)</i>	820	364,815 SF	14,496 <i>(4,929)</i>	1,416 <i>(480)</i>	680 <i>(240)</i>	736 <i>(240)</i>
Net New Trips			9,567	936	440	496
Difference = Proposed – Existing			3,517	401	302	99

Year 2022 Total Conditions

- The two study intersections that do not satisfy applicable review agency mobility targets under 2022 background conditions experience additional delay with site development.
- Three additional intersections do not satisfy applicable mobility targets with the addition of site-generated trips:
 - NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
 - OR-18/SE Norton Lane
 - OR-18/NE Cumulus Avenue

Year 2037 Background Conditions (Without Proposed Zone Change)

- Assuming the recommendations to mitigate 2022 site impacts are in place, six of the nine study intersections were found to exceed the applicable review agency mobility targets in the planning horizon year 2037, which was selected to represent fifteen years after opening per guidance in the Oregon Highway Plan (OHP, Reference 1):
 - NE 3rd Street/NE Johnson Street
 - NE Three Mile Lane/NE 1st Street
 - NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
 - OR-18/SE Norton Lane
 - OR-18/NE Cumulus Avenue
 - OR-18/SE Loop Road

Year 2037 Total Conditions (With Proposed Zone Change)

- The six intersections that do not satisfy applicable review agency mobility targets under 2037 background conditions experience additional delay with site development, with the exception of the NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street intersection at which the shift in travel patterns associated with the zone change improve the operating capacity of the intersection.

RECOMMENDATIONS

The following mitigation measures are recommended for implementation in conjunction with the proposed development and to address impacts of the proposed zone change:

- NE Three Mile Lane/NE 1st Street
 - Install a traffic signal and restripe the west leg of the intersection to provide an exclusive right-turn lane with overlap phasing.
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
 - Restrict left-turns from the minor approaches onto Three Mile Lane (left-turns from Three Mile Lane can be maintained). Alternative access can be provided to the approximately ten homes south of Three Mile Lane via an improved connection to SE Mountain View Lane. North of Three Mile Lane, there is alternative access to OR-18 via SE Norton Lane.
- OR-18/SE Norton Lane
 - Optimize signal timing to provide additional time to eastbound and westbound through movements.
- OR-18/NE Cumulus Avenue
 - Modify the existing traffic signal and construct a 275-foot exclusive eastbound right-turn lane and 500-foot northbound left-turn lane (left-turns from NE Cumulus Avenue should have permitted/protected phasing). Optimize signal timing to provide additional time to eastbound and westbound through movements. Note that the addition of a second (dual) northbound left-turn lane at the OR-18/NE Cumulus Avenue would accommodate long-term traffic volumes at the intersection. However, it is not recommended at this time as the future improvements identified in the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) will likely eliminate the need for the lane via the construction of a future interchange.
- OR-18/SE Loop Road
 - Restrict southbound left-turns from SE Loop Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via SE Lafayette Highway.
- OR-18/SE Cruickshank Road
 - Restrict northbound left-turns from SE Cruickshank Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via the OR-99W/OR-18 interchange, SE Lafayette Highway, and/or the OR-221/OR-18 interchange.

The proposed rezone can be approved without creating significant impacts per OAR 660-012-0060 assuming these mitigation measures are implemented.

Regardless of the proposed subsequent development, the following intersections should continue to be monitored by the responsible agency and may require additional mitigation in future years based on Year 2037 conditions. While these locations are projected to require additional mitigation in the future as a function of continued local and regional growth, the proposed zone change has a negligible long-term impact on intersection operations:

- NE 3rd Street/NE Johnson Street
- NE Three Mile Lane/NE 1st Street
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
- OR-18/SE Norton Lane

Please contact us if you need any additional information regarding our analyses.

REFERENCES

- 1.) Oregon Department of Transportation. *1999 Oregon Highway Plan*. May 2015 Update
- 2.) City of McMinnville. *McMinnville Corridor Refinement Plan*. February 1996
- 3.) City of McMinnville. *City of McMinnville Transportation System Plan*. 2010
- 4.) Transportation Research Board. *Highway Capacity Manual 6th Edition*. 2016
- 5.) Oregon Department of Transportation. *Analysis Procedures Manual Version 2*. March 2020 Update
- 6.) Institute of Transportation Engineers. *Trip Generation Manual, 10th Edition*. 2017

APPENDICES

Appendix A – Crash Data

Appendix B – Traffic Count Data

Appendix C – 2020 Existing Traffic Volumes and Analysis

Appendix D – 2022 Background Traffic Volumes and Analysis

Appendix E – 2022 Mitigated Background Traffic Analysis

Appendix F – 2022 Total Traffic Volumes and Analysis

Appendix G – 2022 Mitigated Total Traffic Analysis

Appendix H – 2037 Background Traffic Volumes and Analysis

Appendix I – 2037 Mitigated Background Traffic Analysis

Appendix J – Oregon Highway Plan Policy Intent Statements

Appendix K – 2037 Total Traffic Volumes and Analysis

Appendix L – 2037 Mitigated Total Traffic Analysis

Appendix A Crash Data

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at Third Sst & Johnson St
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2017														
REAR-END	0	0	1	1	0	0	1	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	1	2	0	1	1	1	1	1	1	2	0	0
2017 TOTAL	0	1	2	3	0	1	2	2	1	2	1	3	0	0
YEAR: 2016														
REAR-END	0	0	2	2	0	0	0	1	1	1	1	2	0	0
TURNING MOVEMENTS	0	1	1	2	0	1	0	0	1	0	2	2	0	0
2016 TOTAL	0	1	3	4	0	1	0	1	2	1	3	4	0	0
YEAR: 2015														
REAR-END	0	1	0	1	0	1	0	0	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	2	0	0	1	0	1	1	0	0
2015 TOTAL	0	2	0	2	0	3	0	0	1	1	1	2	0	0
YEAR: 2014														
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
SIDESWIPE - MEETING	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2014 TOTAL	0	1	1	2	0	1	0	2	0	2	0	2	0	0
YEAR: 2013														
ANGLE	0	1	1	2	0	2	0	2	0	2	0	2	0	0
REAR-END	0	1	2	3	0	1	0	2	0	3	0	3	0	0
2013 TOTAL	0	2	3	5	0	3	0	4	0	5	0	5	0	0
FINAL TOTAL	0	7	9	16	0	9	2	9	4	11	5	16	0	0

Disclaimers: Effective 2016, collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF MCMINNVILLE, YAMHILL COUNTY

Intersectional Crashes at Third Sst & Johnson St
January 1, 2013 through December 31, 2017

Table with columns: SER#, INVEST, UNLOC?, P, G, S, W, E, A, /, C, O, DATE, FC, CITY STREET, RD CHAR, INT-TYP, INT-REL, OFF-RD, WTHR, CRASH TYP, SPCL USE, MOVE, A, S, UNCL, PED, ACTN, EVENT, CAUSE. Rows include crash data for various dates and locations like Johnson St.

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at Three Mile Ln & First St
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2016														
REAR-END	0	0	1	1	0	0	1	1	0	1	0	1	0	0
2016 TOTAL	0	0	1	1	0	0	1	1	0	1	0	1	0	0
YEAR: 2014														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2014 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2013														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2013 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	0	3	3	0	0	1	3	0	3	0	3	0	0

Disclaimers: Effective 2016, collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF MCMINNVILLE, YAMHILL COUNTY

Intersectional Crashes at Three Mile Ln & First St
January 1, 2013 through December 31, 2017

Table with columns: SER#, INVEST, UNLOC?, DATE, CITY, FC, DISTNC, INT-TYP, RD CHAR, INT-REL, OFF-RD, WTHR, CRASH TYP, SPCL USE, MOVE, A S, G E LICNS, PED, ACTN, EVENT, CAUSE. It lists crash data for three locations: 00667, 00987, and 00516.

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at Three Mile Ln, McMinnville Spur (483) & Nehemiah Ln / Cumulus Ave
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2017														
REAR-END	0	1	1	2	0	1	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	1	1	2	0	1	0	1	1	1	1	2	0	0
2017 TOTAL	0	2	2	4	0	2	0	3	1	3	1	4	0	0
YEAR: 2014														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	0	1	1	0	1
REAR-END	0	1	1	2	0	4	0	2	0	2	0	2	0	0
2014 TOTAL	0	1	2	3	0	4	0	3	0	2	1	3	0	1
YEAR: 2013														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2013 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	3	5	8	0	6	0	7	1	6	2	8	0	1

Disclaimers: Effective 2016, collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

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

483 MCMINNVILLE SPUR
 D
 R
 S
 U
 P G S W

Intersectional Crashes at Three Mile Ln, McMinnville Spur (483) & Nehemiah Ln / Cumulus Ave
 January 1, 2013 through December 31, 2017

SER#	E A / C O	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	SPCL USE	MOVE	A S	P E	LICNS	PED	ACTN	EVENT	CAUSE
INVEST	E L M H R	DAY/TIME	CITY	RD CHAR	DIRECT	FIRST STREET	(MEDIAN)	TRLR QTY	OWNER	G E	RES	LOC	ERROR			
UNLOC?	D C J L K	LAT/LONG	URBAN AREA	LOCTN		INTERSECTION SEQ#	(#LANES)	V#	VEH TYPE	E X						
00534	N N N	05/21/2014	YAMHILL	1	14		5-LEG	01 NONE	0						013	07
NONE	N	Wed 3P		UN	0		STOP SIGN	PRVTE	N S					000	00	00
			MCMINVL UA	06	0			PSNGR CAR						000	00	07
No	45 12	8.44 -123 10	46.21			048300100S00										
								02 NONE	0						011	013
								PRVTE	N S					000	000	00
								PSNGR CAR						000	000	00
														000	000	00
														000	000	00
								03 NONE	0						011	00
								PRVTE	N S					000	000	00
								PSNGR CAR						000	000	00
														000	000	00
00314	N N N N N	03/30/2017	YAMHILL	1	14		5-LEG	01 NONE	0							07,27
CITY	N	Thu 9A		MN	0		UNKNOWN	PRVTE	N S					000	000	00
			MCMINVL UA	06	0			PSNGR CAR						000	038	07,27
No	45 12	8.44 -123 10	46.21			048300100S00										
								02 NONE	0						011	00
								PRVTE	N S					000	000	00
								PSNGR CAR						000	000	00
														000	000	00
00022	Y N N N N	01/07/2017	YAMHILL	1	14		5-LEG	01 NONE	0						124	01,08
CITY	N	Sat 1P		MN	0		STOP SIGN	PRVTE	S E					000	124	00
			MCMINVL UA	06	0			PSNGR CAR						000	017	01,08
No	45 12	8.44 -123 10	46.21			048300100S00										
								02 NONE	0						012	00
								PRVTE	E W					000	000	00
								PSNGR CAR						000	000	00
														000	000	00
00275	N N N N N	03/17/2014	YAMHILL	1	14		5-LEG	01 NONE	0							07
CITY	N	Mon 12P		MN	0		STOP SIGN	PRVTE	S N					000	000	00
			MCMINVL UA	06	0			PSNGR CAR						000	000	07
No	45 12	8.44 -123 10	46.21			048300100S00										
								02 NONE	0						011	00
								PRVTE	S N					000	000	00
								PSNGR CAR						000	000	00
														000	000	00

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at Norton Ln & Cumulus Ave
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2014														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	1	0	1	0	1
2014 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	1
YEAR: 2013														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2013 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	1	1	2	0	1	0	2	0	2	0	2	0	1

Disclaimers: Effective 2016, collection of “Property Damage Only” (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Norton Ln
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2017														
TURNING MOVEMENTS	0	2	0	2	0	3	0	2	0	1	1	2	0	0
2017 TOTAL	0	2	0	2	0	3	0	2	0	1	1	2	0	0
YEAR: 2016														
ANGLE	0	1	0	1	0	3	0	1	0	1	0	1	0	0
PEDESTRIAN	0	1	0	1	0	1	0	0	1	0	1	1	0	0
REAR-END	0	1	1	2	0	1	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	1	1	2	0	3	0	1	1	2	0	2	0	0
2016 TOTAL	0	4	2	6	0	8	0	4	2	5	1	6	0	0
YEAR: 2015														
REAR-END	0	1	0	1	0	3	0	1	0	1	0	1	0	0
2015 TOTAL	0	1	0	1	0	3	0	1	0	1	0	1	0	0
YEAR: 2014														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	1	0	1	0	1
REAR-END	0	2	2	4	0	2	0	0	3	4	0	4	0	0
2014 TOTAL	0	2	3	5	0	2	0	0	4	5	0	5	0	1
YEAR: 2013														
REAR-END	0	3	2	5	0	4	0	3	2	4	1	5	0	0
2013 TOTAL	0	3	2	5	0	4	0	3	2	4	1	5	0	0
FINAL TOTAL	0	12	7	19	0	20	0	10	8	16	3	19	0	1

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039 SALMON RIVER

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Norton Ln
 January 1, 2013 through December 31, 2017

SER#	E A / C O DATE	COUNTY	RD# FC CONN #	INT-TYP	SPCL USE	MOVE	A S	ACTN	EVENT	CAUSE
INVEST	E L M H R DAY/TIME	CITY	CMPT/MLG FIRST STREET	RD CHAR (MEDIAN)	INT-REL	OFFRD WTHR CRASH TYP	TRLR QTY MOVE	PRTC INJ	G E LICNS PED	
UNLOC?	D C J L K LAT/LONG	URBAN AREA	MILEPNT SECOND STREET	DIRECT LEGS TRAF-	RNDBT SURF COLL TYP	OWNER FROM	P# TYPE SVRTY	E X RES	LOC ERROR	
			LRS INTERSECTION SEQ#	LOCTN (#LANES)	CNTL	DRVWY LIGHT SVRTY	V# VEH TYPE TO			
							02 NONE 0 STOP			
							PRVTE W E			011 00
							PSNGR CAR	01 DRVR INJC	55 M OR-Y	000 000 00
										OR<25
00640	N N N 06/09/2014	YAMHILL	1 14	INTER	CROSS N	N UNK S-1STOP	01 NONE STRGHT			07
NONE	N Mon 8A	MCMINNVILLE	MN 0 NE NORTON LN	W	TRF SIGNAL	N UNK REAR	PRVTE W E			000 00
			46.69 SALMON RIVER HY	06	0	N DAY PDO	PSNGR CAR	01 DRVR NONE	29 M OR-Y	026 000 07
No	45 12 3.32 -123	9 59.72	003900100S00	1						OR<25
							02 NONE 0 STOP			
							PRVTE W E			011 00
							PSNGR CAR	01 DRVR NONE	51 F OR-Y	000 000 00
										OR<25
00263	N N N N N 03/15/2015	YAMHILL	1 14	INTER	CROSS N	N CLD S-STRGHT	01 NONE 0 STRGHT			33,29
STATE	N Sun 1P	MCMINNVILLE	MN 0 NE NORTON LN	W	TRF SIGNAL	N DRY REAR	PRVTE W E			000 00
			46.69 SALMON RIVER HY	06	0	N DAY INJ	PSNGR CAR	01 DRVR NONE	23 F OR-Y	051,043 000 33,29
No	45 12 3.32 -123	9 59.72	003900100S00	1						OR<25
							02 NONE 0 STRGHT			
							PRVTE W E			006 00
							PSNGR CAR	01 DRVR NONE	56 M OR-Y	000 000 00
										OR>25
								02 PSNG INJC	45 F	000 000 00
								03 PSNG INJC	55 F	000 000 00
								04 PSNG INJB	03 M	000 000 00
								05 PSNG NO<5	01 M	000 000 00
01309	N N N 11/01/2016	YAMHILL	1 14	INTER	CROSS N	N CLR O-OTHER	01 NONE 9 TURN-L			04,02,08
NONE	N Tue 10A	MCMINNVILLE	MN 0 NE NORTON LN	CN	TRF SIGNAL	N DRY TURN	N/A S W			000 00
			46.69 SALMON RIVER HY	01	0	N DAY PDO	PSNGR CAR	01 DRVR NONE	00 U UNK	000 000 00
No	45 12 3.32 -123	9 59.72	003900100S00	1						UNK
							02 NONE 9 TURN-R			
							N/A N W			000 00
							PSNGR CAR	01 DRVR NONE	00 U UNK	000 000 00
										UNK
01163	N N N N N 10/23/2017	YAMHILL	1 14	INTER	CROSS N	N CLR ANGL-OTH	01 NONE 0 STRGHT			003,013 04
CITY	N Mon 10A	MCMINNVILLE	MN 0 NE NORTON LN	CN	TRF SIGNAL	N DRY TURN	PRVTE E W			000 00
			46.69 SALMON RIVER HY	01	0	N DAY INJ	PSNGR CAR	01 DRVR INJB	17 M OR-Y	020 000 003 04
No	45 12 3.32 -123	9 59.72	003900100S00	1						OR<25

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

039 SALMON RIVER
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Intersectional Crashes at OR-18, Salmon River Hwy (039) & Norton Ln
January 1, 2013 through December 31, 2017

Table with columns: SER#, INVEST, UNLOC?, E, L, M, H, R, DATE, COUNTY, CITY, URBAN AREA, RD#, FC, CMPT/MLG, MILEPNT, LRS, CONN #, FIRST STREET, SECOND STREET, INTERSECTION SEQ#, RD CHAR, DIRECT, LOCTN, INT-TYP, INT-REL, OFFRD, WTHR, CRASH TYP, COLL TYP, SVRTY, SPCL USE, TRLR QTY, OWNER, V# VEH TYPE, MOVE, FROM, PRTC, INJ, SVRTRY, A, S, G, E, LICNS, PED, LOC, ERROR, ACTN, EVENT, CAUSE.

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Cumulus Ave
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2016														
TURNING MOVEMENTS	0	1	0	1	0	1	0	0	1	1	0	1	0	0
2016 TOTAL	0	1	0	1	0	1	0	0	1	1	0	1	0	0
YEAR: 2013														
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2013 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
FINAL TOTAL	0	2	0	2	0	2	0	1	1	2	0	2	0	0

Disclaimers: Effective 2016, collection of “Property Damage Only” (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

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

039 SALMON RIVER
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Intersectional Crashes at OR-18, Salmon River Hwy (039) & Cumulus Ave
 January 1, 2013 through December 31, 2017

SER#	E A / C O	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	SPCL USE	MOVE	A S	ACTN	EVENT	CAUSE							
INVEST	E L M H R	DAY/TIME	CITY	CMPT/MLG	FIRST	STREET	RD CHAR	TRLR QTY	OWNER	FROM	PRTC	INJ	G E LICNS	PED						
UNLOC?	D C J L K	LAT/LONG	URBAN AREA	MILEPNT	SECOND	STREET	DIRECT	VEH TYPE	TO	P#	TYPE	SVRVTY	E X RES	LOC	ERROR					
				LRS	INTERSECTION	SEQ#	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#							
00914	N N N N N	10/15/2013	YAMHILL	1	14		INTER	01 NONE	0	TURN-L							08,27			
NONE	N	Tue 2P	MCMINNVILLE	MN	0	SALMON RIVER HY	W	PRVTE	W N								00			
			MCMINVL UA	47.39		CUMULUS AVE CN	06						01	DRVR	NONE	81	F OTH-Y	006,016	038	08,27
No	45 12	3.23 -123	9 8.34	003900100S00			1										N-RES			
								02 NONE	0	STRGHT							00	00		
								PRVTE	W E								000	000		00
								PSNGR CAR					01	DRVR	INJC	39	F SUSP	000	000	00
																	OR<25			
01457	Y N N N N	12/02/2016	YAMHILL	1	14		INTER	01 NONE	0	TURN-L							04			
STATE	N	Fri 3P	MCMINNVILLE	MN	0	SALMON RIVER HY	CN	PRVTE	W N								00			
			MCMINVL UA	47.39		CUMULUS AVE CN	02						01	DRVR	NONE	48	F OR-Y	000	000	00
No	45 12	3.23 -123	9 8.34	003900100S00			1										OR<25			
													02	PSNG	INJC	00	F	000	000	00
								02 NONE	0	STRGHT							000	000		00
								PRVTE	E W								000	000		00
								PSNGR CAR					01	DRVR	NONE	16	M OR-Y	020	000	04
																	OR<25			

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Armory Way
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR:														
TOTAL														
FINAL TOTAL														

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Loop Rd
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2016														
TURNING MOVEMENTS	0	1	0	1	0	4	0	1	0	0	1	1	0	0
2016 TOTAL	0	1	0	1	0	4	0	1	0	0	1	1	0	0
FINAL TOTAL	0	1	0	1	0	4	0	1	0	0	1	1	0	0

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

039 SALMON RIVER
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Intersectional Crashes at OR-18, Salmon River Hwy (039) & Loop Rd
 January 1, 2013 through December 31, 2017

SER#	E A / C O	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	SPCL USE	TRLR QTY	MOVE	A S					ACTN	EVENT	CAUSE								
INVEST	E L M H R	DAY/TIME	CITY	CMPT/MLG	FIRST	STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	OWNER	FROM	PRTC	INJ	G E	LICNS	PED							
UNLOC?	D C J L K	LAT/LONG	URBAN AREA	MILEPNT	SECOND	STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	VEH TYPE	TO	P#	TYPE	SVRTY	E X	RES	LOC	ERROR					
01604	N N N N N	12/30/2016	YAMHILL	1	14		INTER	3-LEG	N		N CLR	ANGL-OTH	01	NONE	0	STRGHT									02	
STATE	N	Fri 5P	MCMINNVILLE	MN	0	SE LOOP RD	CN		STOP SIGN	N DRY	TURN		PRVTE	E W											00	
			MCMINVL UA	48.53		SALMON RIVER HY	01	1		N DLIT	INJ		PSNGR CAR		01	DRVR	INJC	19	F	OR-Y		000		000	00	
No	45	12 8.79 -123	7 44.80	003900100S00															OR<25						00	
															02	PSNG	INJC	49	F			000		000	00	
															02	NONE	0	TURN-L								
																PRVTE	N E								015	00
																PSNGR CAR		01	DRVR	INJC	68	F	OR-Y	028	000	02
																			OR<25							
																02	PSNG	INJC	68	M		000		000	00	

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Cruickshank Rd
January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2017														
TURNING MOVEMENTS	0	6	2	8	0	15	1	4	4	7	1	8	0	0
2017 TOTAL	0	6	2	8	0	15	1	4	4	7	1	8	0	0
YEAR: 2016														
TURNING MOVEMENTS	0	4	1	5	0	9	0	4	1	4	1	5	0	0
2016 TOTAL	0	4	1	5	0	9	0	4	1	4	1	5	0	0
YEAR: 2015														
ANGLE	0	0	1	1	0	0	0	0	1	0	1	1	0	0
REAR-END	0	0	1	1	0	0	0	1	0	0	1	1	0	0
SIDESWIPE - MEETING	0	0	1	1	0	0	1	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	9	3	12	0	24	0	10	2	10	2	12	0	0
2015 TOTAL	0	9	6	15	0	24	1	12	3	11	4	15	0	0
YEAR: 2014														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	0	1	0	1	0	1
REAR-END	0	0	1	1	0	0	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	2	1	3	0	2	0	1	2	2	1	3	0	0
2014 TOTAL	0	2	4	6	0	2	0	3	2	4	2	6	0	1
YEAR: 2013														
BACKING	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	1	0	1	0	1
REAR-END	0	1	0	1	0	1	0	0	1	0	1	1	0	0
TURNING MOVEMENTS	0	5	0	5	0	9	0	4	1	5	0	5	0	0
2013 TOTAL	0	7	1	8	0	11	0	6	2	7	1	8	0	1
FINAL TOTAL	0	28	14	42	0	61	2	29	12	33	9	42	0	2

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

039 SALMON RIVER

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Cruickshank Rd
January 1, 2013 through December 31, 2017

Table with columns: SER#, INVEST UNLOC?, E A / C O DATE, COUNTY, RD# FC CONN #, INT-TYP, RD CHAR, INT-REL, OFFRD WTHR, CRASH TYP, SPCL USE, MOVE, A S, LICNS, PED, ACTN EVENT, CAUSE. Includes rows for crashes on 02/21/2017, 08/17/2017, and 09/12/2017.

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN, ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED
4	EXP	EXPIRED
8	N-VAL	OTHER NON-VALID LICENSE
9	UNK	UNKNOWN IF DRIVER WAS LICENSED AT TIME OF CRASH

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNEED FROM WRONG LANE
007	TO WRONG	TURNEED INTO WRONG LANE
008	ILLEG U	U-TURNEED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)
135	RAIL OCC	INJURED OCCUPANT OF RAILWAY TRAIN, LIGHT RAIL, STREET CAR OR CABLE CAR

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN MAJOR COLLECTOR
18	URBAN MINOR COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUplet
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY (K)
2	INJA	SUSPECTED SERIOUS INJURY (A)
3	INJB	SUSPECTED MINOR INJURY (B)
4	INJC	POSSIBLE INJURY (C)
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	NO APPARENT INJURY (O)

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY
9	PARKNG	PARKING MANEUVER

NON-MOTORIST LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYAL
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OB
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN (
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	OTHR	OTHER TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFGR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING
095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS
099	UNKNOWN	UNKNOWN OR NOT DEFINITE

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

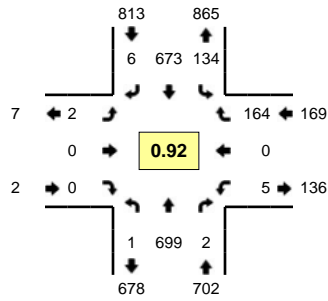
WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

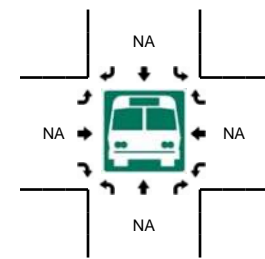
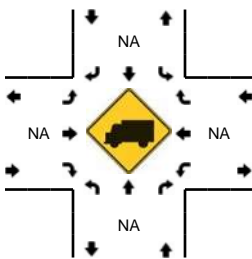
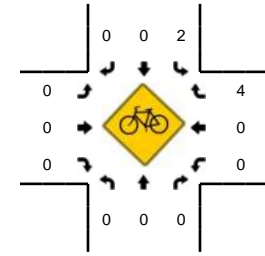
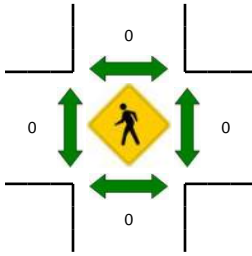
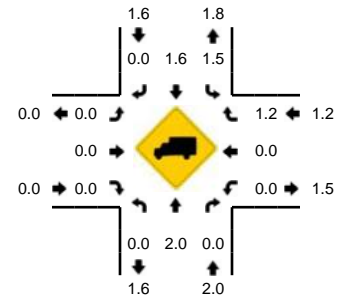
Appendix B Intersection Turning
Movement Count Data

LOCATION: NE 3 Mile Ln -- NE Cumulus Ave/SE Nehemiah Ln
CITY/STATE: McMinnville, OR

QC JOB #: 10766601
DATE: Wed, May 23 2012



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:05 PM -- 5:20 PM



5-Min Count Period Beginning At	NE 3 Mile Ln (Northbound)				NE 3 Mile Ln (Southbound)				NE Cumulus Ave/SE Nehemiah Ln (Eastbound)				NE Cumulus Ave/SE Nehemiah Ln (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
4:00 PM	0	43	0	0	4	49	1	0	0	0	0	0	0	0	0	10	0	107	
4:05 PM	0	36	0	0	7	44	0	0	1	0	0	0	1	0	18	0	107		
4:10 PM	0	53	1	0	11	43	0	0	0	0	1	0	1	0	18	0	128		
4:15 PM	1	60	0	0	9	43	1	0	0	0	0	0	0	0	15	0	129		
4:20 PM	0	46	0	0	9	46	0	0	0	0	0	0	0	0	7	0	108		
4:25 PM	0	54	0	0	7	43	1	0	0	0	0	0	1	0	13	0	119		
4:30 PM	0	60	0	0	18	47	0	0	0	0	0	0	1	0	21	0	147		
4:35 PM	0	46	0	0	4	67	0	0	0	0	0	0	0	0	13	0	130		
4:40 PM	1	53	0	0	9	58	0	0	0	0	0	0	0	0	15	0	136		
4:45 PM	0	55	0	0	13	43	0	0	0	0	0	0	0	0	8	0	119		
4:50 PM	0	51	0	0	13	62	1	0	0	0	0	0	0	0	16	0	143		
4:55 PM	0	49	0	0	11	55	0	0	0	0	0	0	0	0	12	0	127	1500	
5:00 PM	0	58	1	0	10	66	1	0	1	0	0	0	1	0	17	0	155	1548	
5:05 PM	0	53	0	0	18	68	0	0	0	0	0	0	1	0	12	0	152	1593	
5:10 PM	0	59	0	0	15	60	0	0	0	0	0	0	0	0	13	0	147	1612	
5:15 PM	0	82	1	0	12	51	0	0	1	0	0	0	1	0	9	0	157	1640	
5:20 PM	0	62	0	0	4	39	1	0	0	0	0	0	0	0	13	0	119	1651	
5:25 PM	0	71	0	0	7	57	3	0	0	0	0	0	1	0	15	0	154	1686	
5:30 PM	0	36	0	0	13	55	1	0	0	0	0	0	1	1	6	0	113	1652	
5:35 PM	0	44	0	0	12	48	0	0	0	0	0	0	0	0	10	0	114	1636	
5:40 PM	0	45	0	0	10	40	0	0	0	0	1	0	1	0	12	0	109	1609	
5:45 PM	0	46	1	0	14	35	0	0	0	0	0	0	0	0	9	0	105	1595	
5:50 PM	0	37	0	0	14	33	1	0	0	0	0	0	1	0	14	0	100	1552	
5:55 PM	0	31	1	0	7	39	0	0	0	0	0	0	1	0	13	0	92	1517	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	0	776	4	0	180	716	0	0	4	0	0	0	8	0	136	0	1824		
Heavy Trucks	0	12	0	0	0	8	0	0	0	0	0	0	0	0	8	0	28		
Pedestrians		0				0				0				0			0		
Bicycles	0	0	0		0	0	0		0	0	0		0	0	1		1		
Railroad																			
Stopped Buses																			

Comments:

**Summary of Traffic Count
Transportation Development Division**

Site: 48446	Date: 4/3/2018
County: Yamhill	Hours: 6:00 AM-10:00 PM
City: McMinnville	Highway #: 039
Milepoint: 47.39	SALMON RIVER HIGHWAY
Count Number: 1.00	Location: NO. 39 at Cumulus Ave
	Weather:

Time of Day	Summary By Movements							Entering Volumes		
	N-E	N-W	E-N	E-W	W-N	W-E	TOTAL	North	East	West
6:00	4	15	2	54	4	139	218	19	56	143
6:15	7	8	1	69	4	148	237	15	70	152
6:30	7	12	0	89	9	186	303	19	89	195
6:45	9	14	5	138	8	196	370	23	143	204
7:00	3	14	4	134	3	187	345	17	138	190
7:15	6	16	7	180	8	180	397	22	187	188
7:30	3	15	6	230	9	175	438	18	236	184
7:45	3	32	22	260	25	169	511	35	282	194
8:00	3	12	10	201	25	150	401	15	211	175
8:15	2	15	6	206	27	158	414	17	212	185
8:30	1	15	10	158	20	150	354	16	168	170
8:45	3	15	9	173	22	139	361	18	182	161
9:00	1	14	10	153	15	135	328	15	163	150
9:15	2	15	10	125	20	128	300	17	135	148
9:30	3	24	7	120	21	149	324	27	127	170
9:45	5	17	10	159	25	132	348	22	169	157
10:00	5	14	8	151	19	142	339	19	159	161
10:15	5	21	11	147	22	173	379	26	158	195
10:30	7	28	6	165	20	154	380	35	171	174
10:45	3	16	7	163	33	128	350	19	170	161
11:00	6	12	7	142	30	140	337	18	149	170
11:15	6	16	21	195	25	130	393	22	216	155
11:30	7	34	19	154	24	162	400	41	173	186
11:45	0	28	15	164	32	158	397	28	179	190
12:00	7	24	14	165	28	168	406	31	179	196
12:15	4	31	11	168	35	132	381	35	179	167
12:30	10	27	16	169	29	162	413	37	185	191
12:45	8	22	16	156	35	157	394	30	172	192
13:00	10	26	11	136	27	161	371	36	147	188
13:15	9	23	12	134	19	182	379	32	146	201
13:30	4	27	9	147	30	135	352	31	156	165
13:45	2	31	16	179	32	156	416	33	195	188
14:00	13	46	6	167	18	139	389	59	173	157
14:15	9	29	8	160	22	149	377	38	168	171
14:30	7	21	6	169	34	179	416	28	175	213
14:45	11	28	14	179	29	175	436	39	193	204
15:00	17	36	7	184	28	175	447	53	191	203
15:15	9	21	12	191	28	170	431	30	203	198
15:30	11	36	7	182	43	199	478	47	189	242
15:45	15	30	13	211	34	205	508	45	224	239
16:00	20	27	9	245	28	211	540	47	254	239
16:15	17	32	7	259	34	204	553	49	266	238
16:30	18	36	9	253	25	207	548	54	262	232
16:45	13	35	11	241	16	212	528	48	252	228
17:00	29	26	9	244	24	239	571	55	253	263
17:15	16	43	15	225	31	220	550	59	240	251
17:30	12	28	11	212	30	163	456	40	223	193
17:45	9	38	7	204	14	146	418	47	211	160
18:00	8	36	5	153	13	130	345	44	158	143
18:15	13	32	7	179	22	144	397	45	186	166
18:30	10	17	2	138	26	129	322	27	140	155
18:45	13	22	5	139	19	121	319	35	144	140
19:00	11	22	11	128	15	122	309	33	139	137
19:15	9	31	3	82	17	132	274	40	85	149
19:30	5	12	5	87	12	106	227	17	92	118
19:45	2	6	1	85	15	98	207	8	86	113
20:00	3	10	1	74	17	84	189	13	75	101
20:15	0	9	2	96	12	78	197	9	98	90
20:30	1	9	0	83	12	87	192	10	83	99
20:45	4	10	1	69	13	69	166	14	70	82
21:00	3	12	3	52	5	41	116	15	55	46
21:15	0	8	1	55	14	70	148	8	56	84
21:30	2	2	2	49	5	59	119	4	51	64
21:45	2	9	0	53	6	41	111	11	53	47
Total Count	467	1392	518	9832	1346	9465	23020	1859	10350	10811
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
24hr Volume	514	1532	570	10816	1481	10412	25322	2045	11385	11893

Summary of Traffic Count Transportation Development Division

Site: 49196	Date: 4/3/2018
County: Yamhill	Hours: 2:00 PM-6:00 PM
City: McMinnville	Highway #: 039
Milepoint: 47.67	HIGHWAY NO. 39 (OR18)
Count Number: 1.00	Location: at Armory Way
	Weather:

Time of Day	Summary By Movements							Entering Volumes		
	E-S	E-W	S-E	S-W	W-E	W-S	TOTAL	East	South	West
14:00	0	167	1	0	150	0	318	167	1	150
14:15	0	173	1	1	165	0	340	173	2	165
14:30	0	169	0	2	183	1	355	169	2	184
14:45	1	193	0	0	177	2	373	194	0	179
15:00	1	201	1	0	190	1	394	202	1	191
15:15	2	189	1	2	186	2	382	191	3	188
15:30	1	190	0	2	202	1	396	191	2	203
15:45	1	222	1	4	220	0	448	223	5	220
16:00	1	258	3	1	230	2	495	259	4	232
16:15	0	268	2	1	212	1	484	268	3	213
16:30	0	248	3	6	229	0	486	248	9	229
16:45	0	262	1	0	236	0	499	262	1	236
17:00	0	249	1	0	260	1	511	249	1	261
17:15	0	236	2	0	228	0	466	236	2	228
17:30	0	221	0	0	183	1	405	221	0	184
17:45	0	213	0	1	157	1	372	213	1	158
Total Count	7	3459	17	20	3208	13	6724	3466	37	3221
24hr Factor	1	1	1	1	1	1	1	1	1	1
24hr Volume	7	3459	17	20	3208	13	6724	3466	37	3221

**Summary of Traffic Count
Transportation Development Division**

Site: 48441	Date: 4/13/2018
County: Yamhill	Hours: 2:00 PM-6:00 PM
City: McMinnville	Highway #: 039
Milepoint: 48.53	SALMON RIVER HIGHWAY
Count Number: 1.00	Location: NO. 39 at SE Loop Rd (local)
	Weather:

Time of Day	Summary By Movements							Entering Volumes		
	N-E	N-W	E-N	E-W	W-N	W-E	TOTAL	North	East	West
14:00	2	11	3	156	3	141	316	13	159	144
14:15	0	2	1	156	5	149	313	2	157	154
14:30	2	9	1	155	5	157	329	11	156	162
14:45	3	2	1	177	6	179	368	5	178	185
15:00	2	7	4	190	5	180	388	9	194	185
15:15	4	4	1	176	3	174	362	8	177	177
15:30	1	5	2	173	4	181	366	6	175	185
15:45	1	5	0	223	4	206	439	6	223	210
16:00	1	4	0	241	3	226	475	5	241	229
16:15	2	5	0	261	1	205	474	7	261	206
16:30	2	4	2	241	3	228	480	6	243	231
16:45	4	5	1	247	2	220	479	9	248	222
17:00	3	4	0	236	1	257	501	7	236	258
17:15	0	5	1	215	1	226	448	5	216	227
17:30	1	5	0	213	1	181	401	6	213	182
17:45	3	1	3	207	3	146	363	4	210	149
Total Count	31	78	20	3267	50	3056	6502	109	3287	3106
24hr Factor	1	1	1	1	1	1	1	1	1	1
24hr Volume	31	78	20	3267	50	3056	6502	109	3287	3106

**Summary of Traffic Count
Transportation Development Division**

Site: 48447	Date: 4/3/2018
County: Yamhill	Hours: 6:00 AM-10:00 PM
City:	Highway #: 039
Milepoint: 48.59	SALMON RIVER HIGHWAY
Count Number: 1.00	Location: NO. 39 at SE Cruickshank Rd
	Weather:

Time of Day	Summary By Movements						Entering Volumes			
	E-S	E-W	S-E	S-W	W-E	W-S	TOTAL	East	South	West
6:00	2	48	7	11	126	19	213	50	18	145
6:15	2	48	7	14	141	23	235	50	21	164
6:30	1	64	1	27	144	44	281	65	28	188
6:45	3	102	1	36	137	56	335	105	37	193
7:00	1	109	9	34	146	46	345	110	43	192
7:15	3	133	6	61	148	46	397	136	67	194
7:30	2	151	8	77	143	30	411	153	85	173
7:45	2	204	6	91	138	25	466	206	97	163
8:00	0	133	3	48	112	32	328	133	51	144
8:15	1	175	3	55	114	28	376	176	58	142
8:30	1	127	2	35	134	29	328	128	37	163
8:45	2	140	2	50	115	24	333	142	52	139
9:00	1	92	2	40	101	22	258	93	42	123
9:15	1	101	0	31	95	31	259	102	31	126
9:30	1	105	0	27	114	32	279	106	27	146
9:45	3	118	2	33	111	22	289	121	35	133
10:00	0	126	1	33	99	33	292	126	34	132
10:15	0	114	1	24	134	28	301	114	25	162
10:30	2	130	2	25	112	26	297	132	27	138
10:45	0	117	1	42	100	32	292	117	43	132
11:00	3	121	0	21	100	26	271	124	21	126
11:15	0	133	1	43	102	27	306	133	44	129
11:30	1	117	2	35	136	23	314	118	37	159
11:45	2	148	4	30	116	25	325	150	34	141
12:00	1	133	3	34	125	36	332	134	37	161
12:15	3	119	2	30	86	20	260	122	32	106
12:30	3	143	3	27	131	26	333	146	30	157
12:45	1	131	1	23	124	25	305	132	24	149
13:00	1	105	3	32	132	37	310	106	35	169
13:15	1	118	2	31	132	38	322	119	33	170
13:30	2	118	1	24	98	35	278	120	25	133
13:45	0	135	4	43	114	30	326	135	47	144
14:00	1	125	0	32	118	25	301	126	32	143
14:15	3	124	2	36	125	24	314	127	38	149
14:30	2	117	4	36	141	18	318	119	40	159
14:45	2	140	0	38	145	37	362	142	38	182
15:00	2	151	0	45	150	32	380	153	45	182
15:15	3	130	4	46	133	43	359	133	50	176
15:30	1	143	6	32	141	46	369	144	38	187
15:45	2	178	1	46	167	44	438	180	47	211
16:00	8	179	2	61	171	55	476	187	63	226
16:15	5	197	3	64	168	39	476	202	67	207
16:30	5	184	1	58	183	49	480	189	59	232
16:45	7	184	3	64	171	51	480	191	67	222
17:00	4	168	3	67	203	64	509	172	70	267
17:15	4	156	4	61	171	55	451	160	65	226
17:30	4	166	7	47	128	53	405	170	54	181
17:45	3	164	2	47	121	27	364	167	49	148
18:00	4	110	1	31	113	17	276	114	32	130
18:15	2	134	0	36	108	31	311	136	36	139
18:30	0	114	2	33	119	22	290	114	35	141
18:45	0	100	1	32	107	23	263	100	33	130
19:00	1	102	0	20	106	32	261	103	20	138
19:15	3	57	1	23	95	32	211	60	24	127
19:30	1	68	1	17	83	30	200	69	18	113
19:45	3	62	1	17	70	20	173	65	18	90
20:00	3	63	1	25	65	15	172	66	26	80
20:15	0	66	2	12	58	15	153	66	14	73
20:30	2	65	0	13	65	13	158	67	13	78
20:45	1	57	1	14	67	9	149	58	15	76
21:00	1	43	0	9	30	14	97	44	9	44
21:15	0	41	0	9	49	13	112	41	9	62
21:30	0	47	0	10	43	13	113	47	10	56
21:45	2	35	0	14	30	7	88	37	14	37
Total Count	125	7528	143	2262	7504	1944	19506	7653	2405	9448
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
24hr Volume	138	8281	158	2489	8255	2139	21457	8419	2646	10393

**Summary of Traffic Count
Transportation Development Division**

Site: 48443	Date: 4/3/2018
County: Yamhill	Hours: 2:00 PM-6:00 PM
City: McMinnville	Highway #: 483
Milepoint: 47.16	HIGHWAY NO. 483 E.
Count Number: 1.00	Location: MCMINNVILLE FRONTAGE RD
	Weather:

Time of Day	Summary By Movements							Entering Volumes			
	N-S	N-W	S-N	S-W	W-N	W-S		TOTAL	North	South	West
14:00	39	12	35	16	16	5		123	51	51	21
14:15	32	16	32	14	14	9		117	48	46	23
14:30	50	19	26	14	13	13		135	69	40	26
14:45	31	16	38	20	14	10		129	47	58	24
15:00	38	10	20	16	11	13		108	48	36	24
15:15	35	18	33	17	12	13		128	53	50	25
15:30	46	14	32	14	16	14		136	60	46	30
15:45	37	22	28	19	17	12		135	59	47	29
16:00	41	16	39	28	9	9		142	57	67	18
16:15	34	13	26	21	7	8		109	47	47	15
16:30	41	6	31	20	10	18		126	47	51	28
16:45	46	9	31	17	9	12		124	55	48	21
17:00	54	20	33	8	13	26		154	74	41	39
17:15	39	7	26	20	10	17		119	46	46	27
17:30	26	5	21	8	10	16		86	31	29	26
17:45	21	8	21	11	8	14		83	29	32	22
Total Count	610	211	472	263	189	209		1954	821	735	398
24hr Factor	1	1	1	1	1	1		1	1	1	1
24hr Volume	610	211	472	263	189	209		1954	821	735	398

**Summary of Traffic Count
Transportation Development Division**

Site: 48444
County: Yamhill
City: McMinnville

Date: 4/3/2018
Hours: 6:00 AM-10:00 PM
Highway #: 7077

Milepoint: 46.99
Count Number: 1.00

Location: 3 Mile Ln at First St
Weather:

Time of Day	Summary By Movements													TOTAL	Entering Volumes			
	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	North		East	South	West	
6:00	0	49	0	1	0	0	29	0	11	0	1	31	122	49	1	40	32	
6:15	1	53	1	0	0	0	33	0	7	1	0	33	129	55	0	40	34	
6:30	0	91	0	0	0	1	40	0	11	0	0	46	189	91	1	51	46	
6:45	1	102	2	1	0	1	71	0	15	0	0	55	248	105	2	86	55	
7:00	0	89	0	1	0	0	63	0	17	1	0	47	218	89	1	80	48	
7:15	0	96	0	0	1	0	95	0	31	1	0	53	277	96	1	126	54	
7:30	0	90	1	0	0	0	115	0	40	0	0	45	291	91	0	155	45	
7:45	0	130	6	1	0	0	167	0	58	1	0	62	425	136	1	225	63	
8:00	1	151	0	2	0	0	119	0	27	0	0	61	361	152	2	146	61	
8:15	1	145	2	0	0	0	81	0	29	1	0	52	311	148	0	110	53	
8:30	0	90	0	0	0	0	99	0	26	0	0	48	263	90	0	125	48	
8:45	0	108	0	0	0	0	112	0	30	1	0	36	287	108	0	142	37	
9:00	0	95	1	2	0	0	103	1	30	0	0	38	270	96	2	134	38	
9:15	0	112	0	1	0	0	109	1	28	0	0	29	280	112	1	138	29	
9:30	1	110	0	1	0	0	83	1	31	0	0	30	257	111	1	115	30	
9:45	3	95	1	2	1	0	113	1	36	1	0	28	281	99	3	150	29	
10:00	0	116	1	0	0	0	119	0	26	2	0	47	311	117	0	145	49	
10:15	0	123	0	0	1	0	106	2	40	1	0	46	319	123	1	148	47	
10:30	0	107	0	1	0	0	123	0	34	1	0	38	304	107	1	157	39	
10:45	0	106	1	1	0	0	105	0	32	0	0	38	283	107	1	137	38	
11:00	0	109	0	0	0	0	112	1	22	1	0	33	278	109	0	135	34	
11:15	1	88	0	1	0	0	123	0	36	2	0	40	291	89	1	159	42	
11:30	0	114	0	0	0	0	129	0	39	0	0	37	319	114	0	168	37	
11:45	1	107	1	0	0	0	134	1	38	1	0	23	306	109	0	173	24	
12:00	0	143	3	0	0	0	131	0	46	1	0	42	366	146	0	177	43	
12:15	1	112	1	0	0	0	121	0	44	1	1	42	323	114	0	165	44	
12:30	0	114	1	0	1	0	112	0	24	2	0	38	292	115	1	136	40	
12:45	1	103	3	0	0	0	120	0	33	1	0	49	310	107	0	153	50	
13:00	1	115	1	0	0	0	96	1	30	0	0	37	281	117	0	127	37	
13:15	1	126	1	1	0	0	110	0	26	0	1	56	322	128	1	136	57	
13:30	1	99	0	2	0	0	104	0	28	1	0	51	286	100	2	132	52	
13:45	0	109	0	0	0	0	127	0	37	3	0	26	302	109	0	164	29	
14:00	0	119	0	0	0	0	158	2	33	0	0	43	355	119	0	193	43	
14:15	0	129	1	1	0	0	119	0	36	0	0	42	328	130	1	155	42	
14:30	1	144	0	2	0	0	142	0	38	1	0	39	367	145	2	180	40	
14:45	2	123	7	0	0	0	138	0	57	1	0	56	384	132	0	195	57	
15:00	1	138	2	0	0	0	143	0	38	0	0	48	370	141	0	181	48	
15:15	0	141	0	0	1	0	135	0	38	0	0	42	357	141	1	173	42	
15:30	3	184	0	0	0	1	140	1	43	0	0	43	415	187	1	184	43	
15:45	0	165	0	0	2	0	112	0	39	1	0	44	363	165	2	151	45	
16:00	0	151	0	1	0	0	184	1	53	0	0	49	439	151	1	238	49	
16:15	1	170	1	0	0	0	159	0	65	0	0	42	438	172	0	224	42	
16:30	1	157	2	2	1	0	149	2	58	0	0	64	436	160	3	209	64	
16:45	2	196	2	0	0	0	138	0	55	2	0	74	469	200	0	193	76	
17:00	0	219	0	0	0	0	170	1	59	2	0	60	511	219	0	230	62	
17:15	2	184	0	1	0	0	158	2	65	2	0	61	475	186	1	225	63	
17:30	1	147	0	0	0	0	146	0	50	0	0	42	386	148	0	196	42	
17:45	1	128	1	0	0	0	140	0	60	1	0	37	368	130	0	200	38	
18:00	3	98	0	0	0	0	153	0	71	0	0	41	366	101	0	224	41	
18:15	1	121	1	0	0	0	120	1	42	0	0	42	328	123	0	163	42	
18:30	0	132	0	0	0	0	96	1	42	1	0	37	309	132	0	139	38	
18:45	0	109	2	2	0	0	63	1	36	0	1	37	251	111	2	100	38	
19:00	3	106	0	0	0	0	83	0	24	0	1	27	244	109	0	107	28	
19:15	0	81	0	0	0	0	89	0	33	1	0	31	235	81	0	122	32	
19:30	3	88	0	1	0	0	70	0	29	0	0	16	207	91	1	99	16	
19:45	1	68	0	2	0	0	48	0	21	1	0	26	167	69	2	69	27	
20:00	1	79	0	1	0	0	48	1	23	0	0	18	171	80	1	72	18	
20:15	0	69	0	0	0	0	57	0	14	0	0	12	152	69	0	71	12	
20:30	1	44	0	1	0	0	43	0	23	0	0	25	137	45	1	66	25	
20:45	2	43	0	0	0	0	53	0	21	2	0	14	135	45	0	74	16	
21:00	0	30	0	0	0	0	29	0	16	0	0	7	82	30	0	45	7	
21:15	2	41	0	0	0	0	39	0	15	1	0	11	109	43	0	54	12	
21:30	0	33	0	1	0	0	26	0	12	0	0	14	86	33	1	38	14	
21:45	0	25	0	0	0	0	24	0	12	0	0	15	76	25	0	36	15	
Total Count	47	7059	46	33	8	3	6676	22	2183	40	5	2496	18618	7152	44	8881	2541	
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
24hr Volume	52	7765	51	37	9	4	7344	25	2402	44	6	2746	20480	7868	49	9770	2796	

3rd St at Johnson St (McMinnville)

Time	Ph1	Ph2	Ph3	Ph4	Ph5	Ph6	Ph7	Ph8
15:15	24	84		264	56	116	360	256
15:30	16	192		304	56	124	548	244
Peak Hour 15:45	8	120		352	32	136	512	352
17:00 16:00	20	120		304	56	120	400	228
18:00 16:15	20	92		300	44	152	376	184
16:30	32	128		340	60	156	516	232
16:45	28	132		332	24	200	532	292
17:00	36	236		400	28	180	516	312
17:15	28	160		424	48	180	508	272
17:30	16	92		272	40	112	440	196
17:45	28	76		288	28	104	324	176
18:00	20	96		212	64	132	360	172
18:15	12	60		296	28	140	316	124
18:30	4	124		276	36	124	348	240
18:45	16	108		308	48	104	280	132
19:00	0	56		212	24	76	232	108
19:15	4	40		140	16	72	196	88
19:30	16	76		144	16	40	228	92
19:45	4	84		140	40	36	116	100
20:00	20	48		132	28	56	168	224
20:15	4	76		120	40	56	128	132
20:30	0	40		128	4	52	116	76
20:45	4	60		68	28	52	108	88
21:00	8	36		76	20	32	96	84
21:15	0	20		92	24	48	84	36
21:30	0	36		108	16	32	80	60
21:45	12	16		44	8	40	56	44
22:00	12	24		68	0	40	68	32
22:15	0	12		52	4	12	32	44
22:30	4	24		48	16	24	48	20
22:45	0	20		24	4	24	32	12
23:00	0	12		24	4	20	28	12

TOTAL COUNTS: 214 1495 3653 624 1872 5027 3389
PEAK HOUR VOLUME: 44 236 424 80 200 548 436
PEAK HOUR TIME: 12:00 17:00 17:15 13:15 12:00 15:30 7:45

Col= 21 22 23 24 25 26 27 28 29
Col Letter= U V W X Y Z AA AB AC

PED Total

1160	5404	32
1484	5412	24
1512	5392	8
1248	5420	8
1168	5880	8
1464	6332	4
1540	6036	12
1708	5520	16
1620	4868	8
1168	4224	8
1024	4208	8
1056	4180	0
976	3832	4
1152	3412	8
996	2872	4
708	2396	4
556	2364	4
612	2364	4
520	2168	0
676	2056	4
556	1732	8
416	1480	0
408	1396	4
352	1208	0
304	1100	0
332	952	0
220	804	4
244	700	0
156	556	4
184		0
116		4
100		0

158

1708 6332

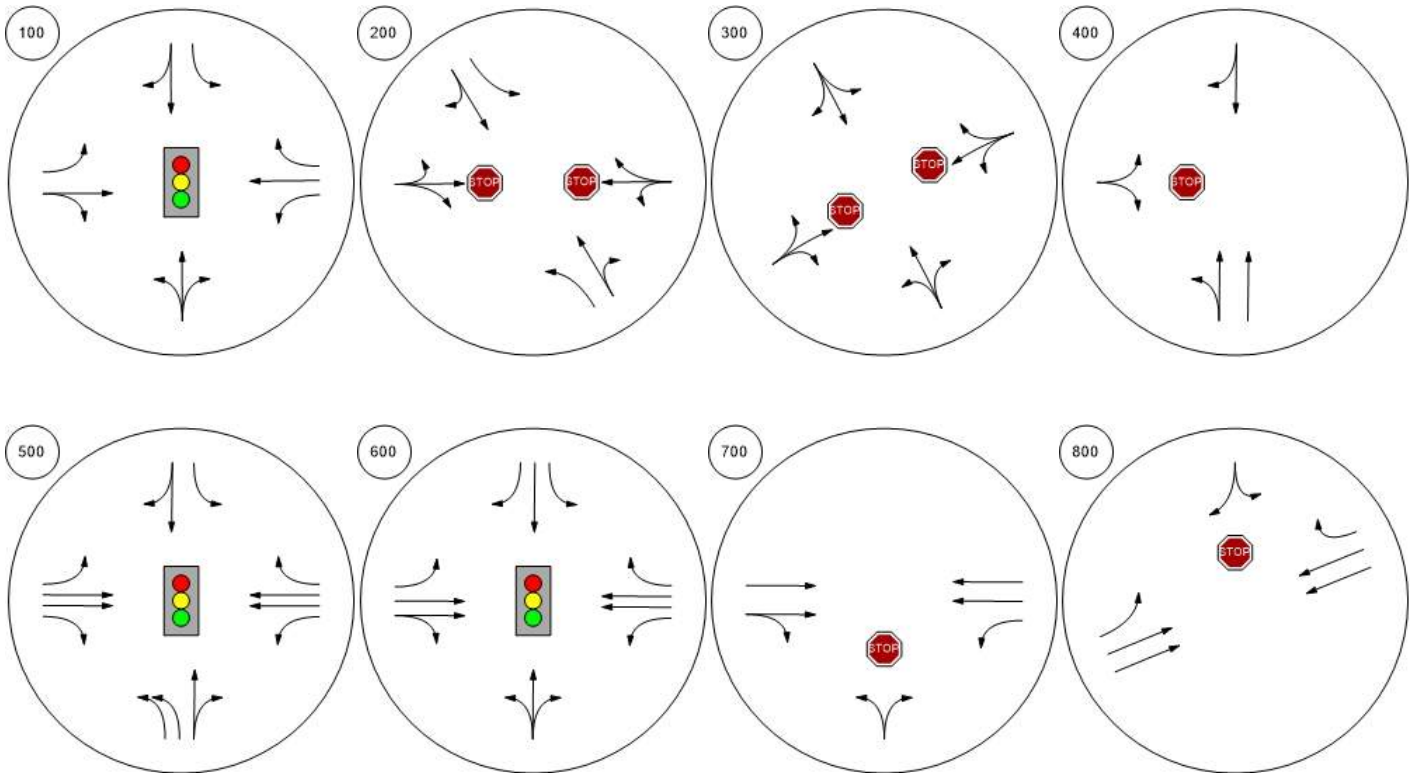
32

15:15

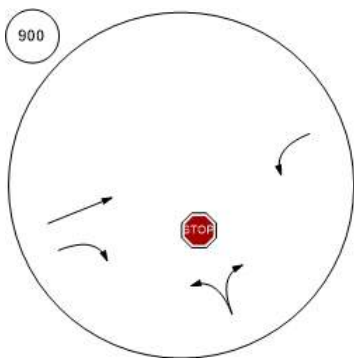
30 31 32 33 34 35 36
AD AE AF AG AH AI AJ

Appendix C 2020 Existing Traffic Volumes
and Analysis

Lane Configuration and Traffic Control



Lane Configuration and Traffic Control



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank

Season Adjustment Factor Calcs

Date: June 4, 2020

36-004

	2015	2016	2017	2018	2019
Peak Month (August)	107%	108%	105%	105%	108%
Count Date (April 3 rd)	99%*	101%*	100%*	100%*	101%*

XXX% Outliers *Interpolated due to count date

Avg **Peak Month** (August) is: $(108\%+107\%+105\%)/3 = 106.7\%$

Avg **Count Date** (April 3rd) is: $(100\%+100\%+101\%)/3 = 100.3\%$

Seasonal adjustment for **Count Date** = $106.7\%/100.3\% = 1.064$

36-006

	2015	2016	2017	2018	2019
Peak Month (August)	114%	117%	116%	117%	118%
Count Date (April 3 rd)	98%*	99%*	100%*	97%*	99%*

XXX% Outliers *Interpolated due to count date

Avg **Peak Month** (August) is: $(117\%+116\%+117\%)/3 = 116.7\%$

Avg **Count Date** (April 3rd) is: $(98\%+99\%+99\%)/3 = 98.7\%$

Seasonal adjustment for **Count Date** = $116.7\%/98.7\% = 1.182$

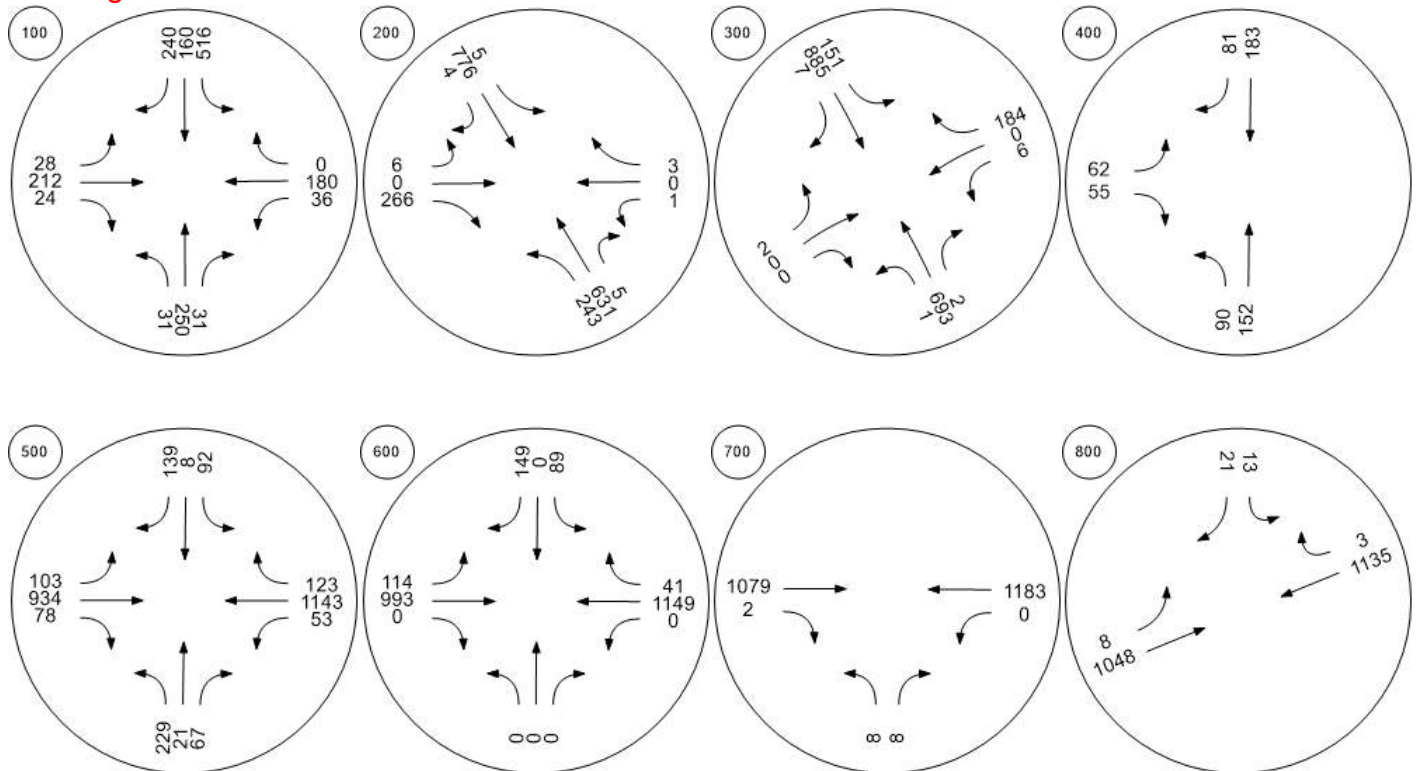
Average:

Seasonal adjustment for **Count Date** = 1.123

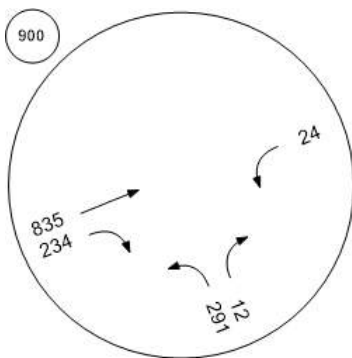
Traffic Volume - Base Volume



Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Base Volume



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank

Intersection Level Of Service Report
Intersection 100: NE Johnson St/NE 3rd St

Control Type:	Signalized	Delay (sec / veh):	36.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.698

Intersection Setup

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	225.00	100.00	100.00	120.00	100.00	120.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Base Volume Input [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	63	8	129	40	60	7	53	6	9	45	0
Total Analysis Volume [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Overlap	Permiss	ProtPer	Overlap	Unsigna
Signal Group	8	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		8			4			2			6	
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	0	7	7	0	3	5	0	3	5	0
Maximum Green [s]	30	30	0	40	55	0	20	30	0	20	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0
Split [s]	21	21	0	36	57	0	12	21	0	12	21	0
Vehicle Extension [s]	4.0	4.0	0.0	3.5	4.3	0.0	2.5	3.0	0.0	2.5	3.0	0.0
Walk [s]	7	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No		No	No		No	No		No	No	
Maximum Recall		No		No	No		No	No		No	No	
Pedestrian Recall		No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	L	C	L	C
C, Cycle Length [s]	102	102	102	102	102	102	102
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	24	35	63	2	17	11	26
g / C, Green / Cycle	0.23	0.34	0.61	0.02	0.16	0.11	0.25
(v / s)_i Volume / Saturation Flow Rate	0.21	0.32	0.26	0.02	0.14	0.02	0.11
s, saturation flow rate [veh/h]	1514	1603	1522	1603	1653	1603	1683
c, Capacity [veh/h]	391	545	931	33	272	70	422
d1, Uniform Delay [s]	33.90	27.17	4.38	49.73	38.98	40.17	28.43
k, delay calibration	0.27	0.34	0.17	0.08	0.22	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.79	21.34	0.50	32.73	15.20	5.69	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.95	0.43	0.85	0.87	0.51	0.43
d, Delay for Lane Group [s/veh]	42.69	48.51	4.88	82.46	54.18	45.85	29.11
Lane Group LOS	D	D	A	F	D	D	C
Critical Lane Group	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.74	13.82	1.90	1.01	6.50	0.91	3.34
50th-Percentile Queue Length [ft/ln]	193.57	345.60	47.47	25.19	162.60	22.67	83.49
95th-Percentile Queue Length [veh/ln]	12.31	19.92	3.42	1.81	10.69	1.63	6.01
95th-Percentile Queue Length [ft/ln]	307.65	498.04	85.45	45.34	267.17	40.81	150.28

Movement, Approach, & Intersection Results

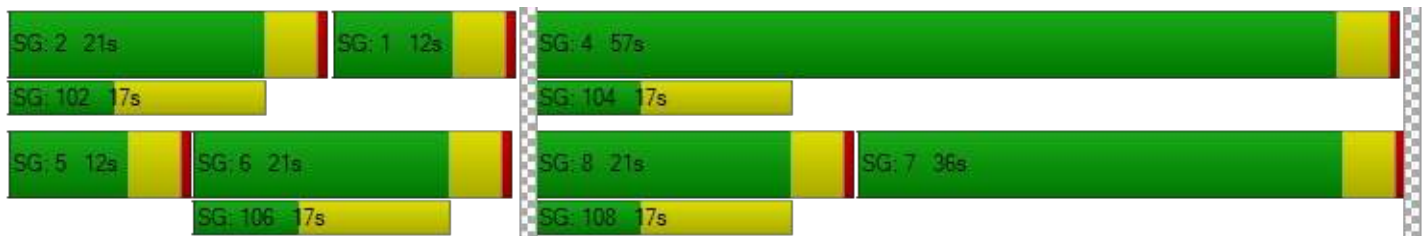
d_M, Delay for Movement [s/veh]	42.69	42.69	42.69	48.51	4.88	4.88	82.46	54.18	54.18	45.85	29.11	0.00
Movement LOS	D	D	D	D	A	A	F	D	D	D	C	
d_A, Approach Delay [s/veh]	42.69			29.45			57.18			31.90		
Approach LOS	D			C			E			C		
d_I, Intersection Delay [s/veh]	36.47											
Intersection LOS	D											
Intersection V/C	0.698											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	1.974	2.328	2.216	2.368
Crosswalk LOS	A	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	1178	378	378
d_b, Bicycle Delay [s]	29.61	7.61	29.61	29.61
I_b,int, Bicycle LOS Score for Intersection	2.074	3.071	1.995	1.916
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	-	7	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 200: NE Three Mile Ln/SE 1st St

Control Type:	Two-way stop	Delay (sec / veh):	696.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.182

Intersection Setup

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵			↵↵			⊕			⊕		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

Volumes

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	170	1	1	209	1	2	0	72	0	0	1
Total Analysis Volume [veh/h]	261	678	5	5	834	4	6	0	286	1	0	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.33	0.01	0.00	0.01	0.01	0.00	0.20	0.00	0.78	0.18	0.00	0.01
d_M, Delay for Movement [s/veh]	11.71	0.00	0.00	9.36	0.00	0.00	188.40	166.88	80.95	696.66	136.61	48.90
Movement LOS	B	A	A	A	A	A	F	F	F	F	F	E
95th-Percentile Queue Length [veh/ln]	1.43	0.00	0.00	0.02	0.00	0.00	9.94	9.94	9.94	0.55	0.55	0.55
95th-Percentile Queue Length [ft/ln]	35.80	0.00	0.00	0.45	0.00	0.00	248.48	248.48	248.48	13.87	13.87	13.87
d_A, Approach Delay [s/veh]	3.24			0.06			83.15			210.84		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	13.55											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 300: NE Three Mile Ln/SE Nehemiah Ln

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.164

Intersection Setup

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Base Volume Input [veh/h]	1	693	2	151	885	7	2	0	0	6	0	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	693	2	151	885	7	2	0	0	6	0	184
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	188	1	41	240	2	1	0	0	2	0	50
Total Analysis Volume [veh/h]	1	753	2	164	962	8	2	0	0	7	0	200
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			Yes	Yes
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.19	0.01	0.00	0.16	0.00	0.00	0.25	0.00	0.49
d_M, Delay for Movement [s/veh]	10.02	0.00	0.00	10.20	0.00	0.00	10000.0	10000.0	10000.0	162.16	144.12	42.57
Movement LOS	B	A	A	B	A	A	F	F	F	F	F	E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.71	0.71	0.71	1.00	1.00	1.00	5.32	5.32	5.32
95th-Percentile Queue Length [ft/ln]	0.10	0.10	0.10	17.64	17.64	17.64	25.00	25.00	25.00	133.09	133.09	133.09
d_A, Approach Delay [s/veh]	0.01			1.48			10000.00			46.61		
Approach LOS	A			A			F			E		
d_I, Intersection Delay [s/veh]	14.93											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 400: NE Cumulus Ave/ NE Norton Ln

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.141

Intersection Setup

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Base Volume Input [veh/h]	90	152	183	81	62	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	3.00	1.00	0.00	10.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	90	152	183	81	62	55
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	40	48	21	16	14
Total Analysis Volume [veh/h]	95	160	193	85	65	58
Pedestrian Volume [ped/h]	0		0		0	

Version 2020 (SP 0-5)

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.14	0.07
d_M, Delay for Movement [s/veh]	8.09	0.00	0.00	0.00	13.47	9.87
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.24	0.12	0.00	0.00	0.49	0.49
95th-Percentile Queue Length [ft/ln]	6.10	3.05	0.00	0.00	12.23	12.23
d_A, Approach Delay [s/veh]	3.01		0.00		11.77	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.38					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 500: NE Norton Ln/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.677

Intersection Setup

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐			⇐⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	11.00	2.00	3.00	0.00	2.00	2.00	3.00	5.00	4.00	3.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	6	18	24	2	37	27	248	21	14	304	33
Total Analysis Volume [veh/h]	244	22	71	98	9	148	110	994	83	56	1216	131
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	4	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		3,4			4,7							
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	20	60	0	20	60	0
Amber [s]	4.5	4.5	0.0	4.5	4.5	0.0	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	2.5	2.5	0.0	2.5	2.5	0.0	2.5	5.2	0.0	2.5	5.2	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	31	0	0	34	0	0	36	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	112	112	112	112	112	112	112	112	112	112
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	0.00	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	11	22	9	20	64	55	55	64	53	53
g / C, Green / Cycle	0.10	0.20	0.08	0.18	0.57	0.49	0.49	0.57	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.06	0.11	0.19	0.31	0.06	0.09	0.38	0.09
s, saturation flow rate [veh/h]	3138	1376	1590	1466	586	3179	1396	629	3179	1408
c, Capacity [veh/h]	313	269	131	261	291	1544	678	334	1496	662
d1, Uniform Delay [s]	49.49	39.10	50.56	42.63	19.42	21.67	15.84	14.19	25.56	17.40
k, delay calibration	0.08	0.08	0.08	0.08	0.26	0.26	0.26	0.08	0.26	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.15	0.57	6.27	1.66	1.90	1.07	0.19	0.17	2.59	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.35	0.75	0.60	0.38	0.64	0.12	0.17	0.81	0.20
d, Delay for Lane Group [s/veh]	52.63	39.66	56.83	44.29	21.32	22.74	16.03	14.37	28.15	17.75
Lane Group LOS	D	D	E	D	C	C	B	B	C	B
Critical Lane Group	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.48	2.26	2.92	4.13	1.31	9.27	1.14	0.59	13.31	1.94
50th-Percentile Queue Length [ft/ln]	86.90	56.54	73.03	103.24	32.86	231.76	28.47	14.67	332.83	48.42
95th-Percentile Queue Length [veh/ln]	6.26	4.07	5.26	7.43	2.37	14.26	2.05	1.06	19.30	3.49
95th-Percentile Queue Length [ft/ln]	156.42	101.78	131.45	185.82	59.14	356.60	51.25	26.40	482.43	87.16

Movement, Approach, & Intersection Results

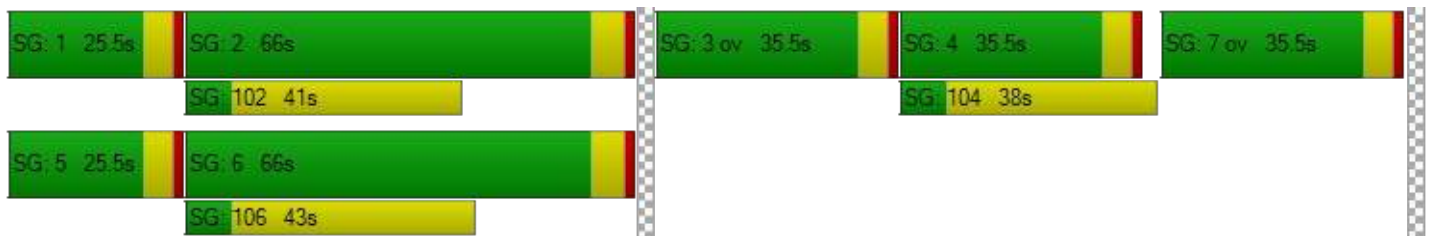
d_M, Delay for Movement [s/veh]	52.63	39.66	39.66	56.83	44.29	44.29	21.32	22.74	16.03	14.37	28.15	17.75
Movement LOS	D	D	D	E	D	D	C	C	B	B	C	B
d_A, Approach Delay [s/veh]	49.05			49.11			22.14			26.63		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	29.13											
Intersection LOS	C											
Intersection V/C	0.677											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.289	2.333	3.134	3.078
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1456	1511	1333	1333
d_b, Bicycle Delay [s]	3.33	2.69	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	2.116	1.980	2.539	2.717
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	7	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 600: Cumulus Ave/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	12.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.540

Intersection Setup

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	23	0	39	30	259	0	0	299	11
Total Analysis Volume [veh/h]	0	0	0	93	0	155	119	1034	0	0	1197	43
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	5	5	10	0	5	10	0
Maximum Green [s]	0	20	0	0	30	20	20	60	0	20	60	0
Amber [s]	0.0	4.5	0.0	0.0	4.5	4.5	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.5	0.0	0.0	2.5	2.5	2.5	4.0	0.0	2.5	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.5	0.0	0.0	3.5	3.5	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall		No			No	No	No	Yes		No	Yes	
Maximum Recall		No			No	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	68	68	68	68	68	68	68	68	68	68
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	3.50	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	10	10	10	23	46	41	41	46	33	33
g / C, Green / Cycle	0.15	0.15	0.15	0.34	0.68	0.60	0.60	0.68	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.00	0.07	0.00	0.11	0.18	0.31	0.31	0.00	0.38	0.03
s, saturation flow rate [veh/h]	1710	1265	1710	1408	675	1669	1669	584	3179	1454
c, Capacity [veh/h]	308	258	255	476	487	1003	1003	464	1567	716
d1, Uniform Delay [s]	0.00	26.65	0.00	16.75	8.22	7.85	7.85	0.00	14.03	9.02
k, delay calibration	0.08	0.08	0.08	0.08	0.15	0.15	0.15	0.08	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.63	0.00	0.29	0.37	0.59	0.59	0.00	1.13	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.36	0.00	0.33	0.24	0.52	0.52	0.00	0.76	0.06
d, Delay for Lane Group [s/veh]	0.00	27.29	0.00	17.04	8.58	8.43	8.43	0.00	15.17	9.07
Lane Group LOS	A	C	A	B	A	A	A	A	B	A
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	1.37	0.00	1.71	0.45	3.65	3.65	0.00	6.67	0.31
50th-Percentile Queue Length [ft/ln]	0.00	34.26	0.00	42.81	11.32	91.25	91.25	0.00	166.78	7.66
95th-Percentile Queue Length [veh/ln]	0.00	2.47	0.00	3.08	0.82	6.57	6.57	0.00	10.91	0.55
95th-Percentile Queue Length [ft/ln]	0.00	61.66	0.00	77.07	20.38	164.26	164.26	0.00	272.68	13.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	27.29	0.00	17.04	8.58	8.43	8.43	0.00	15.17	9.07
Movement LOS	A	A	A	C	A	B	A	A	A	A	B	A
d_A, Approach Delay [s/veh]	0.00			20.88			8.45			14.96		
Approach LOS	A			C			A			B		
d_I, Intersection Delay [s/veh]	12.67											
Intersection LOS	B											
Intersection V/C	0.540											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			34.67			34.67		
I_p,int, Pedestrian LOS Score for Intersection	1.714			2.319			2.788			2.969		
Crosswalk LOS	A			B			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	444			667			1333			1333		
d_b, Bicycle Delay [s]	27.22			20.00			5.00			5.00		
I_b,int, Bicycle LOS Score for Intersection	1.560			1.969			2.511			2.583		
Bicycle LOS	A			A			B			B		

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 700: NE Three Mile Ln/SE Armory Way

Control Type:	Two-way stop	Delay (sec / veh):	52.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.098

Intersection Setup

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	8	8	1079	2	0	1183
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	0.00	0.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	8	1079	2	0	1183
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	2	278	1	0	305
Total Analysis Volume [veh/h]	8	8	1112	2	0	1220
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	52.30	15.82	0.00	0.00	10.67	0.00
Movement LOS	F	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.38	0.38	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	9.46	9.46	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	34.06		0.00		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	0.23					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 800: NE Three Mile Ln/SE Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	74.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.216

Intersection Setup

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	21	8	1048	1135	3
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	5	2	270	293	1
Total Analysis Volume [veh/h]	13	22	8	1080	1170	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.22	0.05	0.02	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	74.45	23.02	11.91	0.00	0.00	0.00
Movement LOS	F	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.01	1.01	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	25.17	25.17	1.15	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	42.12		0.09		0.00	
Approach LOS	E		A		A	
d_I, Intersection Delay [s/veh]	0.68					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 900: NE Three Mile Ln/SE Cruickshank Rd

Control Type:	Two-way stop	Delay (sec / veh):	116.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.045

Intersection Setup

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↔		↕↔		↖	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	291	12	835	234	24	844
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	76	3	217	61	6	220
Total Analysis Volume [veh/h]	303	13	870	244	25	879
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

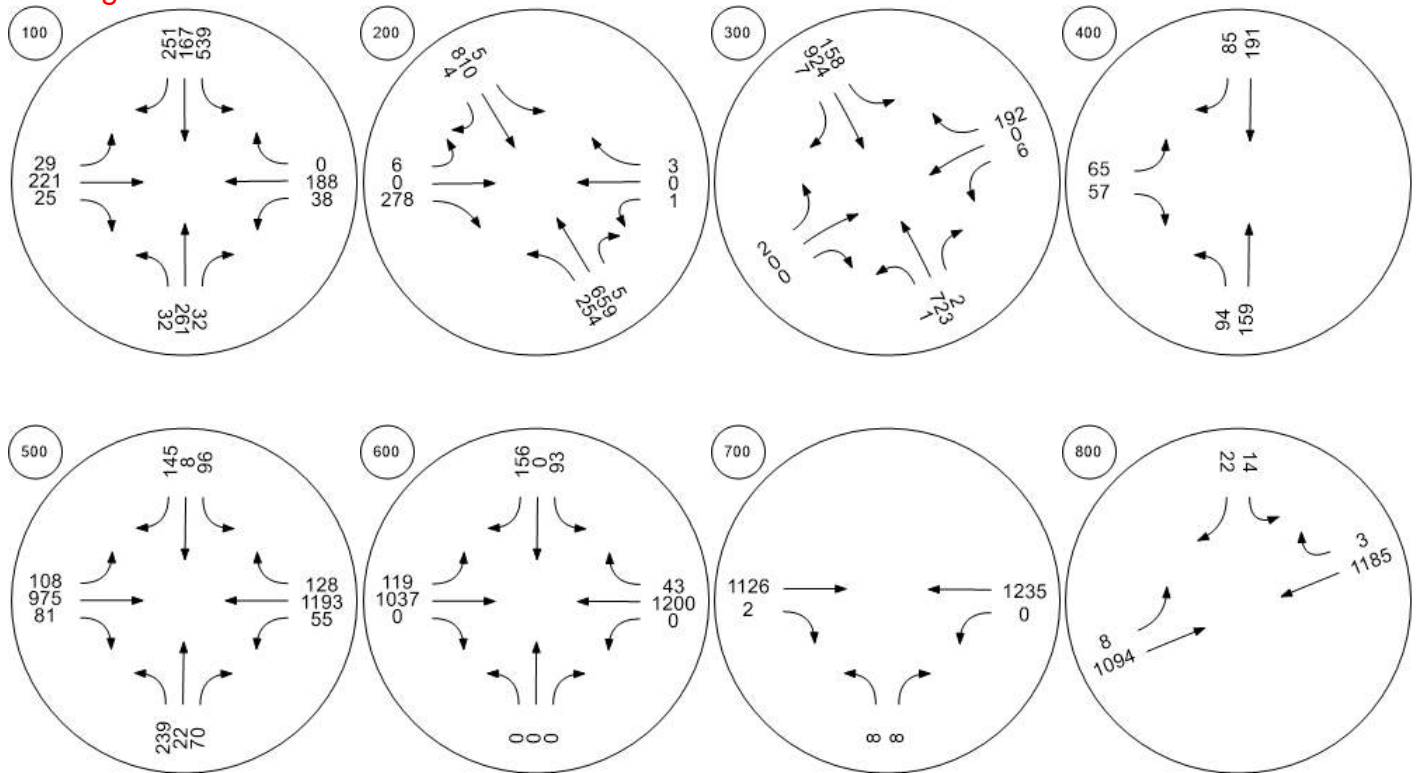
V/C, Movement V/C Ratio	1.05	0.04	0.01	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	115.99	114.18	0.00	0.00	9.75	0.00
Movement LOS	F	F	A	A	A	
95th-Percentile Queue Length [veh/ln]	12.51	12.51	0.00	0.00	0.10	0.00
95th-Percentile Queue Length [ft/ln]	312.79	312.79	0.00	0.00	2.47	0.00
d_A, Approach Delay [s/veh]	115.91		0.00		9.75	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	25.34					
Intersection LOS	F					

Appendix D 2022 Background Traffic
Volumes and Analysis

Traffic Volume - Future Total Volume



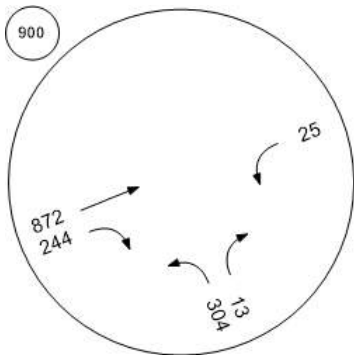
Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Future Total Volume



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank



Intersection Level Of Service Report
Intersection 100: NE Johnson St/NE 3rd St

Control Type:	Signalized	Delay (sec / veh):	42.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.727

Intersection Setup

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	225.00	100.00	100.00	120.00	100.00	120.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Base Volume Input [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	261	32	539	167	251	29	221	25	38	188	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	65	8	135	42	63	7	55	6	10	47	0
Total Analysis Volume [veh/h]	32	261	32	539	167	251	29	221	25	38	188	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Overlap	Permiss	ProtPer	Overlap	Unsigna
Signal Group	8	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		8			4			2			6	
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	0	7	7	0	3	5	0	3	5	0
Maximum Green [s]	30	30	0	40	55	0	20	30	0	20	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0
Split [s]	21	21	0	36	57	0	12	21	0	12	21	0
Vehicle Extension [s]	4.0	4.0	0.0	3.5	4.3	0.0	2.5	3.0	0.0	2.5	3.0	0.0
Walk [s]	7	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No		No	No		No	No		No	No	
Maximum Recall		No		No	No		No	No		No	No	
Pedestrian Recall		No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	L	C	L	C
C, Cycle Length [s]	113	113	113	113	113	113	113
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	27	39	70	2	19	12	28
g / C, Green / Cycle	0.24	0.35	0.62	0.02	0.17	0.11	0.25
(v / s)_i Volume / Saturation Flow Rate	0.22	0.34	0.27	0.02	0.15	0.02	0.11
s, saturation flow rate [veh/h]	1506	1603	1522	1603	1653	1603	1683
c, Capacity [veh/h]	391	558	943	35	278	64	424
d1, Uniform Delay [s]	37.39	29.54	4.45	54.54	42.66	44.40	31.29
k, delay calibration	0.33	0.43	0.20	0.08	0.30	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.03	27.70	0.61	29.02	21.05	8.56	0.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.97	0.44	0.83	0.88	0.60	0.44
d, Delay for Lane Group [s/veh]	50.41	57.24	5.06	83.56	63.71	52.95	32.02
Lane Group LOS	D	E	A	F	E	D	C
Critical Lane Group	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.44	16.93	2.12	1.09	7.90	1.09	3.89
50th-Percentile Queue Length [ft/ln]	236.05	423.28	52.99	27.37	197.47	27.25	97.27
95th-Percentile Queue Length [veh/ln]	14.48	23.68	3.82	1.97	12.51	1.96	7.00
95th-Percentile Queue Length [ft/ln]	362.04	591.98	95.38	49.27	312.70	49.06	175.08

Movement, Approach, & Intersection Results

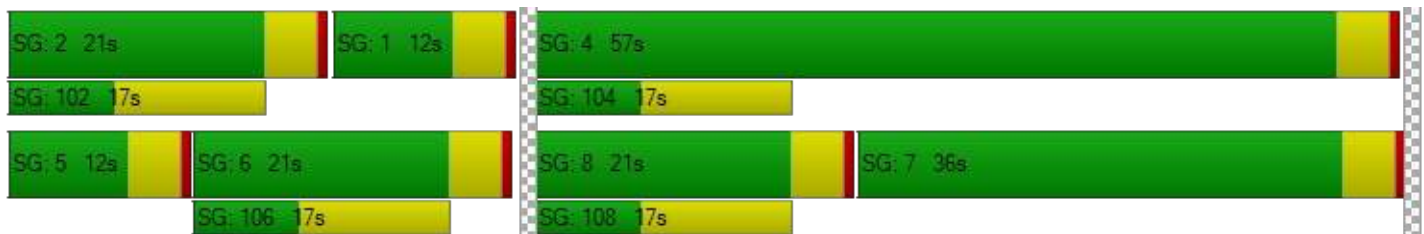
d_M, Delay for Movement [s/veh]	50.41	50.41	50.41	57.24	5.06	5.06	83.56	63.71	63.71	52.95	32.02	0.00
Movement LOS	D	D	D	E	A	A	F	E	E	D	C	
d_A, Approach Delay [s/veh]	50.41			34.45			65.81			35.54		
Approach LOS	D			C			E			D		
d_I, Intersection Delay [s/veh]	42.33											
Intersection LOS	D											
Intersection V/C	0.727											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			34.67			34.67		
l_p,int, Pedestrian LOS Score for Intersection	1.985			2.345			2.228			2.379		
Crosswalk LOS	A			B			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	378			1178			378			378		
d_b, Bicycle Delay [s]	29.61			7.61			29.61			29.61		
l_b,int, Bicycle LOS Score for Intersection	2.096			3.139			2.013			1.933		
Bicycle LOS	B			C			B			A		

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	-	7	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 200: NE Three Mile Ln/SE 1st St

Control Type:	Two-way stop	Delay (sec / veh):	1,320.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.334

Intersection Setup

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵			↵↵			⊕			⊕		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

Volumes

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	254	659	5	5	810	4	6	0	278	1	0	3
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	177	1	1	218	1	2	0	75	0	0	1
Total Analysis Volume [veh/h]	273	709	5	5	871	4	6	0	299	1	0	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.35	0.01	0.00	0.01	0.01	0.00	0.23	0.00	0.85	0.33	0.00	0.01
d_M, Delay for Movement [s/veh]	12.20	0.00	0.00	9.48	0.00	0.00	246.08	219.59	116.02	1320.74	233.05	127.57
Movement LOS	B	A	A	A	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	1.60	0.00	0.00	0.02	0.00	0.00	12.31	12.31	12.31	0.83	0.83	0.83
95th-Percentile Queue Length [ft/ln]	40.05	0.00	0.00	0.47	0.00	0.00	307.67	307.67	307.67	20.82	20.82	20.82
d_A, Approach Delay [s/veh]	3.37			0.05			118.58			425.86		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	18.96											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 300: NE Three Mile Ln/SE Nehemiah Ln

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.225

Intersection Setup

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Base Volume Input [veh/h]	1	693	2	151	885	7	2	0	0	6	0	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	723	2	158	924	7	2	0	0	6	0	192
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	196	1	43	251	2	1	0	0	2	0	52
Total Analysis Volume [veh/h]	1	786	2	172	1004	8	2	0	0	7	0	209
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			Yes	Yes
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.21	0.01	0.00	0.23	0.00	0.00	0.31	0.00	0.53
d_M, Delay for Movement [s/veh]	10.20	0.00	0.00	10.46	0.00	0.00	10000.0	10000.0	10000.0	210.76	190.20	59.86
Movement LOS	B	A	A	B	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.78	0.78	0.78	1.00	1.00	1.00	6.83	6.83	6.83
95th-Percentile Queue Length [ft/ln]	0.11	0.11	0.11	19.38	19.38	19.38	25.00	25.00	25.00	170.64	170.64	170.64
d_A, Approach Delay [s/veh]	0.01			1.52			10000.00			64.75		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	16.34											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 400: NE Cumulus Ave/ NE Norton Ln

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.153

Intersection Setup

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Base Volume Input [veh/h]	90	152	183	81	62	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	3.00	1.00	0.00	10.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	94	159	191	85	65	57
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	42	50	22	17	15
Total Analysis Volume [veh/h]	99	167	201	89	68	60
Pedestrian Volume [ped/h]	0		0		0	

Version 2020 (SP 0-5)

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.15	0.07
d_M, Delay for Movement [s/veh]	8.14	0.00	0.00	0.00	13.86	10.00
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.26	0.13	0.00	0.00	0.54	0.54
95th-Percentile Queue Length [ft/ln]	6.45	3.23	0.00	0.00	13.43	13.43
d_A, Approach Delay [s/veh]	3.03		0.00		12.05	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.43					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 500: NE Norton Ln/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.701

Intersection Setup

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐			⇐⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	11.00	2.00	3.00	0.00	2.00	2.00	3.00	5.00	4.00	3.00	4.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	239	22	70	96	8	145	108	975	81	55	1193	128
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	6	19	26	2	39	29	259	22	15	317	34
Total Analysis Volume [veh/h]	254	23	74	102	9	154	115	1037	86	59	1269	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	4	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		3,4			4,7							
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	20	60	0	20	60	0
Amber [s]	4.5	4.5	0.0	4.5	4.5	0.0	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	2.5	2.5	0.0	2.5	2.5	0.0	2.5	5.2	0.0	2.5	5.2	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	31	0	0	34	0	0	36	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	117	117	117	117	117	117	117	117	117	117
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	0.00	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	12	23	10	21	67	58	58	67	56	56
g / C, Green / Cycle	0.10	0.20	0.08	0.18	0.57	0.49	0.49	0.57	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.06	0.11	0.20	0.33	0.06	0.10	0.40	0.10
s, saturation flow rate [veh/h]	3138	1376	1590	1466	567	3179	1396	608	3179	1408
c, Capacity [veh/h]	320	272	133	263	276	1558	684	318	1506	667
d1, Uniform Delay [s]	51.56	40.67	52.72	44.50	21.76	22.67	16.27	15.20	27.10	18.02
k, delay calibration	0.08	0.08	0.08	0.08	0.26	0.26	0.26	0.08	0.26	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.32	0.58	6.62	1.76	2.36	1.16	0.19	0.21	3.13	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.36	0.76	0.62	0.42	0.67	0.13	0.19	0.84	0.20
d, Delay for Lane Group [s/veh]	54.89	41.26	59.34	46.26	24.12	23.83	16.47	15.40	30.23	18.38
Lane Group LOS	D	D	E	D	C	C	B	B	C	B
Critical Lane Group	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.80	2.47	3.19	4.51	1.46	10.30	1.23	0.65	15.02	2.11
50th-Percentile Queue Length [ft/ln]	94.92	61.83	79.71	112.67	36.56	257.58	30.84	16.31	375.45	52.82
95th-Percentile Queue Length [veh/ln]	6.83	4.45	5.74	7.99	2.63	15.57	2.22	1.17	21.37	3.80
95th-Percentile Queue Length [ft/ln]	170.86	111.30	143.47	199.71	65.80	389.18	55.51	29.36	534.34	95.07

Movement, Approach, & Intersection Results

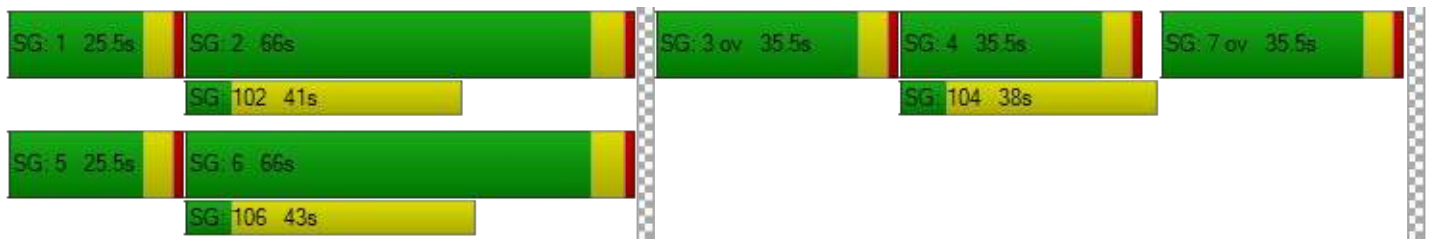
d_M, Delay for Movement [s/veh]	54.89	41.26	41.26	59.34	46.26	46.26	24.12	23.83	16.47	15.40	30.23	18.38
Movement LOS	D	D	D	E	D	D	C	C	B	B	C	B
d_A, Approach Delay [s/veh]	51.12			51.29			23.34			28.53		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	30.80											
Intersection LOS	C											
Intersection V/C	0.701											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.296	2.342	3.163	3.105
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1456	1511	1333	1333
d_b, Bicycle Delay [s]	3.33	2.69	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	2.139	1.997	2.581	2.767
Bicycle LOS	B	A	B	C

Sequence

Ring 1	1	2	3	4	7	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 600: Cumulus Ave/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	13.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.561

Intersection Setup

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			↵↵			↵↵			↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	93	0	156	119	1037	0	0	1200	43
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	24	0	41	31	270	0	0	313	11
Total Analysis Volume [veh/h]	0	0	0	97	0	163	124	1080	0	0	1250	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	5	5	10	0	5	10	0
Maximum Green [s]	0	20	0	0	30	20	20	60	0	20	60	0
Amber [s]	0.0	4.5	0.0	0.0	4.5	4.5	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.5	0.0	0.0	2.5	2.5	2.5	4.0	0.0	2.5	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.5	0.0	0.0	3.5	3.5	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall		No			No	No	No	Yes		No	Yes	
Maximum Recall		No			No	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	73	73	73	73	73	73	73	73	73	73
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	3.50	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	11	11	11	24	51	45	45	51	37	37
g / C, Green / Cycle	0.15	0.15	0.15	0.33	0.70	0.62	0.62	0.70	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.00	0.08	0.00	0.12	0.19	0.32	0.32	0.00	0.39	0.03
s, saturation flow rate [veh/h]	1710	1265	1710	1408	657	1669	1669	557	3179	1454
c, Capacity [veh/h]	298	248	248	471	476	1037	1037	447	1614	738
d1, Uniform Delay [s]	0.00	28.88	0.00	18.24	9.07	7.72	7.72	0.00	14.54	9.11
k, delay calibration	0.08	0.08	0.08	0.08	0.15	0.15	0.15	0.08	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.75	0.00	0.32	0.41	0.58	0.58	0.00	1.17	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.39	0.00	0.35	0.26	0.52	0.52	0.00	0.77	0.06
d, Delay for Lane Group [s/veh]	0.00	29.63	0.00	18.56	9.47	8.29	8.29	0.00	15.71	9.16
Lane Group LOS	A	C	A	B	A	A	A	A	B	A
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	1.56	0.00	1.99	0.49	3.98	3.98	0.00	7.54	0.34
50th-Percentile Queue Length [ft/ln]	0.00	39.12	0.00	49.73	12.28	99.40	99.40	0.00	188.47	8.45
95th-Percentile Queue Length [veh/ln]	0.00	2.82	0.00	3.58	0.88	7.16	7.16	0.00	12.04	0.61
95th-Percentile Queue Length [ft/ln]	0.00	70.41	0.00	89.51	22.11	178.92	178.92	0.00	301.04	15.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	29.63	0.00	18.56	9.47	8.29	8.29	0.00	15.71	9.16
Movement LOS	A	A	A	C	A	B	A	A	A	A	B	A
d_A, Approach Delay [s/veh]	0.00			22.69			8.42			15.48		
Approach LOS	A			C			A			B		
d_I, Intersection Delay [s/veh]	13.08											
Intersection LOS	B											
Intersection V/C	0.561											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	1.714	2.330	2.810	2.992
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	444	667	1333	1333
d_b, Bicycle Delay [s]	27.22	20.00	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	1.560	1.989	2.553	2.628
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 700: NE Three Mile Ln/SE Armory Way

Control Type:	Two-way stop	Delay (sec / veh):	58.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.110

Intersection Setup

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	8	8	1079	2	0	1183
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	0.00	0.00	2.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	8	1126	2	0	1235
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	2	290	1	0	318
Total Analysis Volume [veh/h]	8	8	1161	2	0	1273
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	58.52	16.92	0.00	0.00	10.92	0.00
Movement LOS	F	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.42	0.42	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.59	10.59	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	37.72		0.00		0.00	
Approach LOS	E		A		A	
d_I, Intersection Delay [s/veh]	0.25					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 800: NE Three Mile Ln/SE Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	86.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.264

Intersection Setup

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	22	8	1094	1185	3
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	6	2	282	305	1
Total Analysis Volume [veh/h]	14	23	8	1128	1222	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.26	0.06	0.02	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	86.83	27.61	12.26	0.00	0.00	0.00
Movement LOS	F	D	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.25	1.25	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	31.23	31.23	1.21	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	50.02		0.09		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	0.81					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 900: NE Three Mile Ln/SE Cruickshank Rd

Control Type:	Two-way stop	Delay (sec / veh):	158.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.158

Intersection Setup

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↔		↕↔		↖	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	41
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	304	13	872	244	25	922
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	79	3	227	64	7	240
Total Analysis Volume [veh/h]	317	14	908	254	26	960
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

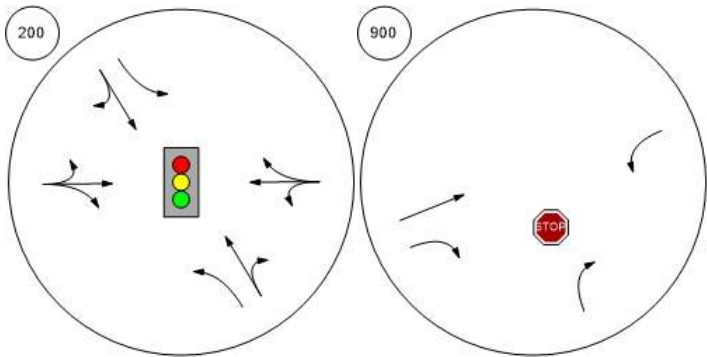
Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.16	0.04	0.01	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	158.89	156.90	0.00	0.00	9.92	0.00
Movement LOS	F	F	A	A	A	
95th-Percentile Queue Length [veh/ln]	15.13	15.13	0.00	0.00	0.11	0.00
95th-Percentile Queue Length [ft/ln]	378.34	378.34	0.00	0.00	2.66	0.00
d_A, Approach Delay [s/veh]	158.81		0.00		9.92	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	34.77					
Intersection LOS	F					

Appendix E 2022 Mitigated Background
Traffic Analysis

Lane Configuration and Traffic Control



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank

Intersection Level Of Service Report
Intersection 200: NE Three Mile Ln/SE 1st St

Control Type:	Signalized	Delay (sec / veh):	40.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.854

Intersection Setup

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	254	659	5	5	810	4	6	0	278	1	0	3
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	177	1	1	218	1	2	0	75	0	0	1
Total Analysis Volume [veh/h]	273	709	5	5	871	4	6	0	299	1	0	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	20	64	0	0	40	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	82	82	82	82	82	82
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	54	54	40	40	19	19
g / C, Green / Cycle	0.67	0.67	0.49	0.49	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.34	0.42	0.01	0.52	0.21	0.00
s, saturation flow rate [veh/h]	808	1681	567	1682	1457	1203
c, Capacity [veh/h]	387	1119	208	821	389	339
d1, Uniform Delay [s]	21.00	7.95	25.73	20.98	30.22	23.96
k, delay calibration	0.50	0.13	0.11	0.50	0.14	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.33	0.73	0.05	50.60	4.38	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.64	0.02	1.07	0.78	0.01
d, Delay for Lane Group [s/veh]	31.33	8.68	25.78	71.58	34.60	23.97
Lane Group LOS	C	A	C	F	C	C
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.58	5.77	0.08	25.15	6.06	0.06
50th-Percentile Queue Length [ft/ln]	64.53	144.34	1.93	628.80	151.39	1.48
95th-Percentile Queue Length [veh/ln]	4.65	9.71	0.14	35.04	10.09	0.11
95th-Percentile Queue Length [ft/ln]	116.15	242.85	3.48	876.04	252.28	2.67

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.33	8.68	8.68	25.78	71.58	71.58	34.60	34.60	34.60	23.97	23.97	23.97
Movement LOS	C	A	A	C	F	E	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	14.94			71.32			34.60			23.97		
Approach LOS	B			E			C			C		
d_I, Intersection Delay [s/veh]	40.51											
Intersection LOS	D											
Intersection V/C	0.854											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			36.45			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.556			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1422			889			667			667		
d_b, Bicycle Delay [s]	3.76			13.89			20.00			20.00		
I_b,int, Bicycle LOS Score for Intersection	3.188			3.012			2.063			1.566		
Bicycle LOS	C			C			B			A		

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 900: NE Three Mile Ln/SE Cruickshank Rd

Control Type:	Two-way stop	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.043

Intersection Setup

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↻		↻		↶	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	3	0	0	0	0	41
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	307	13	872	244	25	922
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	3	227	64	7	240
Total Analysis Volume [veh/h]	320	14	908	254	26	960
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.04	0.01	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	0.00	16.67	0.00	0.00	9.92	0.00
Movement LOS		C	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.14	0.00	0.00	0.11	0.00
95th-Percentile Queue Length [ft/ln]	0.00	3.39	0.00	0.00	2.66	0.00
d_A, Approach Delay [s/veh]	16.67		0.00		9.92	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.41					
Intersection LOS	C					

Appendix F 2022 Total Traffic Volumes and
Analysis



Dest H
5%

Sheridan/Grand Ronde/Coast
Origin 8
15%

Origin 9
5%

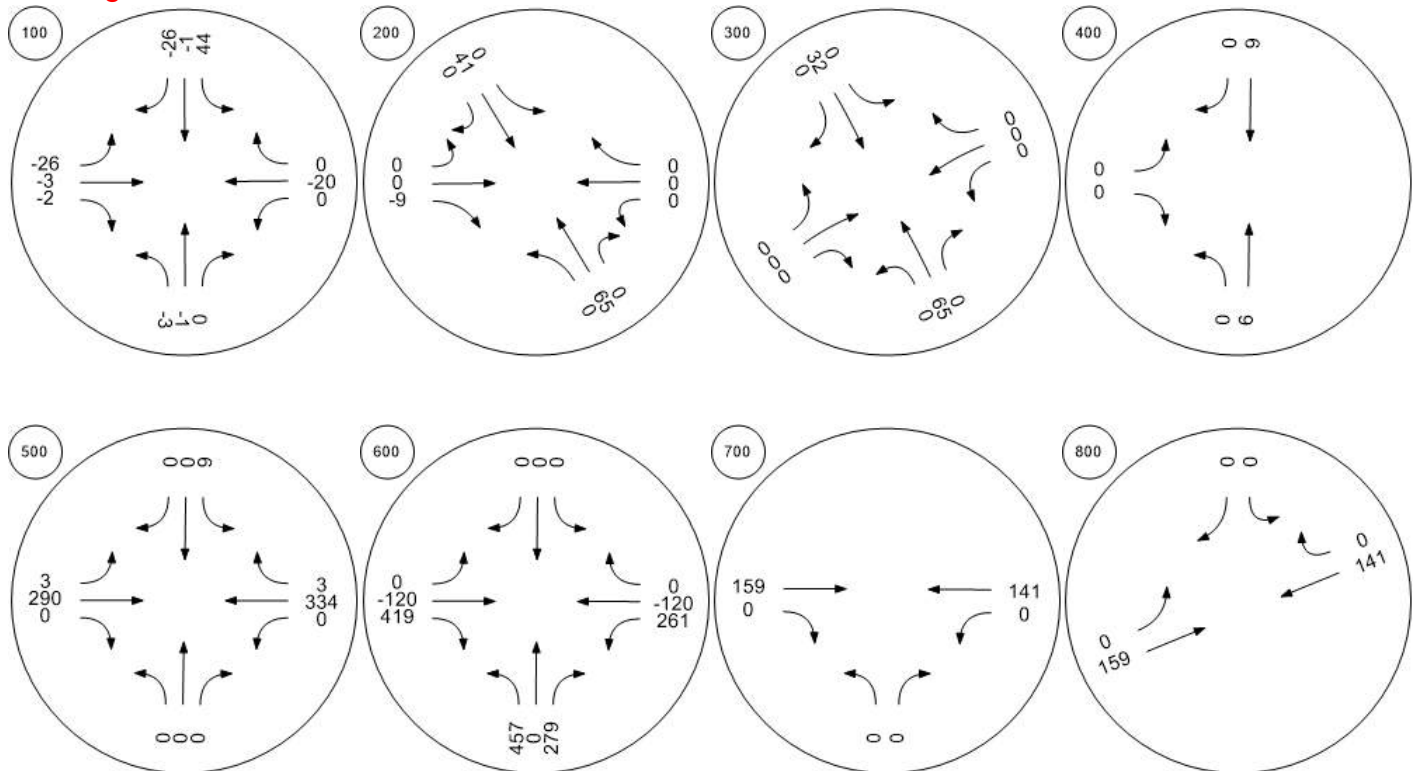
Amity

Google

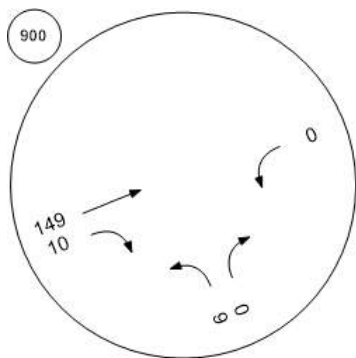
Traffic Volume - Net New Site Trips



Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Net New Site Trips

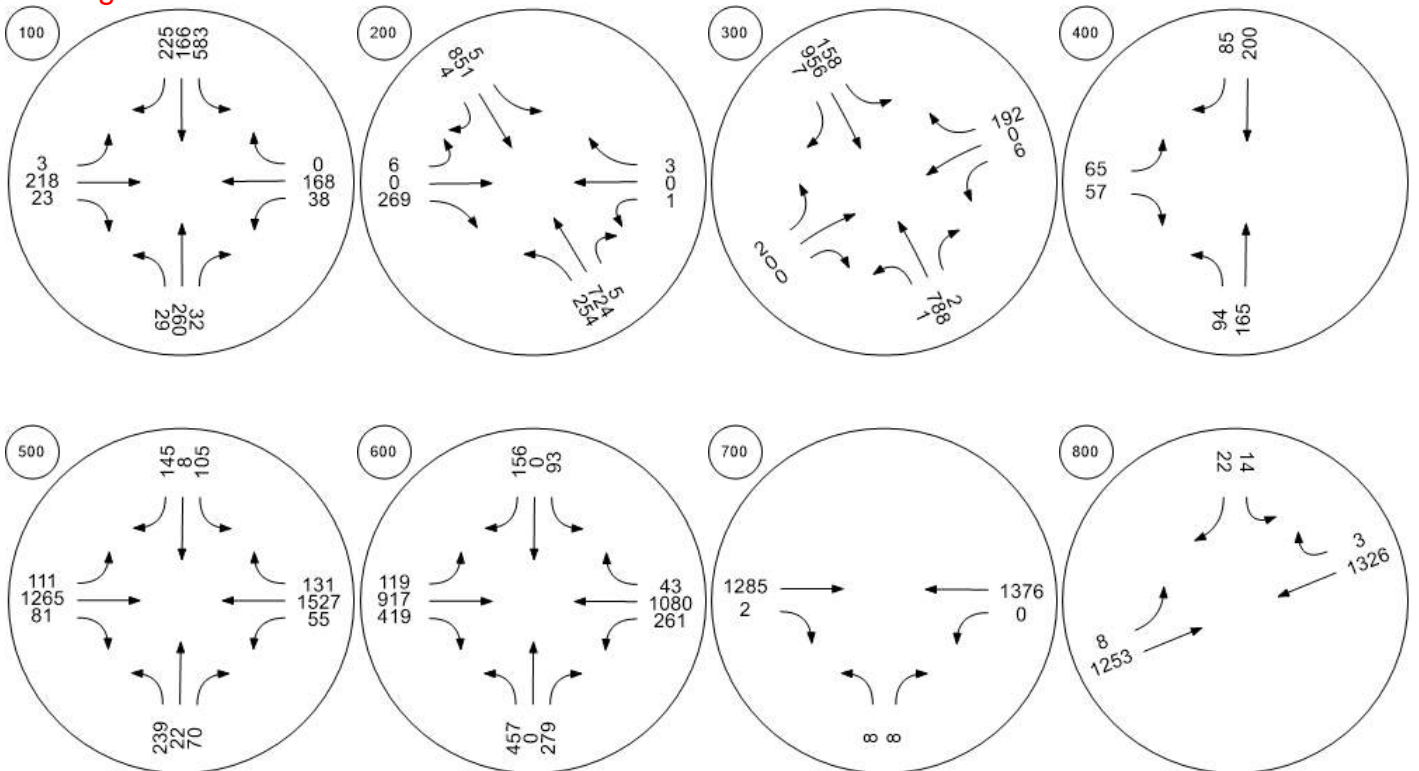


The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank

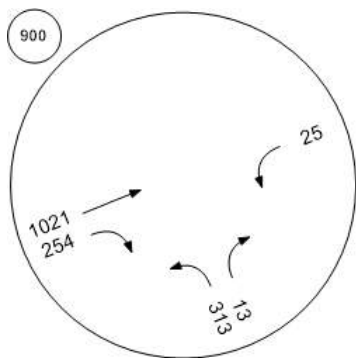
Traffic Volume - Future Total Volume



Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Future Total Volume



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank

Intersection Level Of Service Report
Intersection 100: NE Johnson St/NE 3rd St

Control Type:	Signalized	Delay (sec / veh):	45.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.740

Intersection Setup

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	225.00	100.00	100.00	120.00	100.00	120.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Base Volume Input [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	-2	-1	0	45	0	-18	-4	17	0	0	-34	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-1	0	0	-1	-1	-8	-22	-20	-2	0	14	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	260	32	583	166	225	3	218	23	38	168	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	65	8	146	42	56	1	55	6	10	42	0
Total Analysis Volume [veh/h]	29	260	32	583	166	225	3	218	23	38	168	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Overlap	Permiss	ProtPer	Overlap	Unsigna
Signal Group	8	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		8			4			2			6	
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	0	7	7	0	3	5	0	3	5	0
Maximum Green [s]	30	30	0	40	55	0	20	30	0	20	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0
Split [s]	21	21	0	36	57	0	12	21	0	12	21	0
Vehicle Extension [s]	4.0	4.0	0.0	3.5	4.3	0.0	2.5	3.0	0.0	2.5	3.0	0.0
Walk [s]	7	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No		No	No		No	No		No	No	
Maximum Recall		No		No	No		No	No		No	No	
Pedestrian Recall		No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	L	C	L	C
C, Cycle Length [s]	111	111	111	111	111	111	111
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	40	69	0	18	12	30
g / C, Green / Cycle	0.23	0.36	0.62	0.00	0.17	0.11	0.27
(v / s)_i Volume / Saturation Flow Rate	0.20	0.36	0.26	0.00	0.15	0.02	0.10
s, saturation flow rate [veh/h]	1577	1603	1528	1603	1655	1603	1683
c, Capacity [veh/h]	392	575	949	4	274	65	452
d1, Uniform Delay [s]	37.43	29.07	4.26	55.48	42.39	43.81	28.83
k, delay calibration	0.30	0.47	0.17	0.08	0.28	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.86	40.06	0.46	87.42	19.86	8.24	0.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	1.01	0.41	0.68	0.88	0.59	0.37
d, Delay for Lane Group [s/veh]	48.29	69.13	4.72	142.90	62.25	52.05	29.34
Lane Group LOS	D	F	A	F	E	D	C
Critical Lane Group	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.97	19.93	1.89	0.19	7.57	1.07	3.26
50th-Percentile Queue Length [ft/ln]	224.32	498.31	47.21	4.77	189.36	26.83	81.41
95th-Percentile Queue Length [veh/ln]	13.89	27.52	3.40	0.34	12.09	1.93	5.86
95th-Percentile Queue Length [ft/ln]	347.13	687.92	84.98	8.59	302.20	48.30	146.54

Movement, Approach, & Intersection Results

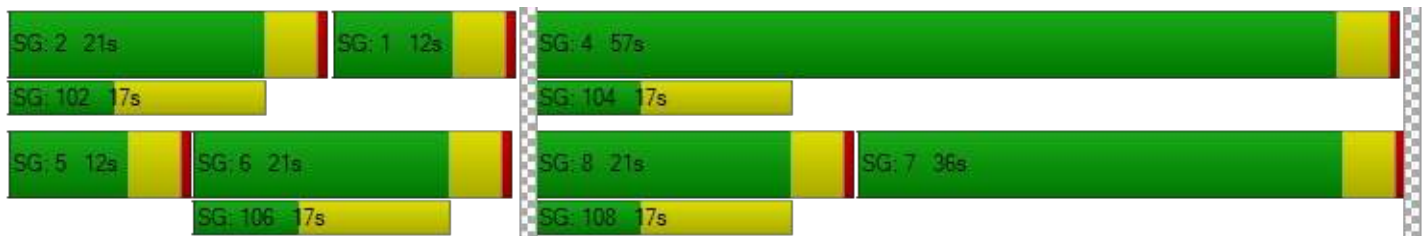
d_M, Delay for Movement [s/veh]	48.29	48.29	48.29	69.13	4.72	4.72	142.90	62.25	62.25	52.05	29.34	0.00
Movement LOS	D	D	D	F	A	A	F	E	E	D	C	
d_A, Approach Delay [s/veh]	48.29			43.27			63.24			33.53		
Approach LOS	D			D			E			C		
d_I, Intersection Delay [s/veh]	45.84											
Intersection LOS	D											
Intersection V/C	0.740											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	1.982	2.342	2.197	2.384
Crosswalk LOS	A	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	1178	378	378
d_b, Bicycle Delay [s]	29.61	7.61	29.61	29.61
I_b,int, Bicycle LOS Score for Intersection	2.089	3.167	1.962	1.900
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	-	7	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 200: NE Three Mile Ln/SE 1st St

Control Type:	Two-way stop	Delay (sec / veh):	1,917.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

Intersection Setup

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵			↵↵			⊕			⊕		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

Volumes

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	-21	-17	0	0	62	0	0	0	17	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	21	82	0	0	-21	0	0	0	-26	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	254	724	5	5	851	4	6	0	269	1	0	3
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	195	1	1	229	1	2	0	72	0	0	1
Total Analysis Volume [veh/h]	273	778	5	5	915	4	6	0	289	1	0	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.37	0.01	0.00	0.01	0.01	0.00	0.29	0.00	0.87	0.47	0.00	0.01
d_M, Delay for Movement [s/veh]	12.64	0.00	0.00	9.76	0.00	0.00	305.81	271.20	144.85	1917.03	352.41	224.33
Movement LOS	B	A	A	A	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	1.70	0.00	0.00	0.02	0.00	0.00	13.35	13.35	13.35	0.98	0.98	0.98
95th-Percentile Queue Length [ft/ln]	42.38	0.00	0.00	0.50	0.00	0.00	333.85	333.85	333.85	24.59	24.59	24.59
d_A, Approach Delay [s/veh]	3.27			0.05			148.12			647.50		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	21.85											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 300: NE Three Mile Ln/SE Nehemiah Ln

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.325

Intersection Setup

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Base Volume Input [veh/h]	1	693	2	151	885	7	2	0	0	6	0	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	-38	0	0	79	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	103	0	0	-47	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	788	2	158	956	7	2	0	0	6	0	192
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	214	1	43	260	2	1	0	0	2	0	52
Total Analysis Volume [veh/h]	1	857	2	172	1039	8	2	0	0	7	0	209
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			Yes	Yes
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.22	0.01	0.00	0.33	0.00	0.00	0.40	0.00	0.58
d_M, Delay for Movement [s/veh]	10.36	0.00	0.00	10.90	0.00	0.00	10000.0	10000.0	10000.0	291.29	267.42	96.30
Movement LOS	B	A	A	B	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.84	0.84	0.84	1.00	1.00	1.00	8.76	8.76	8.76
95th-Percentile Queue Length [ft/ln]	0.11	0.11	0.11	20.91	20.91	20.91	25.00	25.00	25.00	219.07	219.07	219.07
d_A, Approach Delay [s/veh]	0.01			1.54			10000.00			102.62		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	19.18											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 400: NE Cumulus Ave/ NE Norton Ln

Control Type:	Two-way stop	Delay (sec / veh):	14.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.156

Intersection Setup

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Base Volume Input [veh/h]	90	152	183	81	62	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	3.00	1.00	0.00	10.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	6	9	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	94	165	200	85	65	57
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	43	53	22	17	15
Total Analysis Volume [veh/h]	99	174	211	89	68	60
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.16	0.07
d_M, Delay for Movement [s/veh]	8.16	0.00	0.00	0.00	14.06	10.07
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.26	0.13	0.00	0.00	0.55	0.55
95th-Percentile Queue Length [ft/ln]	6.52	3.26	0.00	0.00	13.76	13.76
d_A, Approach Delay [s/veh]	2.96		0.00		12.19	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.38					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 500: NE Norton Ln/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	48.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.819

Intersection Setup

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐			⇐⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	11.00	2.00	3.00	0.00	2.00	2.00	3.00	5.00	4.00	3.00	4.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	199	0	0	65	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	3	0	-3	-1	-3	0	0	-1	1
Pass-by Trips [veh/h]	0	0	0	6	0	3	4	0	0	0	0	2
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	94	0	0	270	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	239	22	70	105	8	145	111	1265	81	55	1527	131
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	6	19	28	2	39	30	336	22	15	406	35
Total Analysis Volume [veh/h]	254	23	74	112	9	154	118	1346	86	59	1624	139
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	4	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		3,4			4,7							
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	20	60	0	20	60	0
Amber [s]	4.5	4.5	0.0	4.5	4.5	0.0	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	2.5	2.5	0.0	2.5	2.5	0.0	2.5	5.2	0.0	2.5	5.2	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	31	0	0	34	0	0	36	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	124	124	124	124	124	124	124	124	124	124
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	0.00	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	13	24	11	23	72	62	62	72	60	60
g / C, Green / Cycle	0.10	0.19	0.09	0.18	0.58	0.50	0.50	0.58	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.07	0.11	0.25	0.42	0.06	0.12	0.51	0.10
s, saturation flow rate [veh/h]	3138	1376	1590	1466	467	3179	1396	493	3179	1408
c, Capacity [veh/h]	319	268	143	268	219	1588	697	233	1529	677
d1, Uniform Delay [s]	54.75	43.49	55.58	46.83	27.31	27.11	16.65	22.12	32.37	18.64
k, delay calibration	0.08	0.08	0.08	0.08	0.26	0.26	0.26	0.19	0.26	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.39	0.61	6.84	1.65	4.78	3.09	0.19	1.02	35.96	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.36	0.78	0.61	0.54	0.85	0.12	0.25	1.06	0.21
d, Delay for Lane Group [s/veh]	58.14	44.10	62.41	48.48	32.09	30.19	16.84	23.14	68.33	18.99
Lane Group LOS	E	D	E	D	C	C	B	C	F	B
Critical Lane Group	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.05	2.65	3.72	4.78	1.69	16.69	1.29	0.74	28.76	2.28
50th-Percentile Queue Length [ft/ln]	101.14	66.26	92.93	119.42	42.22	417.34	32.33	18.46	719.07	56.95
95th-Percentile Queue Length [veh/ln]	7.28	4.77	6.69	8.36	3.04	23.39	2.33	1.33	39.34	4.10
95th-Percentile Queue Length [ft/ln]	182.05	119.27	167.27	209.02	76.00	584.86	58.19	33.23	983.61	102.51

Movement, Approach, & Intersection Results

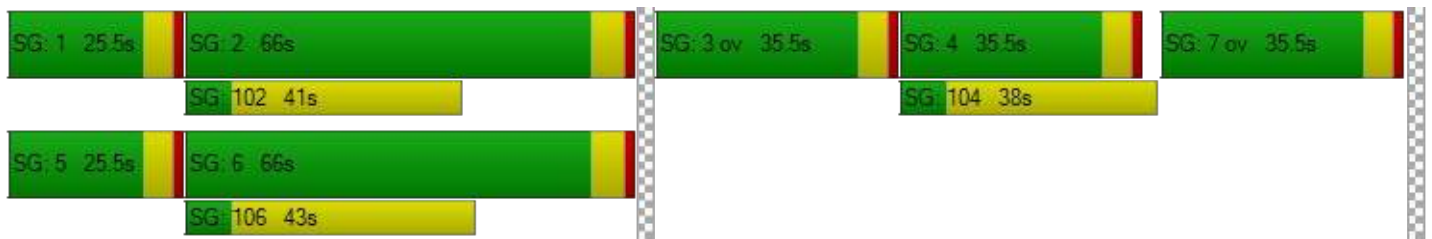
d_M, Delay for Movement [s/veh]	58.14	44.10	44.10	62.41	48.48	48.48	32.09	30.19	16.84	23.14	68.33	18.99
Movement LOS	E	D	D	E	D	D	C	C	B	C	F	B
d_A, Approach Delay [s/veh]	54.26			54.16			29.59			63.11		
Approach LOS	D			D			C			E		
d_I, Intersection Delay [s/veh]	48.72											
Intersection LOS	D											
Intersection V/C	0.819											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.297	2.349	3.325	3.270
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1456	1511	1333	1333
d_b, Bicycle Delay [s]	3.33	2.69	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	2.139	2.013	2.838	3.063
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	7	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 600: Cumulus Ave/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	156.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.206

Intersection Setup

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	67	0	32	0	0	0	0	0	205	97	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	120	0	120	0	0	0	0	-120	120	120	-120	0
Existing Site Adjustment Volume [veh/h]	270	0	127	0	0	0	0	0	94	44	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	457	0	279	93	0	156	119	917	419	261	1080	43
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	119	0	73	24	0	41	31	239	109	68	281	11
Total Analysis Volume [veh/h]	476	0	291	97	0	163	124	955	436	272	1125	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	5	5	10	0	5	10	0
Maximum Green [s]	0	20	0	0	30	20	20	60	0	20	60	0
Amber [s]	0.0	4.5	0.0	0.0	4.5	4.5	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.5	0.0	0.0	2.5	2.5	2.5	4.0	0.0	2.5	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.5	0.0	0.0	3.5	3.5	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall		No			No	No	No	Yes		No	Yes	
Maximum Recall		No			No	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	96	96	96	96	96	96	96	96	96	96
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	3.50	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	20	20	20	36	64	48	48	64	48	48
g / C, Green / Cycle	0.21	0.21	0.21	0.37	0.67	0.51	0.51	0.67	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.63	0.10	0.00	0.12	0.18	0.43	0.45	0.43	0.35	0.03
s, saturation flow rate [veh/h]	1218	971	1710	1408	673	1669	1497	629	3179	1454
c, Capacity [veh/h]	316	75	358	524	442	844	757	389	1613	737
d1, Uniform Delay [s]	40.57	34.18	0.00	21.31	10.46	20.60	21.13	21.68	17.97	11.98
k, delay calibration	0.50	0.08	0.08	0.08	0.15	0.26	0.27	0.50	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	653.23	145.29	0.00	0.25	0.49	5.90	8.40	9.97	0.79	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.43	1.29	0.00	0.31	0.28	0.86	0.88	0.70	0.70	0.06
d, Delay for Lane Group [s/veh]	693.80	179.47	0.00	21.56	10.94	26.50	29.53	31.65	18.76	12.03
Lane Group LOS	F	F	A	C	B	C	C	C	B	B
Critical Lane Group	Yes	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	64.73	4.59	0.00	2.57	0.85	14.42	14.15	2.99	9.05	0.48
50th-Percentile Queue Length [ft/ln]	1618.25	114.83	0.00	64.37	21.26	360.43	353.86	74.86	226.36	12.09
95th-Percentile Queue Length [veh/ln]	102.53	8.27	0.00	4.63	1.53	20.64	20.32	5.39	13.99	0.87
95th-Percentile Queue Length [ft/ln]	2563.36	206.69	0.00	115.87	38.28	516.11	508.12	134.75	349.73	21.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	693.80	693.80	693.80	179.47	0.00	21.56	10.94	27.24	29.53	31.65	18.76	12.03
Movement LOS	F	F	F	F	A	C	B	C	C	C	B	B
d_A, Approach Delay [s/veh]	693.80			80.47			26.56			20.98		
Approach LOS	F			F			C			C		
d_I, Intersection Delay [s/veh]	156.52											
Intersection LOS	F											
Intersection V/C	1.206											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.637	2.328	3.616	3.043
Crosswalk LOS	B	B	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	444	667	1333	1333
d_b, Bicycle Delay [s]	27.22	20.00	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	2.825	1.989	2.809	2.749
Bicycle LOS	C	A	C	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 700: NE Three Mile Ln/SE Armory Way

Control Type:	Two-way stop	Delay (sec / veh):	84.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.158

Intersection Setup

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	8	8	1079	2	0	1183
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	0.00	0.00	2.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	32	0	0	97
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	127	0	0	44
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	8	1285	2	0	1376
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	2	331	1	0	355
Total Analysis Volume [veh/h]	8	8	1325	2	0	1419
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	84.73	22.29	0.00	0.00	11.83	0.00
Movement LOS	F	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.61	0.61	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	15.23	15.23	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	53.51		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	0.31					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 800: NE Three Mile Ln/SE Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	136.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.387

Intersection Setup

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	32	97	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	127	44	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	22	8	1253	1326	3
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	6	2	323	342	1
Total Analysis Volume [veh/h]	14	23	8	1292	1367	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.39	0.06	0.02	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	136.28	46.35	13.33	0.00	0.00	0.00
Movement LOS	F	E	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.85	1.85	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	46.17	46.17	1.39	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	80.38		0.08		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	1.14					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 900: NE Three Mile Ln/SE Cruickshank Rd

Control Type:	Two-way stop	Delay (sec / veh):	303.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.484

Intersection Setup

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↔		↕↔		↖	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	6	0	30	2	0	91
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	3	0	119	8	0	41
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	313	13	1021	254	25	1013
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	3	266	66	7	264
Total Analysis Volume [veh/h]	326	14	1064	265	26	1055
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

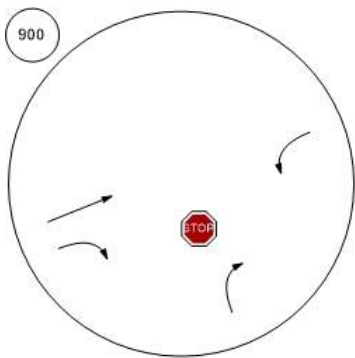
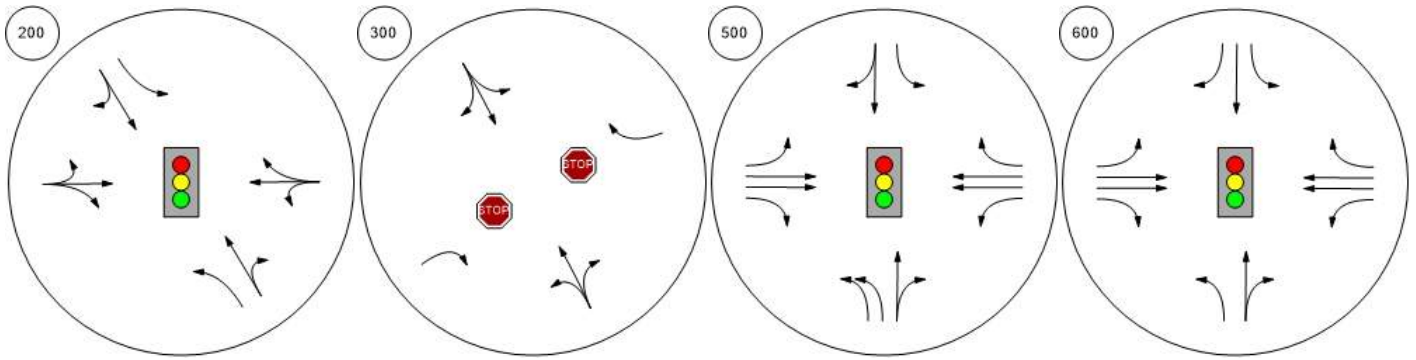
Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.48	0.05	0.01	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	303.20	300.59	0.00	0.00	10.66	0.00
Movement LOS	F	F	A	A	B	
95th-Percentile Queue Length [veh/ln]	20.94	20.94	0.00	0.00	0.12	0.00
95th-Percentile Queue Length [ft/ln]	523.60	523.60	0.00	0.00	3.06	0.00
d_A, Approach Delay [s/veh]	303.09		0.00		10.66	
Approach LOS	F		A		B	
d_I, Intersection Delay [s/veh]	60.96					
Intersection LOS	F					

Appendix G 2022 Mitigated Total Traffic
Analysis

Lane Configuration and Traffic Control



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank

Intersection Level Of Service Report
Intersection 200: NE Three Mile Ln/SE 1st St

Control Type:	Signalized	Delay (sec / veh):	46.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.874

Intersection Setup

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	-21	-17	0	0	62	0	0	0	17	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	21	82	0	0	-21	0	0	0	-26	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	254	724	5	5	851	4	6	0	269	1	0	3
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	195	1	1	229	1	2	0	72	0	0	1
Total Analysis Volume [veh/h]	273	778	5	5	915	4	6	0	289	1	0	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	20	64	0	0	40	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	81	81	81	81	81	81
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	54	54	40	40	19	19
g / C, Green / Cycle	0.67	0.67	0.49	0.49	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.35	0.47	0.01	0.55	0.20	0.00
s, saturation flow rate [veh/h]	789	1681	532	1682	1457	1227
c, Capacity [veh/h]	388	1129	182	829	380	338
d1, Uniform Delay [s]	20.87	8.19	27.87	20.56	30.16	24.12
k, delay calibration	0.50	0.16	0.11	0.50	0.12	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.20	1.18	0.06	65.31	3.75	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.69	0.03	1.11	0.78	0.01
d, Delay for Lane Group [s/veh]	31.08	9.37	27.93	85.87	33.91	24.14
Lane Group LOS	C	A	C	F	C	C
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.50	6.62	0.08	28.56	5.74	0.06
50th-Percentile Queue Length [ft/ln]	62.60	165.56	2.02	713.94	143.42	1.48
95th-Percentile Queue Length [veh/ln]	4.51	10.84	0.15	40.30	9.66	0.11
95th-Percentile Queue Length [ft/ln]	112.68	271.06	3.64	1007.48	241.62	2.67

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.08	9.37	9.37	27.93	85.87	85.87	33.91	33.91	33.91	24.14	24.14	24.14
Movement LOS	C	A	A	C	F	F	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	14.98			85.56			33.91			24.14		
Approach LOS	B			F			C			C		
d_I, Intersection Delay [s/veh]	46.06											
Intersection LOS	D											
Intersection V/C	0.874											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			36.45			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.599			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1422			889			667			667		
d_b, Bicycle Delay [s]	3.76			13.89			20.00			20.00		
I_b,int, Bicycle LOS Score for Intersection	3.302			3.084			2.046			1.566		
Bicycle LOS	C			C			B			A		

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 300: NE Three Mile Ln/SE Nehemiah Ln

Control Type:	Two-way stop	Delay (sec / veh):	28.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.584

Intersection Setup

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			└			└		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Base Volume Input [veh/h]	1	693	2	151	885	7	0	0	0	0	0	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	-38	0	0	79	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	103	0	0	-47	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	788	2	158	956	7	0	0	0	0	0	192
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	214	1	43	260	2	0	0	0	0	0	52
Total Analysis Volume [veh/h]	1	857	2	172	1039	8	0	0	0	0	0	209
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.22	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.58
d_M, Delay for Movement [s/veh]	10.36	0.00	0.00	10.90	0.00	0.00	0.00	0.00	17.81	0.00	0.00	28.23
Movement LOS	B	A	A	B	A	A			C			D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.84	0.84	0.84	0.00	0.00	0.00	0.00	0.00	3.54
95th-Percentile Queue Length [ft/ln]	0.11	0.11	0.11	20.91	20.91	20.91	0.00	0.00	0.00	0.00	0.00	88.41
d_A, Approach Delay [s/veh]	0.01			1.54			17.81			28.23		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	3.40											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 500: NE Norton Ln/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	39.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.804

Intersection Setup

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐			⇐⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	11.00	2.00	3.00	0.00	2.00	2.00	3.00	5.00	4.00	3.00	4.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	199	0	0	65	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	3	0	-3	-1	-3	0	0	-1	1
Pass-by Trips [veh/h]	0	0	0	6	0	3	4	0	0	0	0	2
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	94	0	0	270	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	239	22	70	105	8	145	111	1265	81	55	1527	131
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	6	19	28	2	39	30	336	22	15	406	35
Total Analysis Volume [veh/h]	254	23	74	112	9	154	118	1346	86	59	1624	139
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	4	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		3,4			4,7							
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	20	80	0	20	80	0
Amber [s]	4.5	4.5	0.0	4.5	4.5	0.0	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	2.5	2.5	0.0	2.5	2.5	0.0	2.5	5.2	0.0	2.5	5.2	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	31	0	0	34	0	0	36	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	0.00	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	15	28	13	26	93	83	83	93	80	80
g / C, Green / Cycle	0.10	0.18	0.09	0.17	0.62	0.55	0.55	0.62	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.07	0.11	0.27	0.42	0.06	0.13	0.51	0.10
s, saturation flow rate [veh/h]	3138	1376	1590	1466	434	3179	1396	465	3179	1408
c, Capacity [veh/h]	305	253	136	253	199	1749	768	237	1691	749
d1, Uniform Delay [s]	66.59	53.80	67.53	57.88	34.50	26.36	16.20	21.25	33.64	18.26
k, delay calibration	0.08	0.08	0.08	0.08	0.26	0.26	0.26	0.34	0.26	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.43	0.71	8.81	2.05	6.44	1.73	0.15	1.70	8.82	0.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.38	0.82	0.65	0.59	0.77	0.11	0.25	0.96	0.19
d, Delay for Lane Group [s/veh]	71.01	54.51	76.34	59.93	40.95	28.09	16.35	22.95	42.46	18.53
Lane Group LOS	E	D	E	E	D	C	B	C	D	B
Critical Lane Group	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.99	3.30	4.58	5.94	1.94	18.15	1.42	0.87	28.51	2.51
50th-Percentile Queue Length [ft/ln]	124.72	82.46	114.44	148.55	48.39	453.82	35.61	21.79	712.87	62.87
95th-Percentile Queue Length [veh/ln]	8.65	5.94	8.09	9.94	3.48	25.14	2.56	1.57	37.27	4.53
95th-Percentile Queue Length [ft/ln]	216.30	148.43	202.16	248.49	87.11	628.51	64.10	39.23	931.81	113.16

Movement, Approach, & Intersection Results

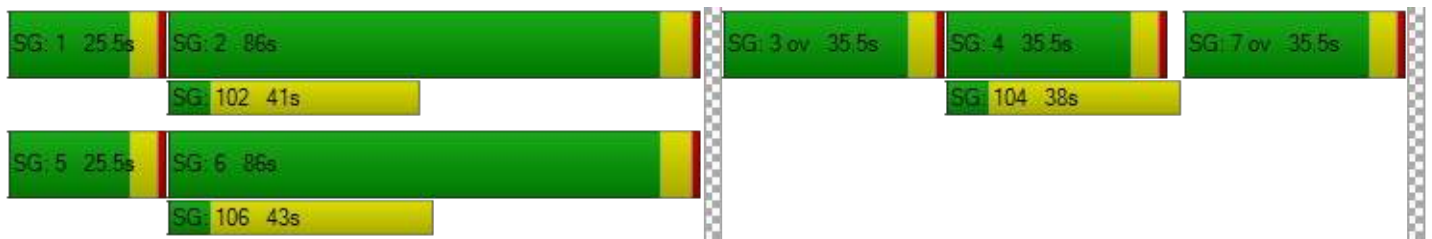
d_M, Delay for Movement [s/veh]	71.01	54.51	54.51	76.34	59.93	59.93	40.95	28.09	16.35	22.95	42.46	18.53
Movement LOS	E	D	D	E	E	E	D	C	B	C	D	B
d_A, Approach Delay [s/veh]	66.45			66.61			28.42			40.00		
Approach LOS	E			E			C			D		
d_I, Intersection Delay [s/veh]	39.67											
Intersection LOS	D											
Intersection V/C	0.804											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			34.67			34.67		
I_p,int, Pedestrian LOS Score for Intersection	2.301			2.357			3.325			3.270		
Crosswalk LOS	B			B			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1456			1511			1778			1778		
d_b, Bicycle Delay [s]	3.33			2.69			0.56			0.56		
I_b,int, Bicycle LOS Score for Intersection	2.139			2.013			2.838			3.063		
Bicycle LOS	B			B			C			C		

Sequence

Ring 1	1	2	3	4	7	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 600: Cumulus Ave/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.794

Intersection Setup

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	67	0	32	0	0	0	0	0	205	97	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	120	0	120	0	0	0	0	-120	120	120	-120	0
Existing Site Adjustment Volume [veh/h]	270	0	127	0	0	0	0	0	94	44	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	457	0	279	93	0	156	119	917	419	261	1080	43
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	119	0	73	24	0	41	31	239	109	68	281	11
Total Analysis Volume [veh/h]	476	0	291	97	0	163	124	955	436	272	1125	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap
Signal Group	3	8	0	7	4	5	5	2	3	1	6	7
Auxiliary Signal Groups						4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	10	5	5	10	5
Maximum Green [s]	30	30	0	30	30	20	20	80	30	20	80	30
Amber [s]	3.0	4.5	0.0	3.0	4.5	4.5	4.5	5.0	3.0	4.5	5.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	2.5	0.0	3.0	2.5	2.5	2.5	4.0	3.0	2.5	4.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	3.5	3.5	4.0	2.0	3.5	4.0	2.0
Minimum Recall	No	No		No	No	No	No	Yes	No	No	Yes	No
Maximum Recall	No	No		No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No		No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	117	117	117	117	117	117	117	117	117	117	117
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	5.50	6.00	6.00	4.00	6.00	6.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.50	0.00	3.50	0.00	0.00	4.00	0.00	0.00	4.00	0.00
g_i, Effective Green Time [s]	40	29	40	6	23	66	48	84	66	49	62
g / C, Green / Cycle	0.34	0.24	0.34	0.05	0.19	0.56	0.41	0.72	0.56	0.42	0.53
(v / s)_i Volume / Saturation Flow Rate	0.30	0.20	0.09	0.00	0.12	0.18	0.30	0.30	0.34	0.35	0.03
s, saturation flow rate [veh/h]	1564	1454	1113	1710	1408	689	3179	1454	801	3179	1454
c, Capacity [veh/h]	617	354	279	83	272	338	1306	1042	406	1333	771
d1, Uniform Delay [s]	36.41	42.03	29.82	0.00	43.23	20.38	29.15	6.71	20.52	30.65	13.35
k, delay calibration	0.50	0.25	0.08	0.08	0.08	0.15	0.15	0.15	0.50	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.03	10.41	0.55	0.00	1.57	0.95	1.15	0.38	8.49	2.18	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.82	0.35	0.00	0.60	0.37	0.73	0.42	0.67	0.84	0.06
d, Delay for Lane Group [s/veh]	45.44	52.44	30.37	0.00	44.80	21.33	30.30	7.09	29.01	32.83	13.40
Lane Group LOS	D	D	C	A	D	C	C	A	C	C	B
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	14.13	8.95	1.98	0.00	4.44	1.62	11.36	4.06	4.66	14.38	0.59
50th-Percentile Queue Length [ft/ln]	353.27	223.66	49.38	0.00	110.93	40.39	284.03	101.49	116.43	359.53	14.67
95th-Percentile Queue Length [veh/ln]	20.30	13.85	3.56	0.00	7.89	2.91	16.89	7.31	8.20	20.60	1.06
95th-Percentile Queue Length [ft/ln]	507.39	346.29	88.88	0.00	197.29	72.70	422.23	182.68	204.90	515.01	26.40

Movement, Approach, & Intersection Results

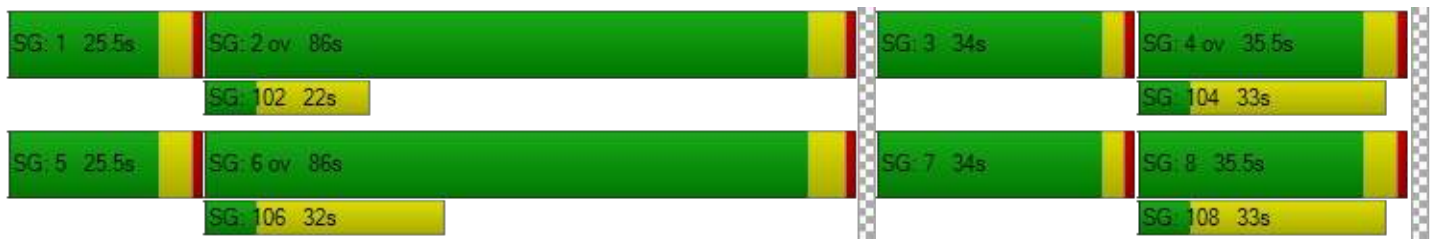
d_M, Delay for Movement [s/veh]	45.44	52.44	52.44	30.37	0.00	44.80	21.33	30.30	7.09	29.01	32.83	13.40
Movement LOS	D	D	D	C	A	D	C	C	A	C	C	B
d_A, Approach Delay [s/veh]	48.10			39.42			22.88			31.50		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	31.94											
Intersection LOS	C											
Intersection V/C	0.794											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.584	2.312	3.029	2.941
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	1778	1778
d_b, Bicycle Delay [s]	20.00	20.00	0.56	0.56
I_b,int, Bicycle LOS Score for Intersection	2.825	1.989	2.809	2.749
Bicycle LOS	C	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 900: NE Three Mile Ln/SE Cruickshank Rd

Control Type:	Two-way stop	Delay (sec / veh):	19.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.054

Intersection Setup

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↻		↻		↶	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	6	0	30	2	0	91
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	3	0	119	8	0	41
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	313	13	1021	254	25	1013
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	3	266	66	7	264
Total Analysis Volume [veh/h]	326	14	1064	265	26	1055
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

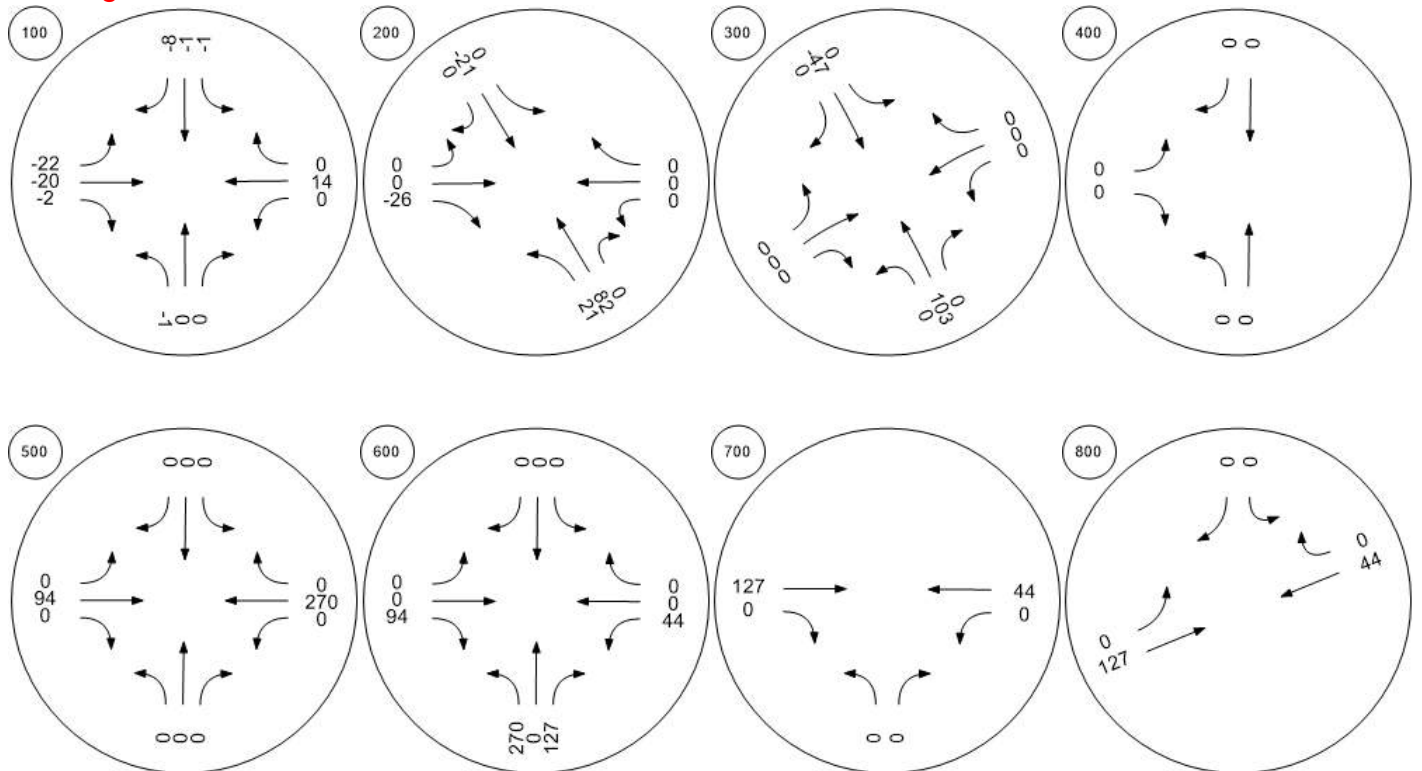
V/C, Movement V/C Ratio	0.00	0.05	0.01	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	0.00	19.56	0.00	0.00	10.66	0.00
Movement LOS		C	A	A	B	
95th-Percentile Queue Length [veh/ln]	0.00	0.17	0.00	0.00	0.12	0.00
95th-Percentile Queue Length [ft/ln]	0.00	4.22	0.00	0.00	3.06	0.00
d_A, Approach Delay [s/veh]	19.56		0.00		10.66	
Approach LOS	C		A		B	
d_I, Intersection Delay [s/veh]	0.40					
Intersection LOS	C					

Appendix H 2037 Background Traffic
Volumes and Analysis

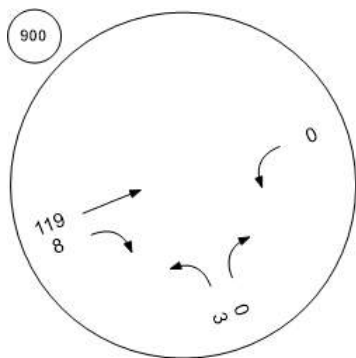
Traffic Volume - Net New Site Trips



Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Net New Site Trips

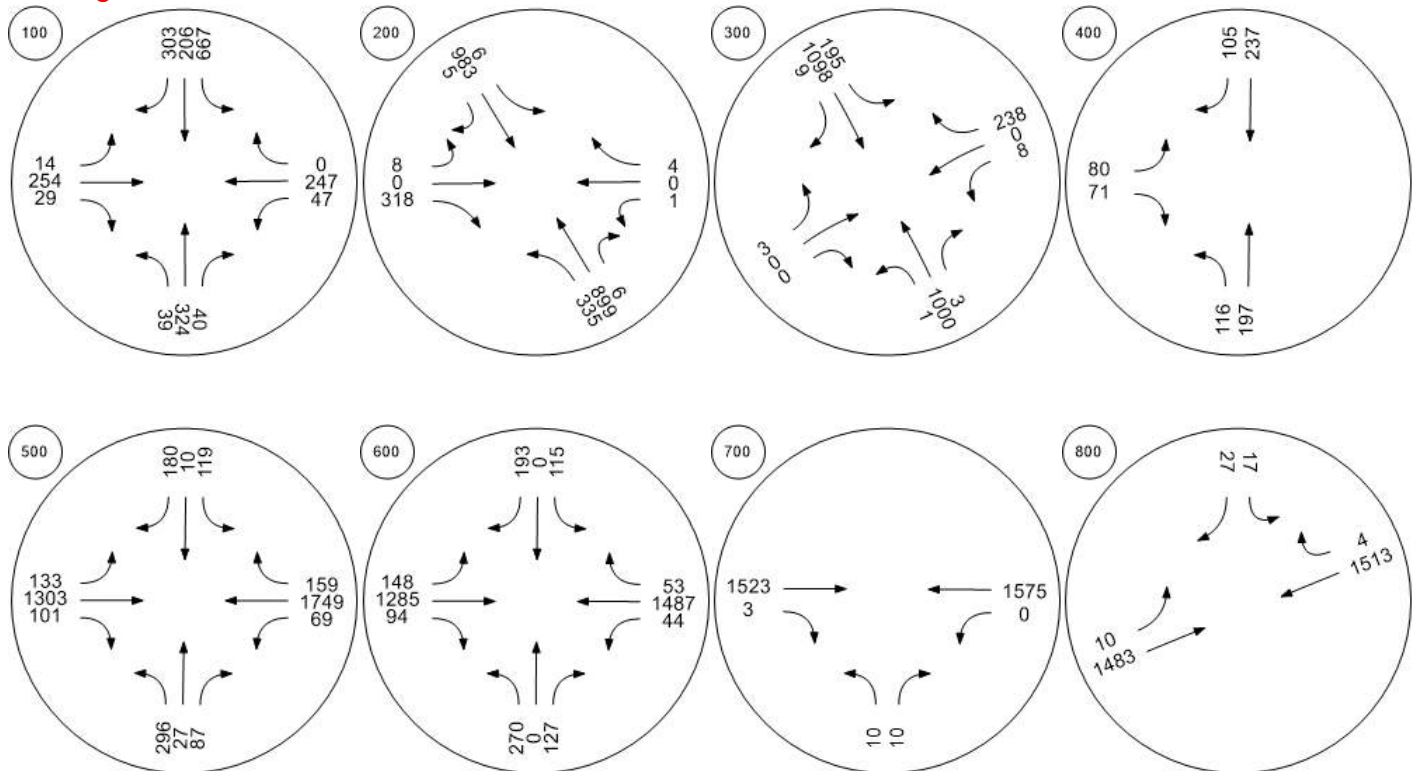


The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank

Traffic Volume - Future Total Volume



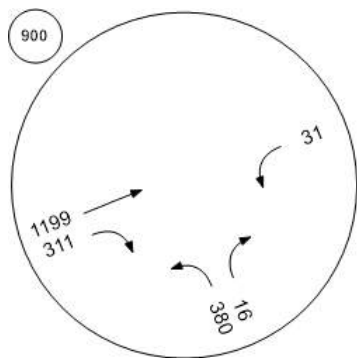
Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Future Total Volume



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank



Intersection Level Of Service Report
Intersection 100: NE Johnson St/NE 3rd St

Control Type:	Signalized	Delay (sec / veh):	105.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.966

Intersection Setup

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	225.00	100.00	100.00	120.00	100.00	120.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Base Volume Input [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-1	0	0	-1	-1	-8	-22	-20	-2	0	14	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	324	40	667	206	303	14	254	29	47	247	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	81	10	167	52	76	4	64	7	12	62	0
Total Analysis Volume [veh/h]	39	324	40	667	206	303	14	254	29	47	247	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Overlap	Permiss	ProtPer	Overlap	Unsigna
Signal Group	8	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		8			4			2			6	
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	0	7	7	0	3	5	0	3	5	0
Maximum Green [s]	30	30	0	40	55	0	20	30	0	20	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0
Split [s]	21	21	0	36	57	0	12	21	0	12	21	0
Vehicle Extension [s]	4.0	4.0	0.0	3.5	4.3	0.0	2.5	3.0	0.0	2.5	3.0	0.0
Walk [s]	7	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No		No	No		No	No		No	No	
Maximum Recall		No		No	No		No	No		No	No	
Pedestrian Recall		No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	L	C	L	C
C, Cycle Length [s]	123	123	123	123	123	123	123
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	40	74	1	23	14	35
g / C, Green / Cycle	0.24	0.33	0.60	0.01	0.19	0.11	0.29
(v / s)_i Volume / Saturation Flow Rate	0.35	0.42	0.33	0.01	0.17	0.03	0.15
s, saturation flow rate [veh/h]	1162	1603	1523	1603	1653	1603	1683
c, Capacity [veh/h]	317	523	920	16	310	59	485
d1, Uniform Delay [s]	43.13	34.58	6.13	60.39	44.95	47.80	31.06
k, delay calibration	0.50	0.50	0.31	0.08	0.46	0.11	0.16
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	145.32	137.88	1.52	65.79	31.16	21.34	1.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.27	1.27	0.55	0.90	0.91	0.80	0.51
d, Delay for Lane Group [s/veh]	188.45	172.47	7.64	126.17	76.11	69.15	32.25
Lane Group LOS	F	F	A	F	E	E	C
Critical Lane Group	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	22.29	34.30	3.57	0.72	10.63	1.62	5.41
50th-Percentile Queue Length [ft/ln]	557.24	857.45	89.19	18.00	265.80	40.45	135.24
95th-Percentile Queue Length [veh/ln]	34.02	50.67	6.42	1.30	15.98	2.91	9.22
95th-Percentile Queue Length [ft/ln]	850.38	1266.76	160.55	32.39	399.49	72.82	230.60

Movement, Approach, & Intersection Results

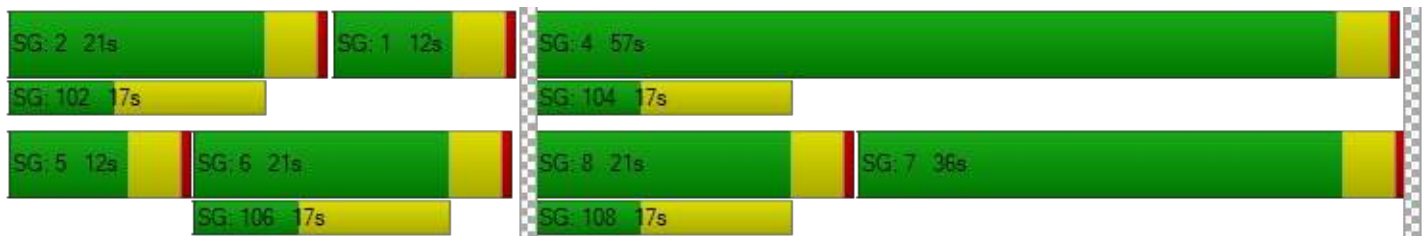
d_M, Delay for Movement [s/veh]	188.45	188.45	188.45	172.47	7.64	7.64	126.17	76.11	76.11	69.15	32.25	0.00
Movement LOS	F	F	F	F	A	A	F	E	E	E	C	
d_A, Approach Delay [s/veh]	188.45			101.13			78.47			38.15		
Approach LOS	F			F			E			D		
d_I, Intersection Delay [s/veh]	105.71											
Intersection LOS	F											
Intersection V/C	0.966											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.048	2.432	2.283	2.436
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	1178	378	378
d_b, Bicycle Delay [s]	29.61	7.61	29.61	29.61
I_b,int, Bicycle LOS Score for Intersection	2.225	3.500	2.050	2.045
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	-	7	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 200: NE Three Mile Ln/SE 1st St

Control Type:	Signalized	Delay (sec / veh):	116.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.041

Intersection Setup

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	21	82	0	0	-21	0	0	0	-26	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	335	899	6	6	983	5	8	0	318	1	0	4
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	90	242	2	2	264	1	2	0	85	0	0	1
Total Analysis Volume [veh/h]	360	967	6	6	1057	5	9	0	342	1	0	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	20	64	0	0	40	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	94	94	94	94	94	94
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	61	61	40	40	25	25
g / C, Green / Cycle	0.65	0.65	0.42	0.42	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.43	0.58	0.01	0.63	0.24	0.00
s, saturation flow rate [veh/h]	835	1681	445	1682	1455	1175
c, Capacity [veh/h]	453	1097	76	713	421	355
d1, Uniform Delay [s]	25.92	13.52	47.17	27.17	33.77	25.73
k, delay calibration	0.50	0.36	0.11	0.50	0.27	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.49	8.10	0.43	227.65	10.24	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.89	0.08	1.49	0.83	0.01
d, Delay for Lane Group [s/veh]	39.41	21.62	47.60	254.81	44.01	25.74
Lane Group LOS	D	C	D	F	D	C
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.47	16.27	0.15	59.87	8.79	0.08
50th-Percentile Queue Length [ft/ln]	111.74	406.69	3.69	1496.73	219.70	2.10
95th-Percentile Queue Length [veh/ln]	7.94	22.88	0.27	91.59	13.65	0.15
95th-Percentile Queue Length [ft/ln]	198.42	572.05	6.64	2289.82	341.24	3.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.41	21.62	21.62	47.60	254.81	254.81	44.01	44.01	44.01	25.74	25.74	25.74
Movement LOS	D	C	C	D	F	F	D	D	D	C	C	C
d_A, Approach Delay [s/veh]	26.43			253.65			44.01			25.74		
Approach LOS	C			F			D			C		
d_I, Intersection Delay [s/veh]	116.69											
Intersection LOS	F											
Intersection V/C	1.041											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.731	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1422	889	667	667
d_b, Bicycle Delay [s]	3.76	13.89	20.00	20.00
I_b,int, Bicycle LOS Score for Intersection	3.759	3.322	2.139	1.568
Bicycle LOS	D	C	B	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 300: NE Three Mile Ln/SE Nehemiah Ln

Control Type:	Two-way stop	Delay (sec / veh):	92.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.984

Intersection Setup

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			└			└		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Base Volume Input [veh/h]	1	693	2	151	885	7	0	0	0	0	0	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	103	0	0	-47	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1000	3	195	1098	9	0	0	0	0	0	238
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	272	1	53	298	2	0	0	0	0	0	65
Total Analysis Volume [veh/h]	1	1087	3	212	1193	10	0	0	0	0	0	259
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.33	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.98
d_M, Delay for Movement [s/veh]	11.14	0.00	0.00	13.38	0.00	0.00	0.00	0.00	20.77	0.00	0.00	92.89
Movement LOS	B	A	A	B	A	A			C			F
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	1.45	1.45	1.45	0.00	0.00	0.00	0.00	0.00	9.59
95th-Percentile Queue Length [ft/ln]	0.13	0.13	0.13	36.16	36.16	36.16	0.00	0.00	0.00	0.00	0.00	239.76
d_A, Approach Delay [s/veh]	0.01			2.01			20.77			92.89		
Approach LOS	A			A			C			F		
d_I, Intersection Delay [s/veh]	9.73											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 400: NE Cumulus Ave/ NE Norton Ln

Control Type:	Two-way stop	Delay (sec / veh):	16.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.233

Intersection Setup

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	⇄		⇂		⇈	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Base Volume Input [veh/h]	90	152	183	81	62	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	3.00	1.00	0.00	10.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	197	237	105	80	71
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	52	62	28	21	19
Total Analysis Volume [veh/h]	122	207	249	111	84	75
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.23	0.09
d_M, Delay for Movement [s/veh]	8.42	0.00	0.00	0.00	16.58	11.05
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.35	0.17	0.00	0.00	0.90	0.90
95th-Percentile Queue Length [ft/ln]	8.68	4.34	0.00	0.00	22.47	22.47
d_A, Approach Delay [s/veh]	3.12		0.00		13.97	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.83					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 500: NE Norton Ln/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	85.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.930

Intersection Setup

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐			⇐⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	11.00	2.00	3.00	0.00	2.00	2.00	3.00	5.00	4.00	3.00	4.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	94	0	0	270	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	296	27	87	119	10	180	133	1303	101	69	1749	159
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	79	7	23	32	3	48	35	347	27	18	465	42
Total Analysis Volume [veh/h]	315	29	93	127	11	191	141	1386	107	73	1861	169
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	4	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		3,4			4,7							
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	20	80	0	20	80	0
Amber [s]	4.5	4.5	0.0	4.5	4.5	0.0	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	2.5	2.5	0.0	2.5	2.5	0.0	2.5	5.2	0.0	2.5	5.2	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	31	0	0	34	0	0	36	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	165	165	165	165	165	165	165	165	165	165
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	0.00	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	19	35	16	32	97	87	87	97	80	80
g / C, Green / Cycle	0.12	0.21	0.09	0.19	0.59	0.52	0.52	0.59	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.10	0.09	0.08	0.14	0.32	0.44	0.08	0.16	0.59	0.12
s, saturation flow rate [veh/h]	3138	1376	1590	1465	439	3179	1396	457	3179	1408
c, Capacity [veh/h]	365	294	151	281	214	1665	731	202	1539	682
d1, Uniform Delay [s]	71.73	56.10	73.58	62.58	48.38	33.22	20.29	29.48	42.62	24.98
k, delay calibration	0.08	0.08	0.08	0.23	0.32	0.26	0.26	0.50	0.29	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.66	0.70	9.11	7.15	9.71	2.65	0.22	4.99	97.94	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.42	0.84	0.72	0.66	0.83	0.15	0.36	1.21	0.25
d, Delay for Lane Group [s/veh]	76.38	56.79	82.68	69.73	58.09	35.87	20.51	34.46	140.56	25.43
Lane Group LOS	E	E	F	E	E	D	C	C	F	C
Critical Lane Group	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.82	4.50	5.71	8.56	2.94	23.01	2.16	1.45	50.83	3.93
50th-Percentile Queue Length [ft/ln]	170.59	112.45	142.76	214.05	73.38	575.20	53.89	36.15	1270.63	98.30
95th-Percentile Queue Length [veh/ln]	11.11	7.98	9.63	13.36	5.28	30.87	3.88	2.60	71.76	7.08
95th-Percentile Queue Length [ft/ln]	277.69	199.41	240.74	334.02	132.09	771.86	97.01	65.07	1794.09	176.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	76.38	56.79	56.79	82.68	69.73	69.73	58.09	35.87	20.51	34.46	140.56	25.43
Movement LOS	E	E	E	F	E	E	E	D	C	C	F	C
d_A, Approach Delay [s/veh]	70.91			74.73			36.78			127.62		
Approach LOS	E			E			D			F		
d_I, Intersection Delay [s/veh]	85.29											
Intersection LOS	F											
Intersection V/C	0.930											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.339	2.393	3.428	3.356
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1456	1511	1778	1778
d_b, Bicycle Delay [s]	3.33	2.69	0.56	0.56
I_b,int, Bicycle LOS Score for Intersection	2.281	2.102	2.908	3.295
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	7	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 600: Cumulus Ave/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	39.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.828

Intersection Setup

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	270	0	127	0	0	0	0	0	94	44	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	270	0	127	115	0	193	148	1285	94	44	1487	53
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	0	33	30	0	50	39	335	24	11	387	14
Total Analysis Volume [veh/h]	281	0	132	120	0	201	154	1339	98	46	1549	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap
Signal Group	3	8	0	7	4	5	5	2	3	1	6	7
Auxiliary Signal Groups						4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	10	5	5	10	5
Maximum Green [s]	30	30	0	30	30	20	20	80	30	20	80	30
Amber [s]	3.0	4.5	0.0	3.0	4.5	4.5	4.5	5.0	3.0	4.5	5.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	2.5	0.0	3.0	2.5	2.5	2.5	4.0	3.0	2.5	4.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	3.5	3.5	4.0	2.0	3.5	4.0	2.0
Minimum Recall	No	No		No	No	No	No	Yes	No	No	Yes	No
Maximum Recall	No	No		No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No		No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	154	154	154	154	154	154	154	154	154	154	154
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.50	5.50	6.00	6.00	4.00	6.00	6.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	0.00	3.50	0.00	0.00	4.00	0.00	0.00	4.00	0.00
g_i, Effective Green Time [s]	29	27	42	10	31	100	91	125	100	79	97
g / C, Green / Cycle	0.18	0.17	0.27	0.06	0.20	0.65	0.59	0.81	0.65	0.51	0.63
(v / s)_i Volume / Saturation Flow Rate	0.17	0.09	0.09	0.00	0.14	0.29	0.42	0.07	0.10	0.49	0.04
s, saturation flow rate [veh/h]	1629	1454	1272	1710	1408	533	3179	1454	471	3179	1454
c, Capacity [veh/h]	302	253	323	109	284	278	1866	1179	261	1630	910
d1, Uniform Delay [s]	61.91	57.88	44.52	0.00	57.36	37.99	22.72	2.95	17.75	35.73	11.21
k, delay calibration	0.37	0.08	0.08	0.08	0.21	0.18	0.15	0.15	0.20	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	30.29	1.24	0.53	0.00	6.24	2.77	0.75	0.04	0.58	5.27	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.52	0.37	0.00	0.71	0.55	0.72	0.08	0.18	0.95	0.06
d, Delay for Lane Group [s/veh]	92.20	59.12	45.04	0.00	63.60	40.76	23.47	2.99	18.33	41.01	11.25
Lane Group LOS	F	E	D	A	E	D	C	A	B	D	B
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	13.41	4.80	3.71	0.00	7.83	2.28	17.30	0.56	0.61	28.34	0.76
50th-Percentile Queue Length [ft/ln]	335.18	120.05	92.63	0.00	195.79	56.89	432.48	14.01	15.33	708.50	19.00
95th-Percentile Queue Length [veh/ln]	19.41	8.40	6.67	0.00	12.42	4.10	24.12	1.01	1.10	37.07	1.37
95th-Percentile Queue Length [ft/ln]	485.31	209.89	166.73	0.00	310.52	102.40	603.01	25.22	27.59	926.77	34.19

Movement, Approach, & Intersection Results

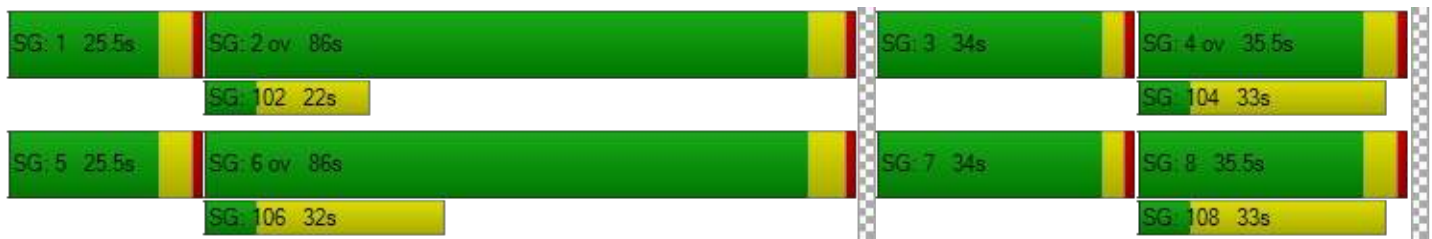
d_M, Delay for Movement [s/veh]	92.20	59.12	59.12	45.04	0.00	63.60	40.76	23.47	2.99	18.33	41.01	11.25
Movement LOS	F	E	E	D	A	E	D	C	A	B	D	B
d_A, Approach Delay [s/veh]	81.63			56.66			23.88			39.38		
Approach LOS	F			E			C			D		
d_I, Intersection Delay [s/veh]	38.96											
Intersection LOS	D											
Intersection V/C	0.828											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			34.67			34.67		
I_p,int, Pedestrian LOS Score for Intersection	2.160			2.375			3.041			3.011		
Crosswalk LOS	B			B			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	667			667			1778			1778		
d_b, Bicycle Delay [s]	20.00			20.00			0.56			0.56		
I_b,int, Bicycle LOS Score for Intersection	2.241			2.089			2.872			2.921		
Bicycle LOS	B			B			C			C		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 700: NE Three Mile Ln/SE Armory Way

Control Type:	Two-way stop	Delay (sec / veh):	162.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.341

Intersection Setup

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	8	8	1079	2	0	1183
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	0.00	0.00	2.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	127	0	0	44
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	10	1523	3	0	1575
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	393	1	0	406
Total Analysis Volume [veh/h]	10	10	1570	3	0	1624
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.34	0.03	0.02	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	162.81	50.60	0.00	0.00	13.48	0.00
Movement LOS	F	F	A	A	B	A
95th-Percentile Queue Length [veh/ln]	1.34	1.34	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	33.56	33.56	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	106.70		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	0.66					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 800: NE Three Mile Ln/SE Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	343.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.860

Intersection Setup

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	127	44	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	27	10	1483	1513	4
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	7	3	382	390	1
Total Analysis Volume [veh/h]	18	28	10	1529	1560	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.86	0.09	0.03	0.02	0.02	0.00
d_M, Delay for Movement [s/veh]	343.17	182.55	15.09	0.00	0.00	0.00
Movement LOS	F	F	C	A	A	A
95th-Percentile Queue Length [veh/ln]	4.00	4.00	0.08	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	99.90	99.90	2.10	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	245.40		0.10		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	3.63					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 900: NE Three Mile Ln/SE Cruickshank Rd

Control Type:	Two-way stop	Delay (sec / veh):	24.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.084

Intersection Setup

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↻		↻		↶	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	3	0	119	8	0	41
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	380	16	1199	311	31	1133
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	99	4	312	81	8	295
Total Analysis Volume [veh/h]	396	17	1249	324	32	1180
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

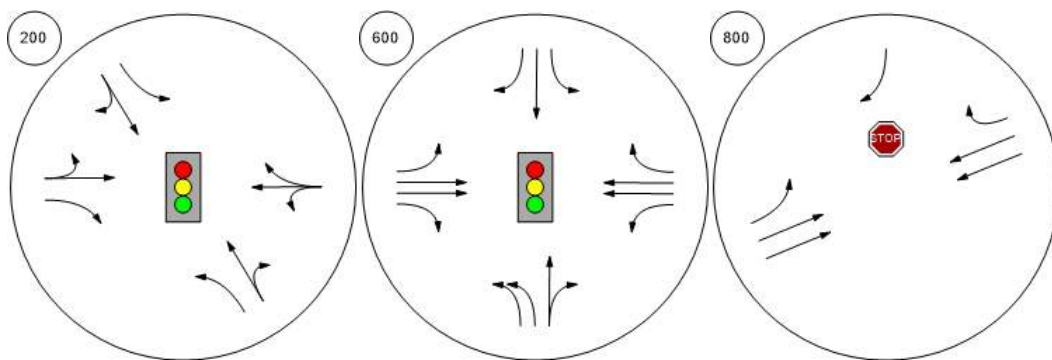
Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.08	0.01	0.00	0.06	0.00
d_M, Delay for Movement [s/veh]	0.00	24.35	0.00	0.00	11.77	0.00
Movement LOS		C	A	A	B	
95th-Percentile Queue Length [veh/ln]	0.00	0.27	0.00	0.00	0.18	0.00
95th-Percentile Queue Length [ft/ln]	0.00	6.78	0.00	0.00	4.50	0.00
d_A, Approach Delay [s/veh]	24.35		0.00		11.77	
Approach LOS	C		A		B	
d_I, Intersection Delay [s/veh]	0.49					
Intersection LOS	C					

Appendix I 2037 Mitigated Background
Traffic Analysis

Lane Configuration and Traffic Control



Intersection Level Of Service Report
Intersection 200: NE Three Mile Ln/SE 1st St

Control Type:	Signalized	Delay (sec / veh):	90.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.977

Intersection Setup

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	21	82	0	0	-21	0	0	0	-26	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	335	899	6	6	983	5	8	0	318	1	0	4
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	90	242	2	2	264	1	2	0	85	0	0	1
Total Analysis Volume [veh/h]	360	967	6	6	1057	5	9	0	342	1	0	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing major street		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing minor street		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing minor street		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	ProtPer	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Overla	Permis	Permis	Permis
Signal Group	1	6	0	0	2	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	5	0	5	0
Maximum Green [s]	20	64	0	0	40	0	0	30	20	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No	No		No	
Maximum Recall	No	No			No			No	No		No	
Pedestrian Recall	No	No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	R	C
C, Cycle Length [s]	88	88	88	88	88	88	88
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	62	62	40	40	18	40	18
g / C, Green / Cycle	0.70	0.70	0.46	0.46	0.20	0.45	0.20
(v / s)_i Volume / Saturation Flow Rate	0.43	0.58	0.01	0.63	0.01	0.24	0.00
s, saturation flow rate [veh/h]	837	1681	445	1682	1324	1442	1450
c, Capacity [veh/h]	490	1184	90	767	353	652	346
d1, Uniform Delay [s]	23.00	9.11	42.91	23.83	27.88	17.23	27.82
k, delay calibration	0.50	0.32	0.11	0.50	0.11	0.46	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.43	4.25	0.31	180.87	0.03	2.74	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.82	0.07	1.38	0.03	0.52	0.01
d, Delay for Lane Group [s/veh]	32.43	13.36	43.22	204.70	27.91	19.97	27.84
Lane Group LOS	C	B	D	F	C	B	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.17	10.79	0.13	52.79	0.15	5.18	0.08
50th-Percentile Queue Length [ft/ln]	79.29	269.82	3.35	1319.85	3.80	129.54	2.11
95th-Percentile Queue Length [veh/ln]	5.71	16.18	0.24	79.48	0.27	8.91	0.15
95th-Percentile Queue Length [ft/ln]	142.72	404.51	6.04	1986.92	6.84	222.87	3.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.43	13.36	13.36	43.22	204.70	204.70	27.91	27.91	19.97	27.84	27.84	27.84
Movement LOS	C	B	B	D	F	F	C	C	B	C	C	C
d_A, Approach Delay [s/veh]	18.51			203.79			20.17			27.84		
Approach LOS	B			F			C			C		
d_I, Intersection Delay [s/veh]	90.51											
Intersection LOS	F											
Intersection V/C	0.977											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			36.45			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.731			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1422			889			667			667		
d_b, Bicycle Delay [s]	3.76			13.89			20.00			20.00		
I_b,int, Bicycle LOS Score for Intersection	3.759			3.322			2.139			1.568		
Bicycle LOS	D			C			B			A		

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 600: Cumulus Ave/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	32.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.765

Intersection Setup

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	270	0	127	0	0	0	0	0	94	44	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	270	0	127	115	0	193	148	1285	94	44	1487	53
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	0	33	30	0	50	39	335	24	11	387	14
Total Analysis Volume [veh/h]	281	0	132	120	0	201	154	1339	98	46	1549	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Overla	ProtPer	Permis	Overla	ProtPer	Permis	Overla
Signal Group	3	8	0	7	4	5	5	2	3	1	6	7
Auxiliary Signal Groups						4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	10	5	5	10	5
Maximum Green [s]	30	30	0	30	30	20	20	80	30	20	80	30
Amber [s]	3.0	4.5	0.0	3.0	4.5	4.5	4.5	5.0	3.0	4.5	5.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	2.5	0.0	3.0	2.5	2.5	2.5	4.0	3.0	2.5	4.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	3.5	3.5	4.0	2.0	3.5	4.0	2.0
Minimum Recall	No	No		No	No	No	No	Yes	No	No	Yes	No
Maximum Recall	No	No		No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No		No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	144	144	144	144	144	144	144	144	144	144	144
L, Total Lost Time per Cycle [s]	4.00	5.50	4.00	5.50	5.50	6.00	6.00	4.00	6.00	6.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	2.00	3.50	0.00	0.00	4.00	0.00	0.00	4.00	0.00
g_i, Effective Green Time [s]	16	15	13	12	36	101	91	112	101	77	96
g / C, Green / Cycle	0.11	0.10	0.09	0.09	0.25	0.70	0.63	0.78	0.70	0.53	0.67
(v / s)_i Volume / Saturation Flow Rate	0.09	0.09	0.08	0.00	0.14	0.27	0.42	0.07	0.10	0.49	0.04
s, saturation flow rate [veh/h]	3163	1454	1590	1710	1408	563	3179	1454	470	3179	1454
c, Capacity [veh/h]	344	152	144	147	353	335	2003	1134	300	1695	967
d1, Uniform Delay [s]	62.88	63.62	64.52	0.00	47.23	28.96	17.03	3.72	12.73	30.64	8.39
k, delay calibration	0.11	0.08	0.11	0.08	0.18	0.15	0.15	0.15	0.17	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.80	10.76	11.73	0.00	2.36	1.40	0.56	0.05	0.36	3.21	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.87	0.83	0.00	0.57	0.46	0.67	0.09	0.15	0.91	0.06
d, Delay for Lane Group [s/veh]	67.68	74.38	76.25	0.00	49.59	30.36	17.59	3.77	13.09	33.85	8.43
Lane Group LOS	E	E	E	A	D	C	B	A	B	C	A
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.29	5.24	4.82	0.00	6.59	1.71	13.94	0.63	0.47	24.61	0.61
50th-Percentile Queue Length [ft/ln]	132.15	130.98	120.49	0.00	164.71	42.66	348.42	15.87	11.65	615.31	15.25
95th-Percentile Queue Length [veh/ln]	9.06	8.99	8.42	0.00	10.80	3.07	20.06	1.14	0.84	32.75	1.10
95th-Percentile Queue Length [ft/ln]	226.41	224.83	210.50	0.00	269.95	76.78	501.48	28.56	20.98	818.71	27.44

Movement, Approach, & Intersection Results

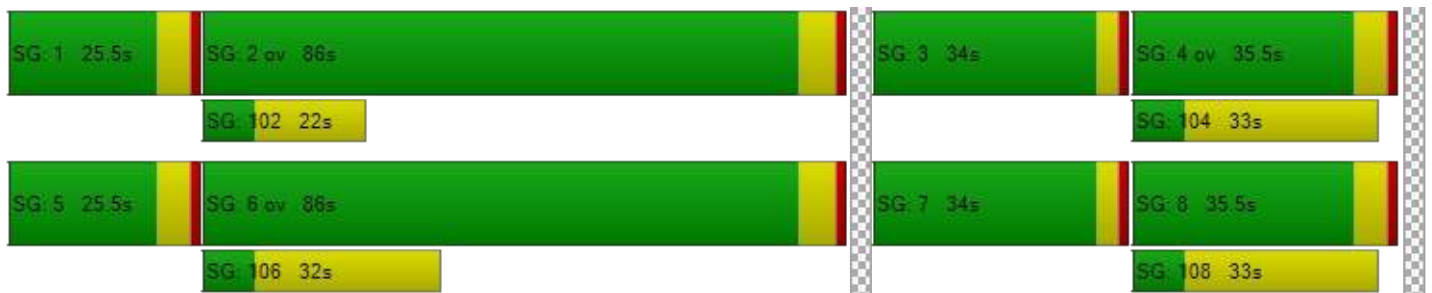
d_M, Delay for Movement [s/veh]	67.68	74.38	74.38	76.25	0.00	49.59	30.36	17.59	3.77	13.09	33.85	8.43
Movement LOS	E	E	E	E	A	D	C	B	A	B	C	A
d_A, Approach Delay [s/veh]	69.82			59.55			17.97			32.42		
Approach LOS	E			E			B			C		
d_I, Intersection Delay [s/veh]	32.72											
Intersection LOS	C											
Intersection V/C	0.765											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			34.67			34.67		
I_p,int, Pedestrian LOS Score for Intersection	2.309			2.380			3.041			2.979		
Crosswalk LOS	B			B			C			C		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	667			667			1778			1778		
d_b, Bicycle Delay [s]	20.00			20.00			0.56			0.56		
I_b,int, Bicycle LOS Score for Intersection	2.241			2.089			2.872			2.921		
Bicycle LOS	B			B			C			C		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 800: NE Three Mile Ln/SE Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	17.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.088

Intersection Setup

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration	↶		↶		↷	
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	127	44	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	27	10	1483	1513	4
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	7	3	382	390	1
Total Analysis Volume [veh/h]	18	28	10	1529	1560	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.09	0.03	0.02	0.02	0.00
d_M, Delay for Movement [s/veh]	0.00	17.36	15.09	0.00	0.00	0.00
Movement LOS		C	C	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.29	0.08	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	7.15	2.10	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	17.36		0.10		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.20					
Intersection LOS	C					

Appendix J Oregon Highway Plan Policy
Intent Statements



Oregon

John A. Kitzhaber, MD, Governor

Department of Transportation

Office of the Director
1158 Chemeketa St. NE
Salem, OR 97301-2528

DATE: May 25, 2011

TO: Joint Subcommittee on the TPR and OHP
Mike McArthur, AOC Executive Director
Mike McCauley, LOC Executive Director
ODOT Region Managers

FROM: Matthew L. Garrett 
Director

SUBJECT: Oregon Highway Plan - Policy Intent Statements

Introduction

The Oregon Transportation Commission (OTC) and the Land Conservation and Development Commission (LCDC) established a Joint Subcommittee in response to concerns on the Transportation Planning Rule (TPR) and Oregon Highway Plan (OHP) mobility standards. This joint subcommittee held three meetings to gather information on TPR and OHP issues, and to develop recommendations for further work. Transportation Commissioners Mary Olson and David Lohman represent the OTC.

The joint subcommittee heard considerable stakeholder concern that the combination of TPR Section 0060 and OHP mobility standards is leading to unintended consequences. In particular, there are concerns that economic development objectives should be balanced better with transportation performance, but in practice the TPR and OHP may be giving precedence to transportation. Also there are concerns that Section 0060 of the TPR and OHP mobility standards are making it more difficult to increase development intensities, hindering implementation of other statewide planning goals.

The joint subcommittee agreed that, changes to the TPR and OHP are warranted in light of the concerns and it developed recommendations to address several issues in initial phases of this work. The subcommittee also recommended that the tasks be conducted through coordinated processes to ensure that Department of Land Conservation and Development (DLCD) and Oregon Department of Transportation (ODOT) tasks jointly address the issues. The joint subcommittee's final recommendations were presented to the OTC and LCDC in April 2011. Both commissions concurred with the recommendations and directed the two agencies to move forward with the necessary tasks.

Additional information on the joint subcommittee process, including the final recommendations report is available at: http://www.oregon.gov/LCD/Rulemaking_TPR_2011.shtml.



The joint subcommittee recommended that ODOT tasks consider potential exemptions for proposals with small increases in traffic, average trip generation and average case land use assumptions; and to improve current alternate mobility standard processes; and expand mobility standard options. While many of these issues will require in-depth work over the next several months, the work below represents actions we can do right away to make progress on several key tasks. As a result, the department has developed three policy intent statements that seek to clarify its commitment to find flexibility and to provide relief under existing conditions. These are a starting point in our efforts; and it is my expectation that ODOT staff will use this information as it works with communities and development interests from this day forward.

OHP Policy Intent Statements

Alternate Mobility Standards

The development of alternate mobility standards provides one primary area for flexibility in existing OHP policy. While the department will explore ways to streamline the alternate mobility standard development process to make it a more effective tool, it is important that ODOT's intent to work with local governments on these matters is clear to all those involved.

Policy Intent Statement 1:

ODOT affirms its commitment to work collaboratively with local governments to develop alternate mobility standards for state highway facilities through TSP update processes and through the development of ODOT facility plans. Establishment of alternate mobility standards will be based upon mutual agreement about likely funding, transportation system constraints, growth expectations, community values, and commitment to reduce demand on state highways through the use of transportation demand management measures, system and service improvements for alternative modes of travel, and development of more complete and connected local transportation system networks.

“Avoid Further Degradation” (OHP Action 1F.6)

The joint subcommittee heard testimony and criticism that the increase of a single trip is enough to trigger a significant effect determination in some cases, and perhaps more important, the associated analysis and mitigation requirements for a plan amendment. This is most applicable for facilities that are already operating over standard, for which the proposal must be able to at least “avoid further degradation” of the impacted facility. In many cases the mitigation associated with a facility already in a “failing” condition can be very significant and may not be feasible for the development to implement, especially for a small increase in trips. In order to help reduce this concern, the following policy intent statement provides thresholds to define a small increase in traffic. These are for situations for which the operational risk to the transportation facility is small, and the resulting plan amendment is unlikely to cause further degradation of the facility. These thresholds are consistent with proposed changes in ODOT's Access Management Program related to requirements for Traffic Impact Analyses.

Policy Intent Statement 2:

In applying the "Avoid Further Degradation" standard established in OHP Action 1F.6 for state highway facilities already operating above the existing standard when evaluating amendments to transportation system plans, acknowledged comprehensive plans, and land use regulations subject to OAR 660-12-0060, a small increase in traffic does not cause "further degradation" of the facility.

The threshold for a small increase in traffic between the existing plan and the proposed amendment is defined in terms of the increase in average daily trip volumes as follows:

- *Any proposed amendment that does not increase the average daily trips by more than 400.*
- *Any proposed amendment that increases the average daily trips by more than 400 but less than 1001 for state facilities where:*
 - *The annual average daily traffic is less than 5,000 for a two-lane highway*
 - *The annual average daily traffic is less than 15,000 for a three-lane highway*
 - *The annual average daily traffic is less than 10,000 for a four-lane highway*
 - *The annual average daily traffic is less than 25,000 for a five-lane highway*
- *If the increase in traffic between the existing plan and the proposed amendment is more than 1000 average daily trips, then it is not considered a small increase in traffic and the amendment causes further degradation of the facility and would follow existing processes for resolution.*

Precision of Volume-to-Capacity Ratios in Analyzing Mitigation

While volume-to-capacity (v/c) ratios provide a high level of precision in traffic analysis, it is difficult to forecast actual traffic conditions and the effects of mitigation, especially over a long period (e.g. 20 years). While the department will not compromise the integrity of the OHP mobility standards in determining a significant affect under the TPR, there are situations for which reasonable levels of mitigation have already been determined and the resulting v/c measure may be within the typical range of uncertainty of fully meeting standards. In these cases, it may be prudent to allow for the plan amendment to proceed with the identified reasonable level of mitigation.

The range provided in Policy Intent Statement 3 allows flexibility within 0.03 in terms of v/c ratios when considering reasonable levels of mitigation. While the impact/scale of a 0.03 v/c ratio change can vary significantly depending on a number of facility characteristics, it typically represents an increase of approximately 750 daily trips on a three-lane highway, and approximately 1,500 daily trips on a five-lane highway that is functioning near current mobility standard levels. In terms of land use types, this increase in the v/c ratio is roughly similar to the traffic impact characteristics of a gas station or fast food restaurant.

Policy Intent Statement 3:

In applying OHP mobility standards to analyze mitigation, ODOT recognizes that there are many variables and levels of uncertainty in calculating volume-to-capacity ratios, particularly over the planning horizon. In applying the standards after negotiating reasonable levels of mitigation for actions required under OAR 660-012-0060, ODOT considers calculated values for volume-to-capacity ratios that are within 0.03 of the adopted standard in the OHP to be considered in compliance with the standard. It is not the intent of the agency to consider variation within modest levels of uncertainty in violation of OHP mobility standards for reasonable mitigation. The specific OHP mobility standard still applies for determining significant affect under OAR 660-012-0060.

Next Steps

Effective immediately, ODOT will begin carrying out the policy intent statements described above. ODOT will also begin the more significant work to address the full recommendations of the joint subcommittee and applicable legislative direction through a more thorough review of policies, procedures and guidance related to the TPR and OHP mobility standards.

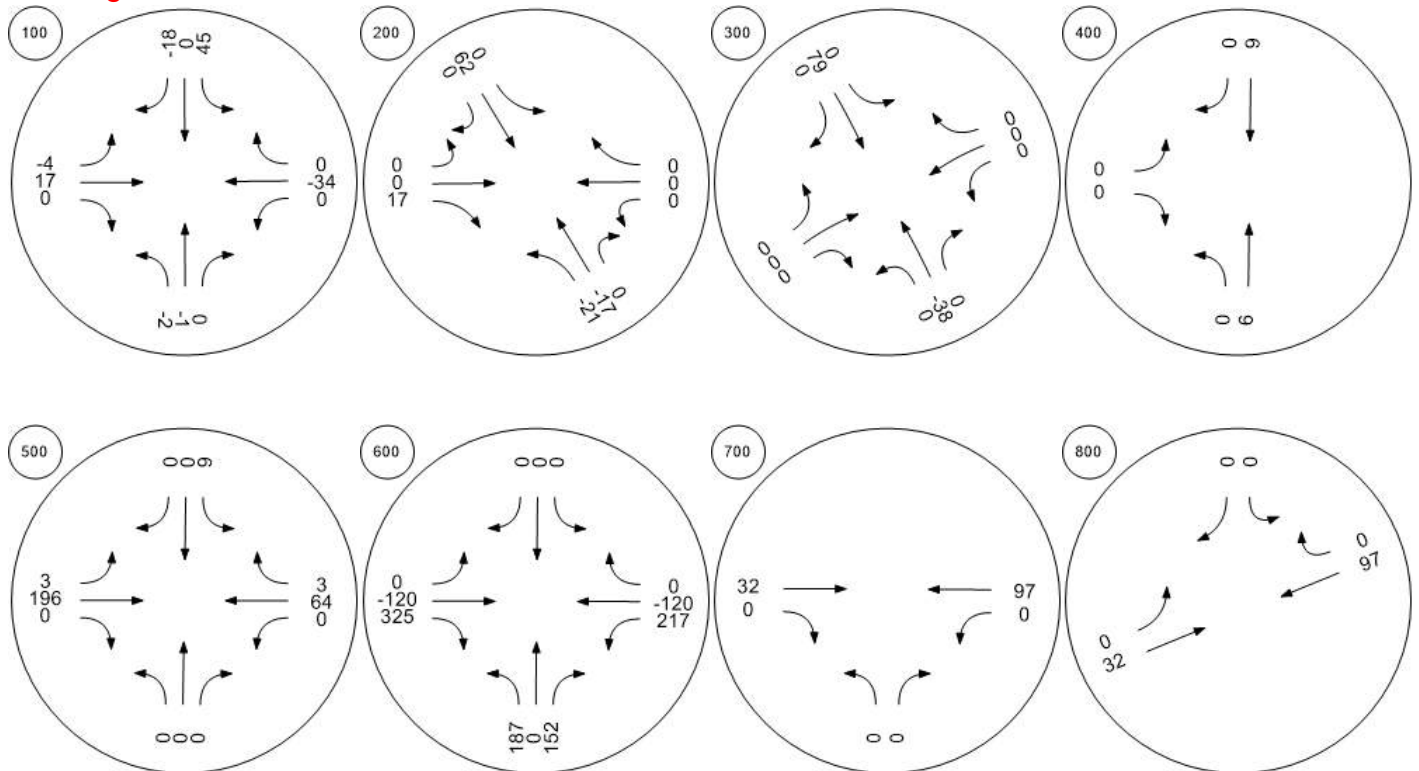
Cc: Jerry Lidz, DLCD Acting Director
Rob Hallyburton, DLCD Planning Services
Matt Crall, DLCD TGM Program
Jeri Bohard, ODOT Director's Office
ODOT Region Planning Managers
Erik Havig, ODOT Planning Section
Michael Rock, ODOT Planning Section
TPR Rulemaking Advisory Committee

Appendix K 2037 Total Traffic Volumes and
Analysis

Traffic Volume - Net New Site Trips - Proposed Rezone



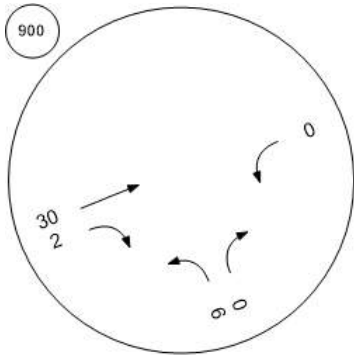
Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Net New Site Trips - Proposed Rezone



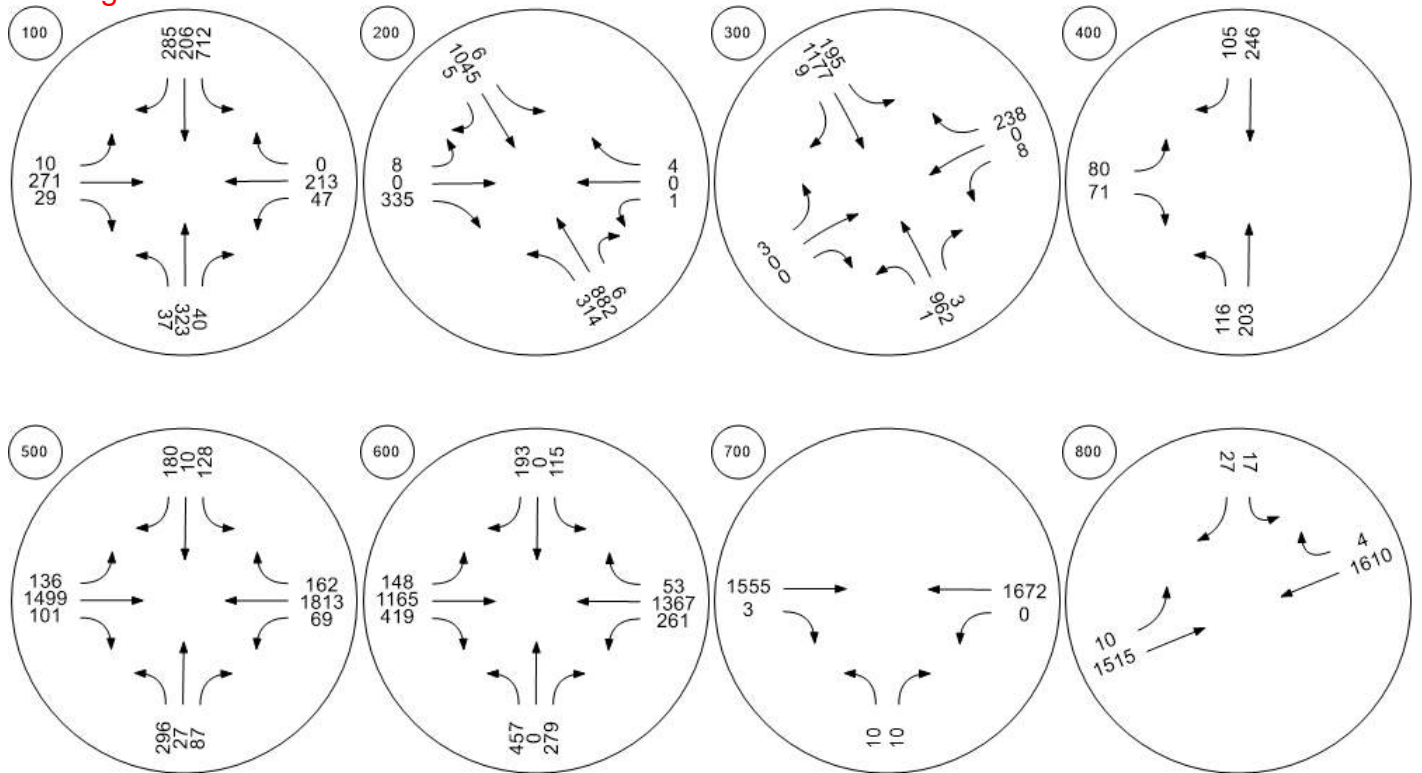
The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank



Traffic Volume - Future Total Volume



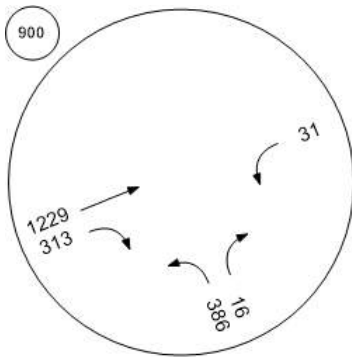
Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Future Total Volume



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank



Intersection Level Of Service Report
Intersection 100: NE Johnson St/NE 3rd St

Control Type:	Signalized	Delay (sec / veh):	122.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.995

Intersection Setup

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	225.00	100.00	100.00	120.00	100.00	120.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Base Volume Input [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	-2	-1	0	45	0	-18	-4	17	0	0	-34	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-1	0	0	-1	-1	-8	-22	-20	-2	0	14	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	323	40	712	206	285	10	271	29	47	213	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	81	10	178	52	71	3	68	7	12	53	0
Total Analysis Volume [veh/h]	37	323	40	712	206	285	10	271	29	47	213	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Overlap	Permiss	ProtPer	Overlap	Unsigna
Signal Group	8	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		8			4			2			6	
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	0	7	7	0	3	5	0	3	5	0
Maximum Green [s]	30	30	0	40	55	0	20	30	0	20	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0
Split [s]	21	21	0	36	57	0	12	21	0	12	21	0
Vehicle Extension [s]	4.0	4.0	0.0	3.5	4.3	0.0	2.5	3.0	0.0	2.5	3.0	0.0
Walk [s]	7	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No		No	No		No	No		No	No	
Maximum Recall		No		No	No		No	No		No	No	
Pedestrian Recall		No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	L	C	L	C
C, Cycle Length [s]	124	124	124	124	124	124	124
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	40	74	1	24	14	37
g / C, Green / Cycle	0.24	0.32	0.60	0.01	0.20	0.11	0.30
(v / s)_i Volume / Saturation Flow Rate	0.34	0.44	0.32	0.01	0.18	0.03	0.13
s, saturation flow rate [veh/h]	1187	1603	1527	1603	1655	1603	1683
c, Capacity [veh/h]	319	517	911	12	326	58	504
d1, Uniform Delay [s]	43.82	35.35	6.59	61.33	44.77	48.50	29.50
k, delay calibration	0.50	0.50	0.30	0.08	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	138.01	181.75	1.39	69.33	33.11	22.54	0.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.26	1.38	0.54	0.85	0.92	0.81	0.42
d, Delay for Lane Group [s/veh]	181.82	217.10	7.98	130.66	77.88	71.04	30.06
Lane Group LOS	F	F	A	F	E	E	C
Critical Lane Group	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	21.92	40.43	3.64	0.54	11.53	1.65	4.43
50th-Percentile Queue Length [ft/ln]	548.02	1010.71	90.95	13.51	288.20	41.31	110.77
95th-Percentile Queue Length [veh/ln]	33.31	60.82	6.55	0.97	17.10	2.97	7.88
95th-Percentile Queue Length [ft/ln]	832.64	1520.48	163.71	24.33	427.40	74.36	197.07

Movement, Approach, & Intersection Results

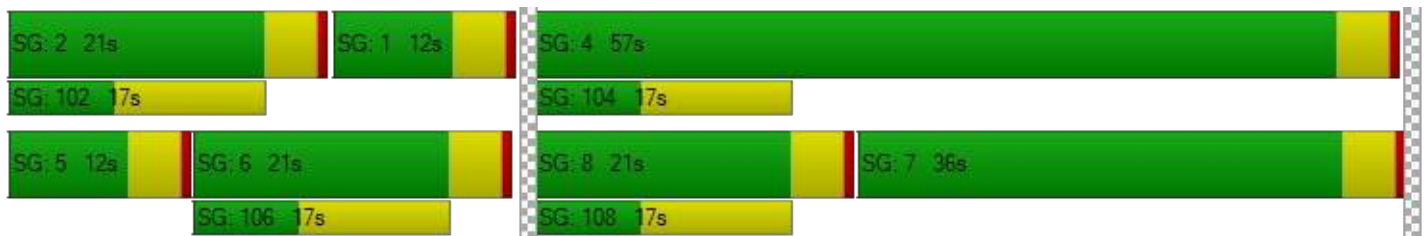
d_M, Delay for Movement [s/veh]	181.82	181.82	181.82	217.10	7.98	7.98	130.66	77.88	77.88	71.04	30.06	0.00
Movement LOS	F	F	F	F	A	A	F	E	E	E	C	
d_A, Approach Delay [s/veh]	181.82			131.74			79.58			37.47		
Approach LOS	F			F			E			D		
d_I, Intersection Delay [s/veh]	122.24											
Intersection LOS	F											
Intersection V/C	0.995											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.047	2.439	2.267	2.443
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	1178	378	378
d_b, Bicycle Delay [s]	29.61	7.61	29.61	29.61
I_b,int, Bicycle LOS Score for Intersection	2.220	3.545	2.071	1.989
Bicycle LOS	B	D	B	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	-	7	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 200: NE Three Mile Ln/SE 1st St

Control Type:	Signalized	Delay (sec / veh):	137.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.088

Intersection Setup

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	-21	-17	0	0	62	0	0	0	17	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	21	82	0	0	-21	0	0	0	-26	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	882	6	6	1045	5	8	0	335	1	0	4
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	237	2	2	281	1	2	0	90	0	0	1
Total Analysis Volume [veh/h]	338	948	6	6	1124	5	9	0	360	1	0	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	20	64	0	0	40	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	94	94	94	94	94	94
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	60	60	40	40	26	26
g / C, Green / Cycle	0.64	0.64	0.43	0.43	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.42	0.57	0.01	0.67	0.25	0.00
s, saturation flow rate [veh/h]	800	1681	453	1682	1455	1146
c, Capacity [veh/h]	432	1077	76	714	439	360
d1, Uniform Delay [s]	25.73	14.07	47.12	27.12	33.21	24.89
k, delay calibration	0.50	0.35	0.11	0.50	0.30	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.14	7.90	0.43	268.52	11.33	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.89	0.08	1.58	0.84	0.01
d, Delay for Lane Group [s/veh]	38.87	21.97	47.56	295.64	44.54	24.90
Lane Group LOS	D	C	D	F	D	C
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.27	16.20	0.15	68.01	9.33	0.08
50th-Percentile Queue Length [ft/ln]	106.66	405.08	3.68	1700.22	233.25	2.06
95th-Percentile Queue Length [veh/ln]	7.65	22.80	0.27	105.36	14.34	0.15
95th-Percentile Queue Length [ft/ln]	191.35	570.12	6.63	2634.01	358.49	3.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.87	21.97	21.97	47.56	295.64	295.64	44.54	44.54	44.54	24.90	24.90	24.90
Movement LOS	D	C	C	D	F	F	D	D	D	C	C	C
d_A, Approach Delay [s/veh]	26.39			294.33			44.54			24.90		
Approach LOS	C			F			D			C		
d_I, Intersection Delay [s/veh]	137.35											
Intersection LOS	F											
Intersection V/C	1.088											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.749	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1422	889	667	667
d_b, Bicycle Delay [s]	3.76	13.89	20.00	20.00
I_b,int, Bicycle LOS Score for Intersection	3.691	3.432	2.168	1.568
Bicycle LOS	D	C	B	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 300: NE Three Mile Ln/SE Nehemiah Ln

Control Type:	Two-way stop	Delay (sec / veh):	77.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.931

Intersection Setup

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			└			└		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Base Volume Input [veh/h]	1	693	2	151	885	7	0	0	0	0	0	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	-38	0	0	79	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	103	0	0	-47	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	962	3	195	1177	9	0	0	0	0	0	238
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	261	1	53	320	2	0	0	0	0	0	65
Total Analysis Volume [veh/h]	1	1046	3	212	1279	10	0	0	0	0	0	259
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.32	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.93
d_M, Delay for Movement [s/veh]	11.62	0.00	0.00	12.95	0.00	0.00	0.00	0.00	22.70	0.00	0.00	77.70
Movement LOS	B	A	A	B	A	A			C			F
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	1.38	1.38	1.38	0.00	0.00	0.00	0.00	0.00	8.73
95th-Percentile Queue Length [ft/ln]	0.14	0.14	0.14	34.39	34.39	34.39	0.00	0.00	0.00	0.00	0.00	218.26
d_A, Approach Delay [s/veh]	0.01			1.83			22.70			77.70		
Approach LOS	A			A			C			F		
d_I, Intersection Delay [s/veh]	8.14											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 400: NE Cumulus Ave/ NE Norton Ln

Control Type:	Two-way stop	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.238

Intersection Setup

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Base Volume Input [veh/h]	90	152	183	81	62	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	3.00	1.00	0.00	10.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	6	9	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	203	246	105	80	71
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	53	65	28	21	19
Total Analysis Volume [veh/h]	122	214	259	111	84	75
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.24	0.09
d_M, Delay for Movement [s/veh]	8.46	0.00	0.00	0.00	16.87	11.17
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.35	0.18	0.00	0.00	0.92	0.92
95th-Percentile Queue Length [ft/ln]	8.76	4.38	0.00	0.00	23.07	23.07
d_A, Approach Delay [s/veh]	3.07		0.00		14.18	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.80					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 500: NE Norton Ln/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	99.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.958

Intersection Setup

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐			⇐⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	11.00	2.00	3.00	0.00	2.00	2.00	3.00	5.00	4.00	3.00	4.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	199	0	0	65	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	3	0	-3	-1	-3	0	0	-1	1
Pass-by Trips [veh/h]	0	0	0	6	0	3	4	0	0	0	0	2
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	94	0	0	270	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	296	27	87	128	10	180	136	1499	101	69	1813	162
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	79	7	23	34	3	48	36	399	27	18	482	43
Total Analysis Volume [veh/h]	315	29	93	136	11	191	145	1595	107	73	1929	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protecte	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	4	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		3,4			4,7							
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	20	80	0	20	80	0
Amber [s]	4.5	4.5	0.0	4.5	4.5	0.0	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	2.5	2.5	0.0	2.5	2.5	0.0	2.5	5.2	0.0	2.5	5.2	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	31	0	0	34	0	0	36	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	167	167	167	167	167	167	167	167	167	167
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	0.00	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	19	35	17	33	98	87	87	98	80	80
g / C, Green / Cycle	0.12	0.21	0.10	0.20	0.59	0.52	0.52	0.59	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.10	0.09	0.09	0.14	0.33	0.50	0.08	0.18	0.61	0.12
s, saturation flow rate [veh/h]	3138	1376	1590	1465	434	3179	1396	400	3179	1408
c, Capacity [veh/h]	364	292	159	288	217	1656	727	157	1521	674
d1, Uniform Delay [s]	72.60	56.89	74.00	62.58	49.55	38.51	20.78	38.18	43.57	25.88
k, delay calibration	0.08	0.08	0.08	0.24	0.34	0.26	0.26	0.50	0.31	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.73	0.71	9.27	6.65	10.43	9.32	0.22	9.52	123.91	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.42	0.85	0.70	0.67	0.96	0.15	0.46	1.27	0.26
d, Delay for Lane Group [s/veh]	77.32	57.59	83.27	69.23	59.99	47.83	21.00	47.70	167.48	26.35
Lane Group LOS	E	E	F	E	E	D	C	D	F	C
Critical Lane Group	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.91	4.56	6.19	8.59	3.12	31.94	2.20	1.61	56.19	4.12
50th-Percentile Queue Length [ft/ln]	172.78	114.02	154.68	214.65	77.98	798.53	55.03	40.29	1404.81	102.95
95th-Percentile Queue Length [veh/ln]	11.22	8.06	10.27	13.39	5.61	41.21	3.96	2.90	80.84	7.41
95th-Percentile Queue Length [ft/ln]	280.56	201.58	256.66	334.79	140.37	1030.25	99.05	72.52	2021.07	185.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	77.32	57.59	57.59	83.27	69.23	69.23	59.99	47.83	21.00	47.70	167.48	26.35
Movement LOS	E	E	E	F	E	E	E	D	C	D	F	C
d_A, Approach Delay [s/veh]	71.81			74.88			47.23			152.29		
Approach LOS	E			E			D			F		
d_I, Intersection Delay [s/veh]	99.04											
Intersection LOS	F											
Intersection V/C	0.958											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.339	2.399	3.496	3.427
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1456	1511	1778	1778
d_b, Bicycle Delay [s]	3.33	2.69	0.56	0.56
I_b,int, Bicycle LOS Score for Intersection	2.281	2.117	3.083	3.353
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	7	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 600: Cumulus Ave/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	45.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.846

Intersection Setup

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	67	0	32	0	0	0	0	0	205	97	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	120	0	120	0	0	0	0	-120	120	120	-120	0
Existing Site Adjustment Volume [veh/h]	270	0	127	0	0	0	0	0	94	44	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	457	0	279	115	0	193	148	1165	419	261	1367	53
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	119	0	73	30	0	50	39	303	109	68	356	14
Total Analysis Volume [veh/h]	476	0	291	120	0	201	154	1214	436	272	1424	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap
Signal Group	3	8	0	7	4	5	5	2	3	1	6	7
Auxiliary Signal Groups						4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	10	5	5	10	5
Maximum Green [s]	30	30	0	30	30	20	20	80	30	20	80	30
Amber [s]	3.0	4.5	0.0	3.0	4.5	4.5	4.5	5.0	3.0	4.5	5.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	2.5	0.0	3.0	2.5	2.5	2.5	4.0	3.0	2.5	4.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	3.5	3.5	4.0	2.0	3.5	4.0	2.0
Minimum Recall	No	No		No	No	No	No	Yes	No	No	Yes	No
Maximum Recall	No	No		No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No		No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	155	155	155	155	155	155	155	155	155	155	155
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	5.50	6.00	6.00	4.00	6.00	6.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.50	0.00	3.50	0.00	0.00	4.00	0.00	0.00	4.00	0.00
g_i, Effective Green Time [s]	45	30	45	11	34	99	79	115	99	76	93
g / C, Green / Cycle	0.29	0.19	0.29	0.07	0.22	0.63	0.51	0.74	0.63	0.49	0.60
(v / s)_i Volume / Saturation Flow Rate	0.31	0.20	0.10	0.00	0.14	0.26	0.38	0.30	0.43	0.45	0.04
s, saturation flow rate [veh/h]	1531	1454	1153	1710	1408	585	3179	1453	639	3179	1454
c, Capacity [veh/h]	513	280	215	124	308	301	1611	1073	344	1553	872
d1, Uniform Delay [s]	55.59	62.78	45.44	0.00	55.37	31.02	30.60	7.61	29.29	36.83	12.93
k, delay calibration	0.50	0.44	0.08	0.08	0.22	0.15	0.15	0.19	0.50	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	25.28	60.71	1.67	0.00	4.63	1.91	1.04	0.44	16.70	3.58	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	1.04	0.56	0.00	0.65	0.51	0.75	0.41	0.79	0.92	0.06
d, Delay for Lane Group [s/veh]	80.87	123.49	47.11	0.00	60.00	32.93	31.64	8.05	45.99	40.42	12.97
Lane Group LOS	F	F	D	A	E	C	C	A	D	D	B
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	22.24	15.83	3.70	0.00	7.63	2.36	18.30	5.36	5.81	25.53	0.83
50th-Percentile Queue Length [ft/ln]	556.06	395.70	92.42	0.00	190.79	59.11	457.49	134.02	145.19	638.22	20.82
95th-Percentile Queue Length [veh/ln]	29.98	22.81	6.65	0.00	12.16	4.26	25.32	9.16	9.76	33.82	1.50
95th-Percentile Queue Length [ft/ln]	749.43	570.21	166.36	0.00	304.05	106.40	632.88	228.95	244.00	845.38	37.48

Movement, Approach, & Intersection Results

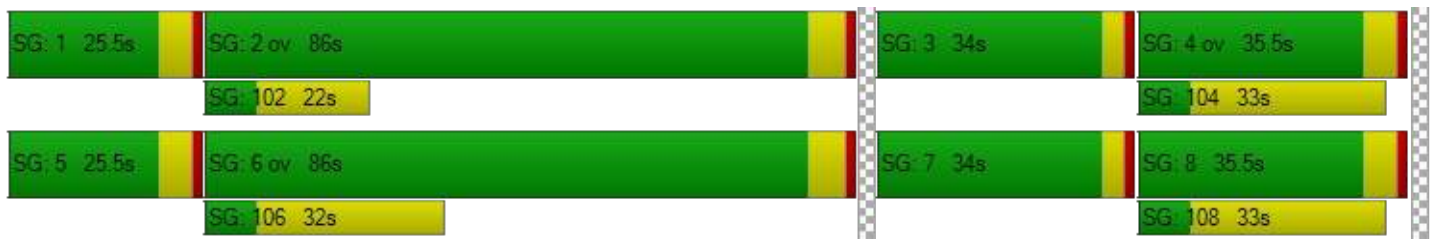
d_M, Delay for Movement [s/veh]	80.87	123.49	123.49	47.11	0.00	60.00	32.93	31.64	8.05	45.99	40.42	12.97
Movement LOS	F	F	F	D	A	E	C	C	A	D	D	B
d_A, Approach Delay [s/veh]	97.04			55.18			26.05			40.42		
Approach LOS	F			E			C			D		
d_I, Intersection Delay [s/veh]	45.21											
Intersection LOS	D											
Intersection V/C	0.846											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.620	2.370	3.258	3.036
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	1778	1778
d_b, Bicycle Delay [s]	20.00	20.00	0.56	0.56
I_b,int, Bicycle LOS Score for Intersection	2.825	2.089	3.048	3.004
Bicycle LOS	C	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 700: NE Three Mile Ln/SE Armory Way

Control Type:	Two-way stop	Delay (sec / veh):	191.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.389

Intersection Setup

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	8	8	1079	2	0	1183
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	0.00	0.00	2.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	32	0	0	97
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	127	0	0	44
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	10	1555	3	0	1672
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	401	1	0	431
Total Analysis Volume [veh/h]	10	10	1603	3	0	1724
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.39	0.03	0.02	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	191.28	62.15	0.00	0.00	13.73	0.00
Movement LOS	F	F	A	A	B	A
95th-Percentile Queue Length [veh/ln]	1.51	1.51	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	37.71	37.71	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	126.72		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	0.76					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 800: NE Three Mile Ln/SE Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	466.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.052

Intersection Setup

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	32	97	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	127	44	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	27	10	1515	1610	4
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	7	3	390	415	1
Total Analysis Volume [veh/h]	18	28	10	1562	1660	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.05	0.09	0.03	0.02	0.02	0.00
d_M, Delay for Movement [s/veh]	466.49	268.18	16.12	0.00	0.00	0.00
Movement LOS	F	F	C	A	A	A
95th-Percentile Queue Length [veh/ln]	4.54	4.54	0.09	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	113.47	113.47	2.31	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	345.78		0.10		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	4.90					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 900: NE Three Mile Ln/SE Cruickshank Rd

Control Type:	Two-way stop	Delay (sec / veh):	25.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.087

Intersection Setup

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↻		↻		↶	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	6	0	30	2	0	91
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	3	0	119	8	0	41
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	386	16	1229	313	31	1224
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	101	4	320	82	8	319
Total Analysis Volume [veh/h]	402	17	1280	326	32	1275
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

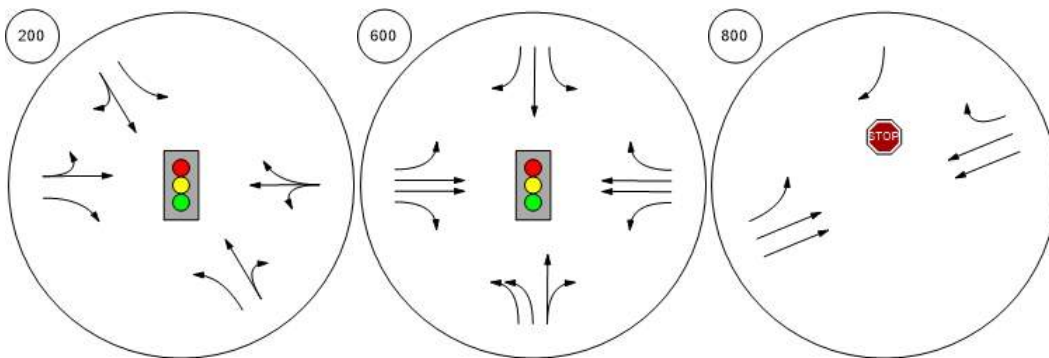
Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.09	0.01	0.00	0.06	0.00
d_M, Delay for Movement [s/veh]	0.00	25.27	0.00	0.00	11.96	0.00
Movement LOS		D	A	A	B	
95th-Percentile Queue Length [veh/ln]	0.00	0.28	0.00	0.00	0.19	0.00
95th-Percentile Queue Length [ft/ln]	0.00	7.09	0.00	0.00	4.63	0.00
d_A, Approach Delay [s/veh]	25.27		0.00		11.96	
Approach LOS	D		A		B	
d_I, Intersection Delay [s/veh]	0.49					
Intersection LOS	D					

Appendix L 2037 Mitigated Total Traffic
Analysis

Lane Configuration and Traffic Control



Intersection Level Of Service Report
Intersection 200: NE Three Mile Ln/SE 1st St

Control Type:	Signalized	Delay (sec / veh):	114.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.021

Intersection Setup

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	-21	-17	0	0	62	0	0	0	17	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	21	82	0	0	-21	0	0	0	-26	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	882	6	6	1045	5	8	0	335	1	0	4
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	237	2	2	281	1	2	0	90	0	0	1
Total Analysis Volume [veh/h]	338	948	6	6	1124	5	9	0	360	1	0	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	5	0	5	0
Maximum Green [s]	20	64	0	0	40	0	0	30	20	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No	No		No	
Maximum Recall	No	No			No			No	No		No	
Pedestrian Recall	No	No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	R	C
C, Cycle Length [s]	89	89	89	89	89	89	89
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	62	62	40	40	19	41	19
g / C, Green / Cycle	0.70	0.70	0.45	0.45	0.21	0.46	0.21
(v / s)_i Volume / Saturation Flow Rate	0.41	0.57	0.01	0.67	0.01	0.25	0.00
s, saturation flow rate [veh/h]	827	1681	453	1682	1322	1442	1448
c, Capacity [veh/h]	493	1174	89	752	361	669	356
d1, Uniform Delay [s]	22.39	9.41	43.57	24.75	27.92	17.15	27.86
k, delay calibration	0.50	0.32	0.11	0.50	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.54	4.05	0.31	232.90	0.03	3.09	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.81	0.07	1.50	0.02	0.54	0.01
d, Delay for Lane Group [s/veh]	29.92	13.46	43.88	257.65	27.95	20.25	27.88
Lane Group LOS	C	B	D	F	C	C	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.90	10.94	0.14	63.05	0.15	5.59	0.09
50th-Percentile Queue Length [ft/ln]	72.54	273.62	3.42	1576.14	3.85	139.70	2.13
95th-Percentile Queue Length [veh/ln]	5.22	16.37	0.25	96.77	0.28	9.46	0.15
95th-Percentile Queue Length [ft/ln]	130.58	409.25	6.16	2419.20	6.92	236.62	3.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.92	13.46	13.46	43.88	257.65	257.65	27.95	27.95	20.25	27.88	27.88	27.88
Movement LOS	C	B	B	D	F	F	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	17.77			256.52			20.44			27.88		
Approach LOS	B			F			C			C		
d_I, Intersection Delay [s/veh]	114.88											
Intersection LOS	F											
Intersection V/C	1.021											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.749	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1422	889	667	667
d_b, Bicycle Delay [s]	3.76	13.89	20.00	20.00
I_b,int, Bicycle LOS Score for Intersection	3.691	3.432	2.168	1.568
Bicycle LOS	D	C	B	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 600: Cumulus Ave/NE Three Mile Ln

Control Type:	Signalized	Delay (sec / veh):	49.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.794

Intersection Setup

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	67	0	32	0	0	0	0	0	205	97	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	120	0	120	0	0	0	0	-120	120	120	-120	0
Existing Site Adjustment Volume [veh/h]	270	0	127	0	0	0	0	0	94	44	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	457	0	279	115	0	193	148	1165	419	261	1367	53
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	119	0	73	30	0	50	39	303	109	68	356	14
Total Analysis Volume [veh/h]	476	0	291	120	0	201	154	1214	436	272	1424	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Overla	ProtPer	Permis	Overla	ProtPer	Permis	Overla
Signal Group	3	8	0	7	4	5	5	2	3	1	6	7
Auxiliary Signal Groups						4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	10	5	5	10	5
Maximum Green [s]	30	30	0	30	30	20	20	80	30	20	80	30
Amber [s]	3.0	4.5	0.0	3.0	4.5	4.5	4.5	5.0	3.0	4.5	5.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	2.5	0.0	3.0	2.5	2.5	2.5	4.0	3.0	2.5	4.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	3.5	3.5	4.0	2.0	3.5	4.0	2.0
Minimum Recall	No	No		No	No	No	No	Yes	No	No	Yes	No
Maximum Recall	No	No		No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No		No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	163	163	163	163	163	163	163	163	163	163	163
L, Total Lost Time per Cycle [s]	4.00	5.50	4.00	5.50	5.50	6.00	6.00	4.00	6.00	6.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	2.00	3.50	0.00	0.00	4.00	0.00	0.00	4.00	0.00
g_i, Effective Green Time [s]	28	30	14	17	42	103	83	116	103	78	98
g / C, Green / Cycle	0.17	0.18	0.09	0.10	0.26	0.63	0.50	0.71	0.63	0.48	0.60
(v / s)_i Volume / Saturation Flow Rate	0.15	0.20	0.08	0.00	0.14	0.25	0.38	0.30	0.42	0.45	0.04
s, saturation flow rate [veh/h]	3163	1454	1590	1710	1408	606	3179	1454	642	3179	1453
c, Capacity [veh/h]	534	267	141	177	365	307	1603	1032	341	1516	875
d1, Uniform Delay [s]	66.47	66.71	73.40	0.00	52.26	35.47	32.47	9.83	31.93	40.51	13.43
k, delay calibration	0.11	0.48	0.11	0.08	0.25	0.15	0.15	0.21	0.50	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.41	80.38	13.14	0.00	2.91	1.80	1.07	0.54	17.49	4.82	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	1.09	0.85	0.00	0.55	0.50	0.76	0.42	0.80	0.94	0.06
d, Delay for Lane Group [s/veh]	71.88	147.09	86.54	0.00	55.17	37.27	33.54	10.37	49.43	45.34	13.48
Lane Group LOS	E	F	F	A	E	D	C	B	D	D	B
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	10.17	17.13	5.51	0.00	7.50	2.51	19.48	6.55	6.16	27.93	0.88
50th-Percentile Queue Length [ft/ln]	254.14	428.16	137.75	0.00	187.52	62.74	486.89	163.67	153.91	698.18	21.94
95th-Percentile Queue Length [veh/ln]	15.39	25.01	9.36	0.00	11.99	4.52	26.71	10.74	10.23	36.59	1.58
95th-Percentile Queue Length [ft/ln]	384.86	625.25	233.99	0.00	299.80	112.94	667.82	268.57	255.65	914.85	39.49

Movement, Approach, & Intersection Results

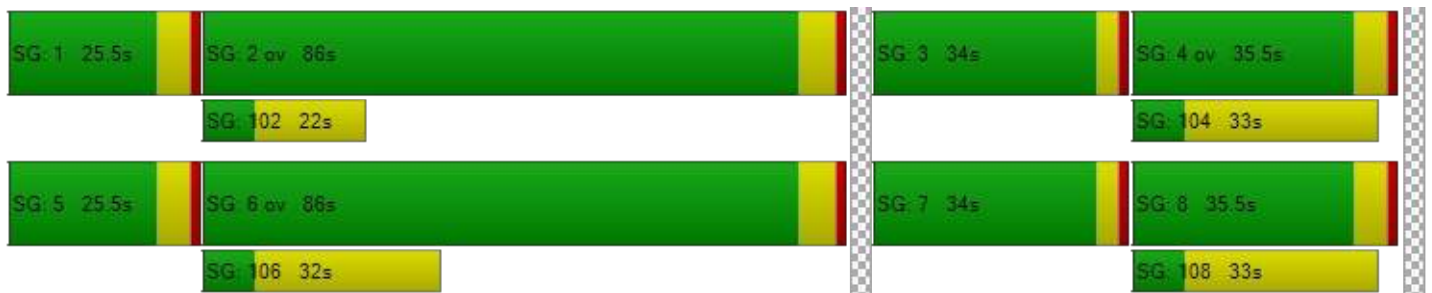
d_M, Delay for Movement [s/veh]	71.88	147.09	147.09	86.54	0.00	55.17	37.27	33.54	10.37	49.43	45.34	13.48
Movement LOS	E	F	F	F	A	E	D	C	B	D	D	B
d_A, Approach Delay [s/veh]	100.42			66.90			28.26			44.97		
Approach LOS	F			E			C			D		
d_I, Intersection Delay [s/veh]	49.15											
Intersection LOS	D											
Intersection V/C	0.794											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			34.67			34.67		
I_p,int, Pedestrian LOS Score for Intersection	2.690			2.367			3.087			3.001		
Crosswalk LOS	B			B			C			C		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	667			667			1778			1778		
d_b, Bicycle Delay [s]	20.00			20.00			0.56			0.56		
I_b,int, Bicycle LOS Score for Intersection	2.825			2.089			3.048			3.004		
Bicycle LOS	C			B			C			C		

Sequence




Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 800: NE Three Mile Ln/SE Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	18.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.095

Intersection Setup

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	32	97	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	127	44	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	27	10	1515	1610	4
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	7	3	390	415	1
Total Analysis Volume [veh/h]	18	28	10	1562	1660	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.09	0.03	0.02	0.02	0.00
d_M, Delay for Movement [s/veh]	0.00	18.47	16.12	0.00	0.00	0.00
Movement LOS		C	C	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.31	0.09	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	7.78	2.31	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.47		0.10		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.21					
Intersection LOS	C					



Memorandum

Date January 10, 2020
To Alan Roodhouse, RPS Development
Michael Strahs, Kimco Realty
From Sam Brookham, Leland Consulting Group
Chris Zahas, AICP, Leland Consulting Group
Subject EOA Land Supply Update
Project McMinnville Three Mile Lane

Kimco and RPS Development are in the process of preparing a zone change application for its property on Three Mile Lane in McMinnville. As part of this application, the applicant is required to refer to the industrial and commercial land supply in McMinnville, as noted in the City's Economic Opportunities Analysis (EOA). Since the EOA was adopted in 2013, several zone changes elsewhere in the city have rendered the numbers in the EOA incorrect. In order for the applicant to provide the City with accurate information, Leland Consulting Group was engaged to prepare a supplementary memorandum that updates the land supply numbers in the 2013 EOA to reflect these zone changes. This technical memorandum, therefore, documents all zone changes since the 2013 EOA and reconciles the corresponding commercial land supply numbers.

ZONE CHANGES SINCE 2013

The following table shows all of the commercial rezones in McMinnville since 2012 and provides information about the development status for each associated parcel. This information is a critical and foundational component of updating the commercial land demand and supply numbers.

Table 1. Zone Changes to/from Commercial Lands (2012-2019)

Year	Old Zone	New Zone	Site Address	Tax Lot Number	Lot Acres	Ord. No.	Development Status	Notes
2012	R-4 PD	O-R PD	500 NW Hill Road	R4419AC04700	3.39	4957	Partially Developed	Approximately 1/3 developed
2013	R-4	C-3 PD	304 NE Logan St	R4421AC03100	0.44	4968	Developed	Subaru car dealership, built 2013
			337 NE Macy St	R4421AC03200				
2017	R-1, EF-40	C-3	2121 NE 27th St	R4416AA05002	0.72	5020	Developed	Built pre-2013
2018	R-4 PD	O-R	600 SE Baker Street	R4420DD00100	2.86	5061	Undeveloped	Linfield College, vacant
				R4420DD00200				
2019	County	C-3 PD	1755 NW Baker Creek	R4418 00100	6.62		Undeveloped	Vacant

C-3	(4.56)
O-R	3.13
Total Comm.	(1.44)

Source: LCG, City of McMinnville

The following information provides a brief explanation of the preceding table and the resulting numbers.

- There were three instances of a zone change from a residential zone to an office/residential zone (O/R), totaling 6.25 acres. The O-R Zone (Office/Residential) is both commercial and residential and, thus, the total new acreage is split 50/50 between residential and commercial needs for the purpose of the buildable lands inventory. This equates to a gross increase of 3.125 acres of commercially designated land.
- The 2019 rezone resulted in a reduction of the site’s 12.34 acres of commercially designated land by 5.72 acres for a new total of 6.62 acres.
- The addition of the 2013 and 2017 C-3 rezones (totaling an increase of 1.16 acres) less the 2019 reduction equals an overall 4.56-acre reduction of General Commercial C-3 land.
- The gross reduction of 4.56 acres of C-3 zoned land and an increase of 3.13 of O-R zoned land results in a net loss of 1.44 acres of commercial land inventory.

EOA UPDATE

The following table was reproduced from the 2013 OEA. It is reproduced here to provide contextual information about the need for commercial, industrial, and institutional land based on the 20-year employment forecast (as of 2013). In 2013, the EOA forecasted a 20-year need for 165 acres of commercial land, 145 acres of industrial land, and 10 acres for institutional uses, totaling 320 acres.

Table 2. Forecast Demand for Vacant Employment Land (2013-2033)

Land Use Type	Forecast Job Growth	Added Jobs on C/I Land	Employees per Acre	Acreage Need	% of Total
Commercial	4,898	4,065	26.0	164.6	51.5%
Industrial	1,826	1,516	11.0	145.1	45.4%
Institutional	660	340	35.0	10.2	3.2%
Total All Uses	7,385	5,921	19.5	319.9	100%

Source: ECONorthwest, 2001 EOA and E. D. Hovee & Company, LLC.

The table below shows the original 2012 buildable land inventory summary and the adjustments based on the aforementioned zone changes between 2012 and 2019. Key takeaways are as follows.

- The commercial buildable land inventory decreased by 1.44 acres, largely because of the aforementioned reduction of 5.72 acres of vacant commercial land.
- Most of the “added” commercial land is considered *unavailable* because of the presence of buildings.
- The buildable industrial land inventory was not affected by commercial zone changes between 2012 and 2019.

Table 3. McMinnville Commercial & Industrial BLI (2012 + 2013-2019 Zone Changes)

BLI Category	# of Parcels	Land Area (in acres)		Total
		Unavailable	Available	
Commercial Inventory				
Developed	793	464.4	0.0	464.4
Recent Zone Change	3	1.2	0.0	1.2
Partially Developed	18	84.1	22.5	106.6
Recent Zone Change	1	0.6	1.1	1.7
Vacant	43	14.3	108.5	122.7
Recent Zone Change	3	0.0	(4.3)	-4.3
2013 Subtotal	861	562.8	130.9	693.7
Recent Zone Change	7	1.7	(3.2)	(1.4)
Rev. 2019 Subtotal	868	564.5	127.8	692.3
Industrial Inventory				
Developed	174	1,154.6	0.0	1,154.6
Partially Developed	6	4.5	12.4	16.9
Vacant	49	20.5	376.7	397.2
Subtotal Industrial	229	1,179.7	389.7	1,569.4
Commercial + Industrial	1,097.0	1,744.2	517.5	2,261.6

Source: E. D. Hovee & Company, LLC., City of McMinnville Planning Department

Table 4, below, is a reproduction of the table in the 2013 EOA—with the original comments—but includes an update for 2019 using the information presented thus far in this memorandum. Given the reduction in *available* commercial land, from 130.9 acres in the 2013 EOA to 127.8 acres after computing the impacts of recent zone changes, the commercial land deficit has also increased by 3.1 acres, from 35.9 to 39.0.

Any rezoning efforts of industrial-zoned to commercial-zoned land will, therefore, reduce the forecasted deficit in commercial land supply (as of the 2033 forecast year).

McMinnville Three Mile Lane | EOA Land Supply Update

Table 4. Comparison of Land Demand to Supply (2013/2019-2033)

Acres by Plan Designation				Comments
	Commercial	Industrial	Total	
Vacant Land Demand				Based on 2013-33 jobs forecast
Commercial	164.6	0.0	164.6	Commercial retail & service need
Industrial	0.0	145.1	145.1	Manufacturing & related sectors
Institutional	2.2	8.0	10.2	62% of need w/ per job method
Totals	166.8	153.2	319.9	Employment land demand
Available Land Supply				Fully & partially vacant sites
2013 BLI Update	130.9	389.7	520.0	Revised per BLI update 7/13
2013 Surplus/(Deficit)	(35.9)	235.9	200.1	As of 2033 forecast year
2019 Revision	127.8	389.7		With 2013-2019 zone changes
2019 Surplus/(Deficit)	(39.0)	236.5	197.5	As of 2033 forecast year

Source: E. D. Hovee & Company, LLC.

City of McMinnville Economic Opportunities Analysis

January-February 2020

Prepared for:
City of McMinnville

DRAFT REPORT

ECONorthwest
ECONOMICS • FINANCE • PLANNING

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Draft

Acknowledgments

ECONorthwest prepared this report for the City of McMinnville. ECONorthwest and the City thank the many people who helped to develop the McMinnville Economic Opportunities Analysis.

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<p>Public/Semi-Public Lands Work Group <i>PAC Members:</i> Paul Davis, Chemeketa Susan Muir, Parks Mike Bisset, City Infrastructure John Dietz, MWL Other Interested PAC Members</p>	<p><i>Additional Representatives:</i> Mary Ann Rodriguez, Linfield Matt Johnson, Churches Laura Syring, SD, Parks Peter Keenan, SD Ryan McIrvin, SD/Athletics Steve Ganzer, Parks Justin Hogue, County</p>
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1. Introduction

This report presents an update to the 2013 Economic Opportunities Analysis (EOA) for the City of McMinnville. The purpose of an EOA is to develop information as a basis for policies that capitalize on McMinnville's opportunities and help address the City's challenges. In 2019, the City adopted the *MAC-Town 2032 Economic Development Strategic Plan*. This EOA Update is intended to:

- Provide the analysis and land use foundation necessary to achieve the City's economic development strategy.
- Identify policy issues that will need to be reflected in the Comprehensive Plan to achieve the economic development strategy.
- Update the trend data and forecasting, the buildable land inventory, and employment land needs to a common planning period with the City's housing needs analysis and other land needs. This update is part of an urbanization report to inform the strategy and identify land needs for a 20-year planning period to determine sufficiency of buildable lands and land use policies to meet identified needs consistent with the City's vision. Additional long-term and short-term planning periods are also analyzed consistent with planning for Urban Reserves and to ensure adequate short-term supply of needed sites.

This version of the EOA is intended to provide an update to the previous 2013 EOA, and thus retains portions of the content and narrative throughout. Where necessary, this update uses updated data on employment trends and commercial and industrial land needs, as well as refined approaches to methods for forecasting employment growth. The competitive advantages (i.e., advantages and disadvantages) for economic development in McMinnville did not change substantially since evaluation of these factors in the 2013 EOA or the *MAC-Town 2032 Economic Development Strategic Plan* adopted in 2019. This 2020 EOA updates the information included in the 2013 EOA to include the new information on competitive advantages and the target industries identified in the Strategic Plan, with consideration for any outdated information.

Contents, Format, and Guiding Requirements

The EOA includes technical analysis to address a range of questions that McMinnville faces in managing its commercial and industrial land. For example, the EOA includes an employment forecast that describes how much growth McMinnville should plan for over the planning period and identifies the amount and type of employment land necessary to accommodate growth in McMinnville over that period. The EOA also includes an inventory of commercial and industrial land within McMinnville's urban growth boundary (UGB) to provide information about the amount of land available to accommodate employment growth.

This EOA complies with the requirements of statewide planning Goal 9, the Goal 9 administrative rules (OAR 660 Division 9), and the court decisions that have interpreted them. Goal 9 requires cities to identify the characteristics of sites needed to accommodate industrial and other employment uses (OAR 660-009-0025(1)) over the 2021-2041 20-year planning period. This approach could be characterized as a *site-based* approach that projects land need based on the forecast for employment growth, the City's economic development objectives, and the specific needs of target industries. This updated analysis is more comprehensive than the State requires, as it looks at the employment needs for a 5-, 10-, and 46-year period, in addition to the 20-year period. The shorter-term analyses are intended to identify immediate employment land needs and strategies given current land-need deficiencies, and the 46-year analysis can provide a basis for the establishment of urban reserve areas (URAs).

Background

The City adopted an updated EOA in 2013. It provided the following history of work prior to the 2013 EOA update:

McMinnville's Comprehensive Plan, as adopted in 1981, consists of three interrelated volumes:

- Volume I – covering background information for the plan process
- Volume II – listing adopted goals and policies
- Volume III – consisting of implementation ordinances and measures including the comprehensive plan and zoning maps, annexation, zoning and land division ordinances, and planned development overlays on areas of special significance

In 2001, the City of McMinnville completed an Economic Opportunities Analysis (EOA) aimed to "inventory all non-residential lands and conduct an analysis of its future commercial and industrial land needs, consistent with the requirements of current Statewide Planning Goals, laws, and administrative rules." The EOA identified a potential surplus of industrial land and a deficit of commercial land over what was then a 20-year forecast horizon of 2000-2020. The EOA was approved by the City Council in February 2002 and subsequently acknowledged by the State Land Conservation and Development Commission (LCDC).

In 2003, a McMinnville Growth Management and Urbanization Plan (MGMUP) was adopted as an element of the Comprehensive Plan. This document provided guiding principles and a development concept for future growth, including a proposed expansion of McMinnville's Urban Growth Boundary (UGB).

In conjunction with this process, the City also updated the work of the 2001 EOA with respect to a revised Population and Employment Justification and a Revised Buildable Land Analysis, to bring these analyses current to the January 1, 2003 starting benchmark of the UGB review process. In effect, the 20-year planning horizon was shifted from 2000-2020 by three years to 2003-2023. In addition, the buildable lands analysis was updated to reflect changes that occurred between 2001 and 2003, and land need projections were adjusted accordingly.

The MGMUP documented the need for UGB expansion approaching 1,125 buildable acres (to meet needs for 2003-2023), with more than 90% of the need accounted by proposed expansion of land for residential, parks and related public uses. The remaining 9% represented land documented as needed for commercial development. The MGMUP was approved by LCDC, but then appealed by private parties to the Oregon Court of Appeals for issues related to prioritization of the types of agricultural land that can be added to the UGB. The Court eventually reversed and remanded LCDC's approval; LCDC subsequently reversed and remanded their action to the City of McMinnville.

2013 EOA Update

The City of McMinnville last conducted a Goal 9-compliant analysis and evaluation of economic trends in the 2013 EOA update, which was based on 2010 Census and other employment data. The 2019 Economic Development Strategic Plan also included a Demographic and Economic profile of McMinnville.

The 2013 EOA acknowledged that due to the prior Court of Appeals decision, "a previously determined 106-acre deficiency of commercial land for McMinnville's 20-year need has not been fully remedied. While the City of McMinnville is not pursuing any proposal to increase its UGB at this time, the need to address the potential imbalance of commercial and industrial land requirements has become more apparent due to the effects of a changing global, regional and local economy..."

The 2013 EOA stated, "As noted, while always an option for potential consideration, this EOA update assumes that McMinnville's UGB will not be expanded during the updated 20-year forecast period for purposes of providing non-residential (or employment) land need; rather, any needs for added forecast employment growth are anticipated to be accommodated through efficiency or other measures as available to avoid UGB expansion." The 2013 EOA found a 36-acre shortfall of commercial land for the 2013-2033 planning period, and a surplus of industrial land. This resulted in findings that led to subsequent rezoning of some of the surplus industrially-zoned acreage to commercially-zoned acreage in response to identified commercial land deficits.

Planning Area Definition

The EOA provides the data and analysis necessary to evaluate the sufficiency of McMinnville's UGB to meet needs for the identified planning period. As such, it includes an evaluation of the buildable lands within McMinnville's current UGB (as illustrated by the Comprehensive Plan map on the following page). This EOA also provides discussion of the Yamhill County, regional, statewide and national context within which local economic development opportunities are appropriately framed. The report provides information that will be needed to address UGB and Urban Reserve needs for any deficit of lands that isn't met within the current UGB. It also provides information about site needs and characteristics that will assist with UGB an Urban Reserve alternatives analysis. The analysis area for alternatives analysis is articulated in state law and will be addressed in a separate step in this review.

Community Economic Development Objectives

Current community objectives for economic development can be found as part of the following City documents:

MAC-Town 2032 Strategic Plan (adopted 2019)

In 2019, McMinnville adopted the *MAC-Town 2032 Strategic Plan*, which includes new vision, mission, and values statements. It also includes goals for seven strategic priorities, and for each goal, there are identified objectives and priority actions. Additional actions are also identified.

Vision, Mission, Values

Vision

A collaborative and caring city inspiring an exceptional quality of life.

Mission

The City of McMinnville delivers high-quality services in collaboration with partners for a prosperous, safe, and livable community.

Values

- **Stewardship.** We are responsible caretakers of our shared public assets and resources. We do this to preserve the strong sense of community pride which is a McMinnville trademark.
- **Equity.** We are a compassionate and welcoming community for all – different points of view will be respected. Because not all members of our community are equally able to access our services or participate in public process, we commit ourselves to lowering these barriers.
- **Courage.** We are future-oriented, proactively embracing and planning for change that is good for our community and consistent with our values.
- **Accountability.** We believe healthy civil discourse is fostered through responsive service and clear, accurate, useful information.

Strategic Priorities. To move McMinnville toward its vision, the City believes it will need to make disproportionate investment in time and resources in these areas.

One of these strategic priorities is Economic Prosperity, with the following goal and objectives. Each objective also has associated priority actions.

- Goal: Provide economic opportunity for all residents through sustainable growth across a balanced array of traditional and innovative industry sectors.
- Objectives:
 - Accelerate growth in living wage jobs across a balanced array of industry sectors

- Improve systems for economic mobility and inclusion
- Foster opportunity in technology and entrepreneurship
- Be a leader in hospitality and place-based tourism
- Locate higher job density activities in McMinnville
- Encourage connections to the local food system and cultivate a community of exceptional restaurants

MAC-Town 2032 Economic Development Strategic Plan (adopted 2019)

In 2019, McMinnville adopted the *MAC-Town 2032 Economic Development Strategic Plan*, which updated the City's mission and goals related to economic development, as a supplement to the goals and policies in the Strategic Plan and Comprehensive Plan. The mission in the Plan states:

“McMinnville provides economic opportunity for all residents through sustainable growth across a balanced array of traditional and innovative industry sectors, from steel manufacturing to technology. Economic growth is collaborative, and inclusive of individuals from diverse backgrounds. Businesses leverage local and regional talent pipelines while attracting new employees and residents who value McMinnville's high quality of life. Our strong downtown serves residents and visitors alike, featuring unique shops and world-class restaurants that offer locally-produced food products and globally-renowned wine. As we evolve, we prize our small-town roots and we maintain McMinnville's character.”

The “foundational goals and strategies” defined in the plan are:

1. Accelerate growth in living-wage jobs across a balanced array of industry sectors
2. Improve systems for economic mobility and inclusion
3. Maintain and enhance our high quality of life

The “target sector goals and strategies” defined in the plan are:

4. Sustain and innovate within traditional industry and advanced manufacturing
5. Foster opportunity in technology and entrepreneurship
6. Be a leader in hospitality and place-based tourism
7. Align and cultivate opportunities in craft beverages and food systems
8. Proactively assist growth in education, medicine, and other sciences

Economic Opportunities Analysis (2013)

McMinnville last completed an EOA in 2013, as an update to the 2001/2003 EOA process. Section 6 of the EOA provided discussion and findings for each relevant goal in the Comprehensive Plan for community economic development objectives. Chapter 6 provides updated discussion of these Goals. The 2013 EOA also recommended updates to the list of cluster target industries to include Advanced Manufacturing and Healthcare/Traded Sector Services. A full discussion of these sectors is included in Chapter 4 of this EOA.

Comprehensive Plan (Adopted 1981, and subsequently amended).

McMinnville's Comprehensive Plan consists of three interrelated volumes.

- Volume I – covering background information for the plan process
- Volume II – listing adopted goals and policies
- Volume III – consisting of implementation ordinances and measures including the comprehensive plan and zoning maps, annexation, zoning and land division ordinances, and planned development overlays on areas of special significance

A more detailed statement of economic development goals is embodied by the Comprehensive Plan (Volume II Goals and Policies), Chapter IV – Economy of McMinnville (as amended)

General:

Goal IV 1: To encourage the continued growth and diversification of McMinnville's economy in order to enhance the general well-being of the community and provide employment opportunities for its citizens.

Commercial Development:

Goal IV 2: To encourage the continued growth of McMinnville as the commercial center of Yamhill County in order to provide employment opportunities, goods, and services for the city and county residents.

Goal IV 3: To ensure commercial development that maximizes efficiency of land use through utilization of existing commercially designated lands, through appropriately locating future neighborhood and community serving commercial lands and discouraging strip development.

Goal IV 4: To promote the downtown as a cultural, administrative service, and retail center of McMinnville.

Industrial Development:

Goal IV 5: To continue the growth and diversification of McMinnville's industrial base through the provision of an adequate amount of properly designated lands.

Goal IV 6: To insure industrial development that maximizes efficiency of land uses, that is appropriately located in relation to surrounding land uses, and that meets necessary environmental standards.

Each goal has associated policies and proposals. The Comprehensive Plan includes a series of general, locational and design policies as “more precise and limited statements intended to further define the goals.” Also included as part of the Economic Development element of the existing adopted plan are three proposals as “possible courses of action” to further implement the goals and policies.

The 2020 EOA draws on information from numerous data sources, such as the Oregon Employment Department, U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, and the U.S. Census. In addition to retaining all relevant information from the 2013 EOA, the EOA update also uses information from the Three Mile Lane market analysis, completed in March 2019.

Statewide Planning Guidance

The content of this report is designed to meet the requirements of Oregon Statewide Planning Goal 9 and the administrative rule that implements Goal 9 (OAR 660-009). The analysis in this report is designed to conform to the requirements for an Economic Opportunities Analysis in OAR 660-009 as amended.

1. *Economic Opportunities Analysis (OAR 660-009-0015)*. The Economic Opportunities Analysis (EOA) requires communities to identify the major categories of industrial or other employment uses that could reasonably be expected to locate or expand in the planning area based on information about national, state, regional, county or local trends; identify the number of sites by type reasonably expected to be needed to accommodate projected employment growth based on the site characteristics typical of expected uses; include an inventory of vacant and developed lands within the planning area designated for industrial or other employment use; and estimate the types and amounts of industrial and other employment uses likely to occur in the planning area. Local governments are also encouraged to assess community economic development potential through a visioning or some other public input-based process in conjunction with state agencies.
2. *Industrial and commercial development policies (OAR 660-009-0020)*. Cities are required to develop commercial and industrial development policies based on the EOA. Local comprehensive plans must state the overall objectives for economic development in the planning area and identify categories or particular types of industrial and other employment uses desired by the community. Local comprehensive plans must also include policies that commit the city or county to designate an adequate number of employment sites of suitable sizes, types and locations. The plan must also include policies to provide necessary public facilities and transportation facilities for the planning area.

3. *Designation of lands for industrial and commercial uses (OAR 660-009-0025).* Cities and counties must adopt measures to implement policies adopted pursuant to OAR 660-009-0020. Appropriate implementation measures include amendments to plan and zone map designations, land use regulations, public facility plans, and transportation system plans. More specifically, plans must identify the approximate number, acreage and characteristics of sites needed to accommodate industrial and other employment uses to implement plan policies, and must designate serviceable land suitable to meet identified site needs.

Public Process

At the broadest level, the purpose of the project was to understand how McMinnville's employment has changed since the completion of the 2013 EOA, as well as update the city's employment land needs to align with planning periods used in the 2019 HNA. In 2019, the city adopted an economic development strategy that provided a framework for policies and implementation actions for economic development. The update to the EOA requires a broad range of assumptions that influence the outcomes. Public engagement during the project was accomplished through facilitation of a Project Advisory Committee as described below.¹

Project Advisory Committee Meetings

The City of McMinnville and ECONorthwest solicited public input from an ad-hoc Project Advisory Committee. The Project Advisory Committee met 5 times² to discuss project assumptions, results, and implications. The project relied on the Project Advisory Committee to:

- Review work products, advise on public involvement, and consider public input when making recommendations.
- Advise the project team on matters regarding employment needs and the buildable lands inventory in McMinnville.
- Work collaboratively with, and provide guidance to, the staff and consultant project team in the preparation for the McMinnville Economic Opportunities Analysis.

A public lands work group was also established to review and make recommendation regarding unique land needs associated with employment and land uses for public and semi-public organizations.

¹ In addition to Project Advisory Committee meetings, the City of McMinnville also maintained a project website and social media presence.

² Project Advisory Committee meeting dates: July 10, 2019; September 5, 2019; October 10, 2019; November 13, 2019; and January 21, 2020.

Organization of this Report

This report is organized as follows:³

- **Chapter 2. The McMinnville Economy** – as a review of pertinent population, demographic and economic trends for McMinnville in the context of what is occurring throughout Yamhill County, a larger economic region, statewide and nationally.
- **Chapter 3. National, State & Regional Outlook** – covering recent economic experience and forecasts external to the community that could influence employment uses reasonably expected to locate or expand in the McMinnville UGB over the 5-, 10-, 20-, and 46-year planning horizons of this EOA.
- **Chapter 4. Economic Development Potential** – focused on factors that currently and prospectively affect economic development in McMinnville.
- **Chapter 5. Forecast Employment & Land Needs** – detailing an updated UGB employment forecast together with industrial/commercial buildable lands inventory and determination of long- and short- term needs, parcel size evaluation, site characteristics, and commercial/industrial policy options necessary to provide the land use foundation for the City's economic development strategy.

This report also includes two appendices:

- **Appendix A, Buildable Lands Inventory Methodology**
- **Appendix B, Employment on Other Land and Employment Density**

³ The organization of the report is intended to align as closely as possible to the 2013 EOA. Some subsections may differ due to changes in methodology or alternative data sources.

2. The McMinnville Economy

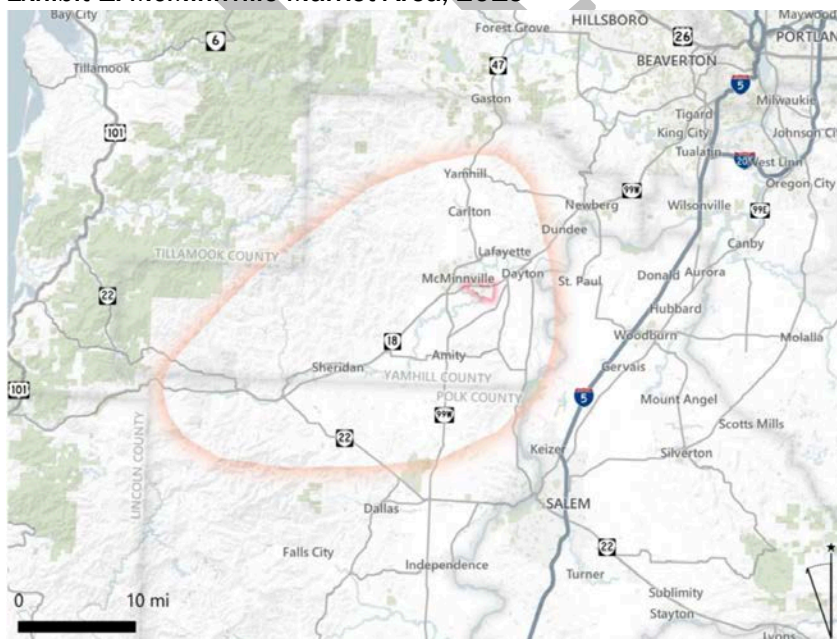
This chapter describes the factors affecting economic growth in McMinnville within the context of national and regional economic trends. The analysis presents the City's competitive advantages for growing and attracting businesses, which forms the basis for identifying potential growth industries in McMinnville.

McMinnville exists within the context of the county, market area, region, state, national, and international context and economies. OAR 660-009-0015 (1) requires a review of national, state, regional, county and local trends.

Regions are defined differently for different purposes. McMinnville exists as part of the economy of the following regions. Also included, as available, are pertinent comparable data for Yamhill County, the state of Oregon and United States.

- 10-County Economic Region. (used for 2013 EOA)
- 7-County Portland MSA (US Census Bureau-defined economically integrated region)
- 6-County North Valley Region (used in 2001/03 EOA, which also used "Willamette valley with three additional counties for some indicators)
- 4-County Mid-Valley Region (defined by the Oregon Employment Department and used in their reporting): Linn, Marion, Polk, Yamhill
- Market Area (relates predominantly to retail trade) (Exhibit 1). Market area will vary depending on the type of attractor. Larger regional shopping may have a larger market areas while neighborhood retail will have a smaller market area).

Exhibit 1. McMinnville Market Area, 2019



Source: McMinnville Three Mile Lane Area Plan: Market Analysis; TIGER, Leland Consulting Group.

Employment Trends in McMinnville and Yamhill County

The economy of the nation changed substantially between 1980 and 2018. These changes affected the composition of Oregon’s economy, including McMinnville’s economy. At the national level, the most striking change was the shift from manufacturing employment to service-sector employment. The most important shift in Oregon during this period has been the shift from a timber-based economy to a more diverse economy, with the greatest employment in services. This section focuses on changes in the economy in Yamhill County since 2001 and in McMinnville since 2007.

Exhibit 2 shows covered employment⁴ in Yamhill County for 2001 and 2018. Employment increased by 8,202 jobs, or 29%, over this period, which included the Great Recession and subsequent recovery. The sectors with the largest increases in numbers of employees were Arts, entertainment, and recreation; Healthcare and social assistance; Other services; Accommodation and food services; and Professional and business services.

The average wage for employment in Yamhill County in 2018 was about \$42,321. Employment in higher wage industries, such as Information and Transportation, Warehousing, and Utilities, decreased by 204 jobs over the 2001 to 2018 time period.

Exhibit 2. Covered Employment by Industry, Yamhill County, 2001-2018

Sector	2001	2018	Change 2001 to 2018		
			Difference	Percent	AAGR
Natural Resources and Mining	2,824	3,668	844	30%	1.6%
Construction	1,492	1,977	485	33%	1.7%
Manufacturing	5,584	6,901	1,317	24%	1.3%
Wholesale trade	560	629	69	12%	0.7%
Retail trade	3,157	3,728	571	18%	1.0%
Transportation, Warehousing and Utilities	645	468	-177	-27%	-1.9%
Information	269	242	-27	-10%	-0.6%
Financial Activities	972	1,007	35	4%	0.2%
Professional and Business Services	1,371	1,936	565	41%	2.1%
Educational Services	1,166	1,512	346	30%	1.5%
Health care and social assistance	2,792	4,881	2,089	75%	3.3%
Arts, entertainment, and recreation	172	350	178	103%	4.3%
Accommodation and food services	2,145	3,441	1,296	60%	2.8%
Other Services	852	1,378	526	62%	2.9%
Unclassified	19	10	-9	-47%	-3.7%
Government	4,090	4,184	94	2%	0.1%
Total	28,110	36,312	8,202	29%	1.5%

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2001-2018.

Exhibit 3 shows covered employment and average wage for the 10 largest employment industries in Yamhill County in 2018. Jobs in manufacturing account for about 19% of the

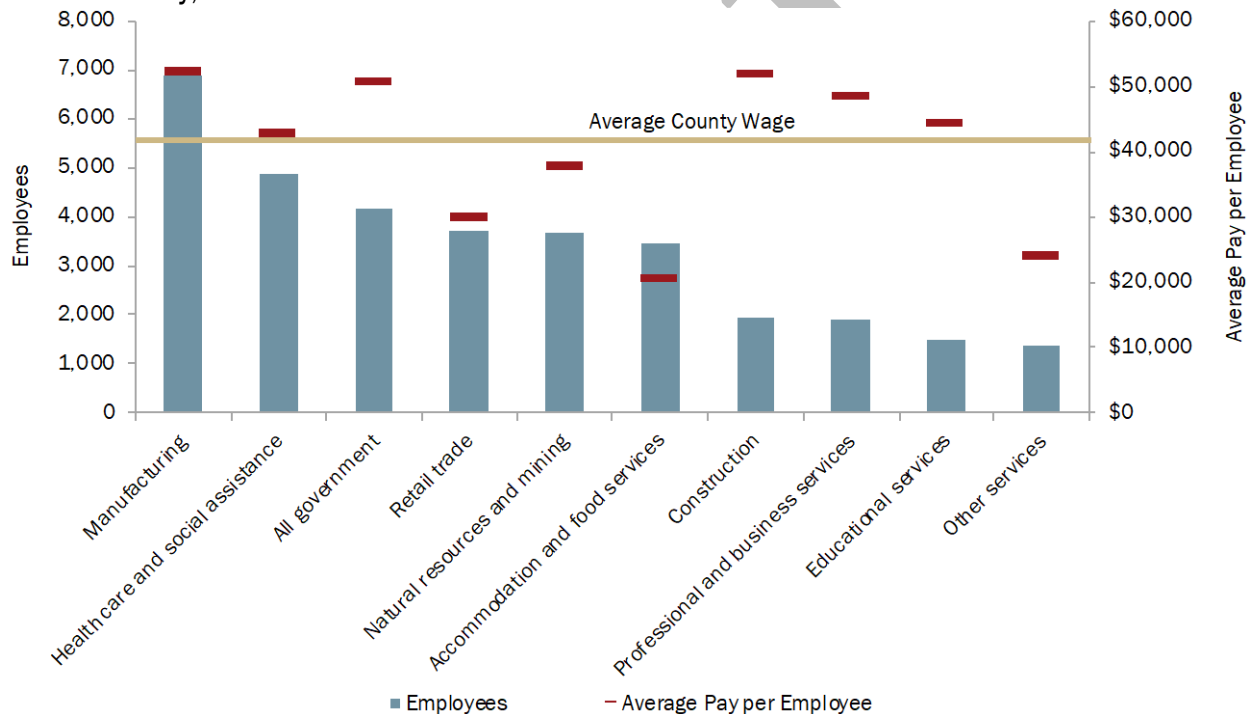
⁴ **Covered** employment includes employees covered by unemployment insurance. Examples of workers not included in covered employment are sole proprietors, some types of contractors (often referred to as “1099 employees”), or some railroad workers. Covered employment data is from the Oregon Employment Department.

county's covered employment and these jobs pay approximately 24% more than the county average wage (\$52,303 compared to \$42,321). Healthcare and social assistance jobs are the next largest employment sector, making up about 13% of Yamhill County's covered employment. Wages in this industry are closer to the county average, paying employees an average of \$42,952. Government jobs account for 12% of the county's covered employment. These jobs pay roughly 20% more than the county average (\$50,765 compared to \$42,321).

Though not shown in Exhibit 3 due to relatively low employment levels, wholesale trade, on average, pays employees \$62,411, 47% above the county average wage. This sector only makes up about 2% of Yamhill County's total covered employment, though it pays the highest wages.

Additionally, jobs in construction (\$51,947), professional and business services (\$48,497), and educational services (\$44,398), pay more per year than the county average. However, these three sectors make up a smaller employment base than Retail trade, Natural resources and mining, and Accommodation and food services, which pay below the average county wage.

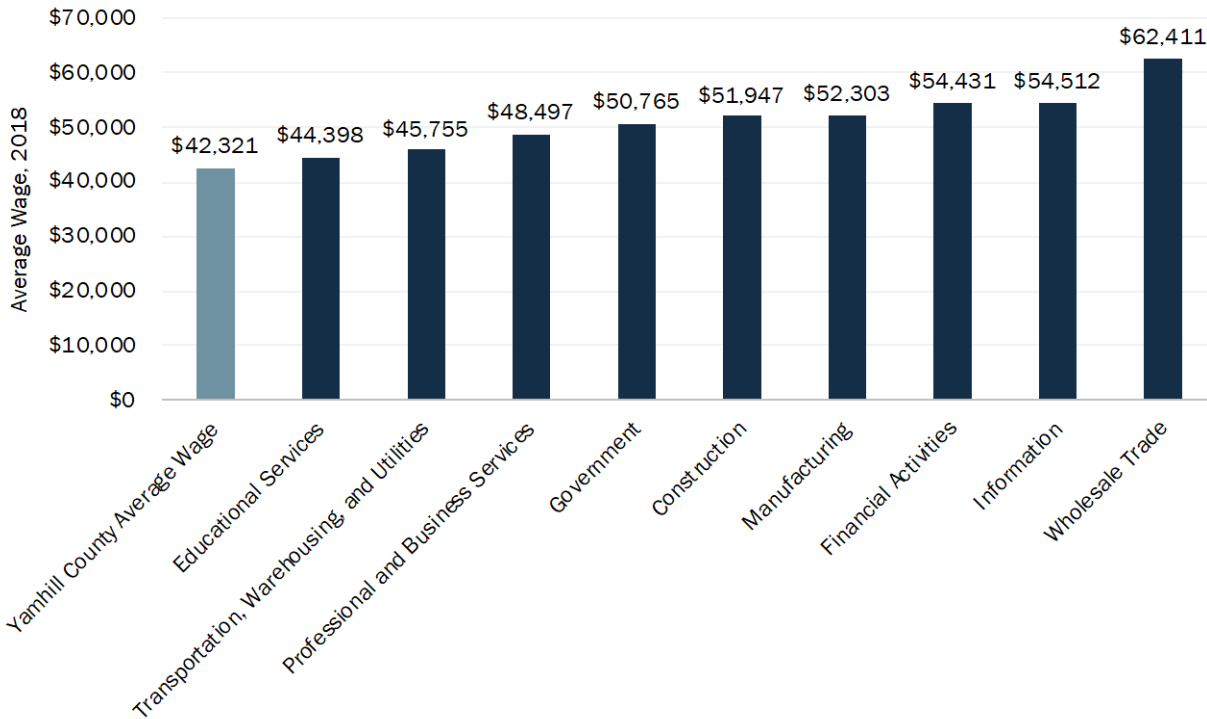
Exhibit 3. Covered Employment and Average Pay by Sector, 10 Largest Employment Sectors Yamhill County, 2018



Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2018.

Exhibit 4 shows the sectors in Yamhill County that pay an annual average wage above the countywide average wage. Some of these sectors, such as wholesale trade and construction, are shown in Exhibit 3; however, other higher paying sectors include information (\$54,512), financial activities (\$54,431), and manufacturing (\$52,303).

Exhibit 4. Highest Paying Sectors in Yamhill County, 2018



Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2018.

Between 2007 and 2017, employment in McMinnville increased by about 1,123 employees (8%) at an annual average growth rate of 0.8%. Employment in Accommodation and food services and Retail trade increased by 372 employees and 309 employees respectively, while employment in Transportation and warehousing and Utilities decreased by about 229 (Exhibit 5).

Exhibit 5. Change in Covered Employment, McMinnville UGB, 2007-2017

Sector	Employment		Change in Employment	Percent	AAGR
	2007	2017			
Agriculture, Forestry, and Mining	244	356	112	46%	3.8%
Construction	634	585	(49)	-8%	-0.8%
Manufacturing	2,300	2,277	(23)	-1%	-0.1%
Wholesale Trade	264	127	(137)	-52%	-7.1%
Retail Trade	1,861	2,170	309	17%	1.5%
Transportation and Warehousing and Utilities	369	140	(229)	-62%	-9.2%
Information	136	127	(9)	-7%	-0.7%
Finance and Insurance	511	459	(52)	-10%	-1.1%
Real Estate and Rental and Leasing	138	113	(25)	-18%	-2.0%
Professional and Technical Services	265	367	102	38%	3.3%
Management of Companies	221	117	(104)	-47%	-6.2%
Admin. and Support/Waste Mgmt/Remediation Serv.	494	584	90	18%	1.7%
Health Care and Social Assistance; Private Education Serv.	2,564	3,159	595	23%	2.1%
Arts, Entertainment, and Recreation	134	168	34	25%	2.3%
Accommodation and Food Services	1,131	1,503	372	33%	2.9%
Other Services	417	630	213	51%	4.2%
Government	2,158	2,082	(76)	-4%	-0.4%
Total	13,841	14,964	1,123	8%	0.8%

Source: Oregon Employment Department, Quarterly Census of Employment and Wages, 2007 and 2017.

Exhibit 6 shows a summary of covered employment data for the McMinnville UGB in 2017. The sectors with the greatest number of employees were Health care and social assistance and Private education (21%); Manufacturing (15%); and Retail trade (15%). Exhibit 7 shows employment in McMinnville in 2017 for detailed industries in the manufacturing sector. Employment in Food manufacturing and Beverage and tobacco product manufacturing accounted for about one quarter of McMinnville’s manufacturing employment overall.

Exhibit 6. Covered Employment and Average Pay by Sector, McMinnville UGB, 2017

Sector	Establishments	Employees	Payroll	Average pay per employee
Agriculture, Forestry, and Mining	24	356	\$ 11,188,173	\$ 31,427
Construction	104	585	\$ 27,931,863	\$ 47,747
Manufacturing	71	2,277	\$ 113,267,986	\$ 49,744
Wholesale Trade	41	127	\$ 7,778,100	\$ 61,245
Retail Trade	141	2,170	\$ 62,991,136	\$ 29,028
Transportation and Warehousing and Utilities	20	140	\$ 4,582,386	\$ 32,731
Information	19	127	\$ 5,010,927	\$ 39,456
Finance and Insurance	51	459	\$ 29,183,634	\$ 63,581
Real Estate and Rental and Leasing	38	113	\$ 3,815,372	\$ 33,764
Professional and Technical Services	100	367	\$ 21,852,471	\$ 59,544
Management of Companies	9	117	\$ 7,033,600	\$ 60,116
Admin. and Support/Waste Mgmt./Remediation Serv.	49	584	\$ 14,681,454	\$ 25,139
Health Care and Social Assistance; Private Education :	173	3,159	\$ 144,631,456	\$ 45,784
Arts, Entertainment, and Recreation	9	168	\$ 3,128,546	\$ 18,622
Accommodation and Food Services	99	1,503	\$ 27,941,666	\$ 18,591
Other Services	218	630	\$ 13,857,430	\$ 21,996
Government	42	2,082	\$ 101,259,952	\$ 48,636
Total	1,208	14,964	\$ 600,136,152	\$ 40,105

Source: Oregon Employment Department, Quarterly Census of Employment and Wages, 2017.

Exhibit 7. Covered Employment in Manufacturing Industries, McMinnville UGB, 2017

Sector	Establishments	Employees
Food Manufacturing	14	448
Beverage and Tobacco Product Manufacturing	18	134
Wood, Plastic, and Chemical Product Manufacturing	18	536
Metal, Electronic, and Other Product Manufacturing	21	1,159
Total	71	2,277

Source: Oregon Employment Department, Quarterly Census of Employment and Wages, 2017.

The average size for a private business in McMinnville is 12 employees per business, compared to the State average of 11 employees per private business. Businesses with 50 or fewer employees account for 55% of private employment and 10 or fewer account for 19% of private employment. Exhibit 8 shows the distribution of establishments by size class (i.e., number of employees). Over 75% of the private (i.e., non-government) establishments are businesses with fewer than 10 employees.

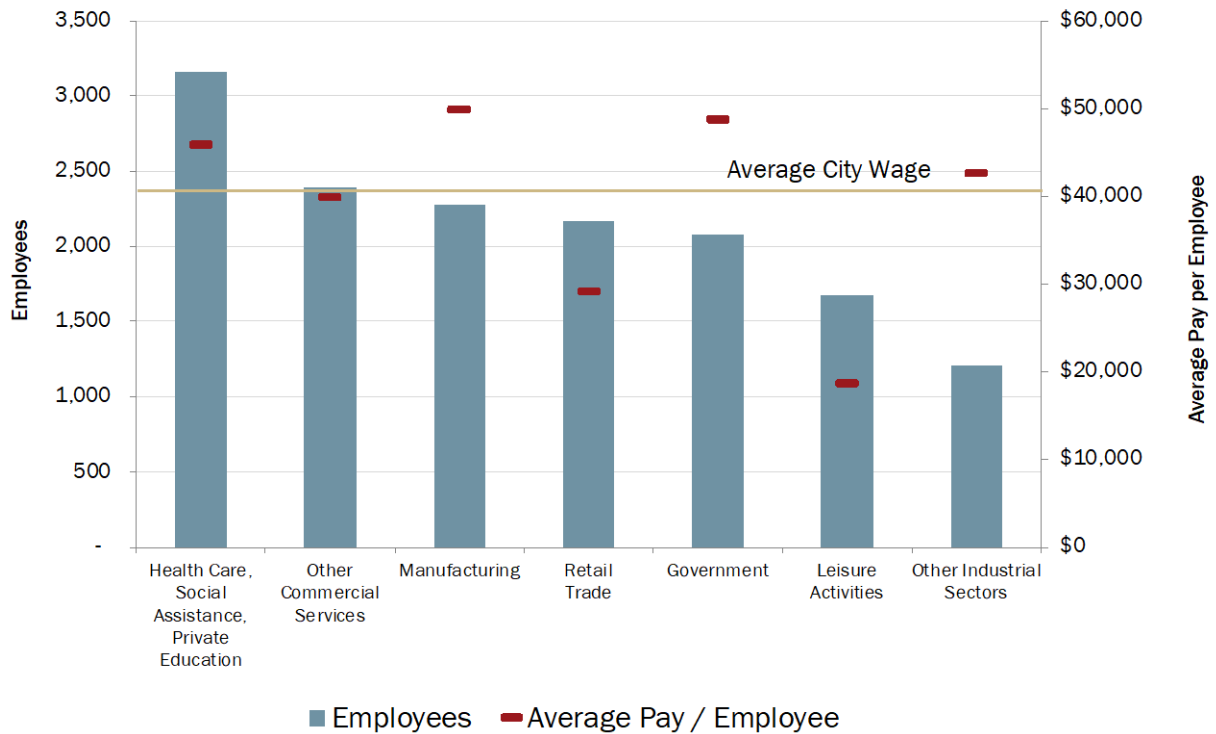
Exhibit 8. Covered Private Employment by Size Class, McMinnville UGB, 2017

Establishment size (number of employees)	Number of establishments
0 to 4	682
5 to 9	211
10 to 19	141
20 to 49	87
50 to 99	27
100+	18
Total	1,166

Source: Oregon Employment Department, Quarterly Census of Employment and Wages, 2017.

Exhibit 9 shows the employment and average pay per employee for sectors in McMinnville. Average pay for all employees (\$40,105) is shown as a light brown line across the graph and average pay for individual sectors as short red lines. The figure shows that Health care, social assistance, and Private education; Manufacturing; Government; and Other industrial sectors had above average wages. The lowest wages were in Retail trade and Leisure activities, which includes arts, entertainment, and recreation and accommodation and food services.

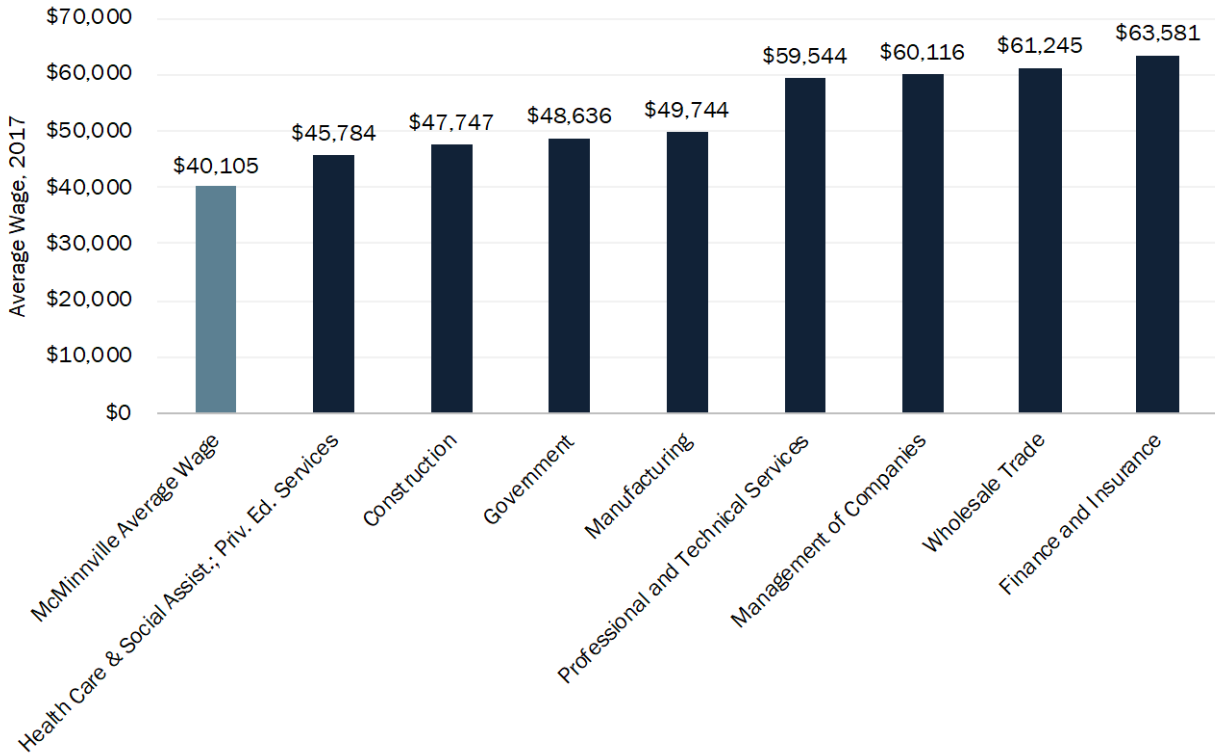
Exhibit 9. Covered Employment and Average Pay by Sector, McMinnville UGB, 2017



Source: Oregon Employment Department, Quarterly Census of Employment and Wages, 2017.

Exhibit 10 shows the sectors with average annual wages that exceed the McMinnville City average. The three highest paying sectors, finance and insurance, wholesale trade, and management of companies, all paid over \$60,000 in 2017. Other higher paying sectors include professional and technical services, manufacturing, government, and construction.

Exhibit 10. Highest Paying Sectors Exceeding Average Wage in McMinnville UGB, 2017



Source: Oregon Employment Department, Quarterly Census of Employment and Wages, 2017.

DRAFT

Outlook for growth in Yamhill County

Exhibit 11 shows the Oregon Employment Department's forecast for employment growth by industry for the Mid-Valley Region (Linn, Marion, Polk, and Yamhill Counties) over the 2017 to 2027 period. Employment in the region is forecasted to grow at an average annual growth rate of 1.1%.

The sectors that will lead employment in the region for the 10-year period are: Private educational and health services (adding 8,100 jobs), Trade, transportation, and utilities (5,100), Government (3,500), Construction (3,000), Leisure and hospitality (3,000), and Manufacturing and Natural resources and mining (2,400 each). In sum, these sectors are expected to add 27,500 new jobs or about 88% of employment growth in the Mid-Valley Region. Yamhill County accounts for about 14% of employment in these four counties, and McMinnville accounts for about 42% of the County's employment.

Exhibit 11. Regional Employment Projections, 2017-2027, Mid-Valley Region (Linn, Marion, Polk, and Yamhill Counties)

Industry Sector	2017	2027	Change 2017 - 2027		
			Number	Percent	AAGR
Total private	208,800	236,400	27,600	13%	1.2%
Natural resources and mining	17,700	20,100	2,400	14%	1.3%
Mining and logging	1,200	1,300	100	8%	0.8%
Construction	14,700	17,700	3,000	20%	1.9%
Manufacturing	27,700	30,100	2,400	9%	0.8%
Durable goods	16,300	17,700	1,400	9%	0.8%
Nondurable goods	11,400	12,400	1,000	9%	0.8%
Trade, transportation, and utilities	42,500	47,600	5,100	12%	1.1%
Wholesale trade	6,200	6,900	700	11%	1.1%
Retail trade	27,800	30,200	2,400	9%	0.8%
Transportation, warehousing, and utilities	8,500	10,500	2,000	24%	2.1%
Information	1,800	1,900	100	6%	0.5%
Financial activities	9,200	9,700	500	5%	0.5%
Professional and business services	19,000	21,000	2,000	11%	1.0%
Private educational and health services	43,700	51,800	8,100	19%	1.7%
Health care and social assistance	35,300	42,500	7,200	20%	1.9%
Leisure and hospitality	22,400	25,400	3,000	13%	1.3%
Accommodation and food services	19,900	22,600	2,700	14%	1.3%
Other services and private households	10,100	11,100	1,000	10%	0.9%
Government	52,200	55,700	3,500	7%	0.7%
Federal government	2,100	2,100	0	0%	0.0%
State government	21,900	23,900	2,000	9%	0.9%
Local government	28,200	29,700	1,500	5%	0.5%
Local education	16,000	16,900	900	6%	0.5%
Total payroll employment	261,000	292,100	31,100	12%	1.1%

Source: Oregon Employment Department. Employment Projections by Industry 2017-2027.

3. National, State, and Regional Outlook

Consistent with Oregon Administrative Rules (OAR 660), McMinnville's Economic Opportunities Analysis is set within the context of broader nationwide, state, and regional trends. Recent trends and conditions at a national and state level are considered first, followed by detailed information at a regional and local level.

National Trends

Economic development in McMinnville over the next 20 years will occur in the context of long-run national trends. The most important of these trends include:

- **Economic growth will continue at a moderate pace.** Analysis from the Congressional Budget Office (CBO) estimates after the 3.1% real GDP growth in 2018, real GDP will grow by approximately 2.3% in 2019. After 2019, the CBO forecasts the annual average growth of real GDP to slow and stabilize around 1.7% across the 2020 to 2029 period. The primary reason they provide for this slowing growth is that they expect the labor force to grow at a slower rate than historical trends.⁵

The unemployment rate is forecasted to decrease to 3.5% in the second-half of 2019, which is the rate's lowest point since the 1960s. After this year, the CBO predicts the unemployment rate will rise between 2020 and 2023 due to slower growth in economic output.⁶

- **The aging of the Baby Boomer generation, accompanied by increases in life expectancy.** As the Baby Boomer generation continues to retire, the number of Social Security recipients is expected to increase from 62.5 million in 2018 to over 87.0 million in 2040, a 39% increase. However, due to lower-birth rate replacement generations, the number of covered workers is only expected to increase 12% over the same time period, from 176.0 million to 196.4 million in 2040. Currently, there are 35 Social Security beneficiaries per 100 covered workers in 2018 but by 2040 there will be 44 beneficiaries per 100 covered workers. This will increase the percent of the federal budget dedicated to Social Security and Medicare.⁷

Baby Boomers are expecting to work longer than previous generations. An increasing proportion of people in their early- to mid-50s expect to work full-time after age 65. In 2004, about 40% of these workers expect to work full-time after age 65, compared with

⁵ Congressional Budget Office. *The Budget and Economic Outlook: 2019 to 2029. January 2019.* Retrieved from: <https://www.cbo.gov/system/files/2019-03/54918-Outlook-3.pdf>.

⁶ *Ibid.*

⁷ The Board of Trustees, Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds, *The 2019 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*, April 25, 2019. Retrieved from: <https://www.ssa.gov/OACT/TR/2019/tr2019.pdf>.

about 30% in 1992.⁸ This trend can be seen in Oregon, where the share of workers 65 years and older grew from 2.9% of the workforce in 2000 to 4.1% of the workforce in 2010. In 2017, this share reached 5.5%. Over the same eighteen-year period, the share of workers 45 to 64 years increased from 35% of all employed Oregonians in 2000 to 37% in 2017.⁹

- **Need for replacement workers.** The need for workers to replace retiring Baby Boomers will outpace job growth. According to the Bureau of Labor Statistics, total employment in the United States will grow by about 11.5 million jobs over 2016 to 2026. Annually, they estimate there will be 18.7 million occupational openings over the same period. This exhibits the need for employees over the next decade as the quantity of openings per year is large relative to expected employment growth. About 71% of annual job openings are in occupations that do not require postsecondary education.¹⁰
- **The importance of education as a determinant of wages and household income.** According to the Bureau of Labor Statistics, a majority of the fastest growing occupations will require an academic degree, and on average, they will yield higher incomes than occupations that do not require an academic degree. The fastest-growing occupations requiring an academic degree will be registered nurses, software developers, general and operations managers, accountants and auditors, market research analysts and marketing specialists, and management analysts. Occupations that do not require an academic degree (e.g., retail sales person, food preparation workers, and home care aides) will grow, accounting for approximately 71% of all new jobs by 2026. These occupations typically have lower pay than occupations requiring an academic degree.¹¹

The national median income for people over the age of 25 in 2018 was about \$48,464. Workers without a high school diploma earned \$19,708 less than the median income, and workers with a high school diploma earned \$10,504 less than the median income. Workers with some college earned \$6,760 less than median income, and workers with a bachelor's degree earned \$13,832 more than median. Workers in Oregon experience the same patterns as the nation but pay is generally lower in Oregon than the national average.¹²

- **Increases in labor productivity.** Productivity, as measured by output per hour of labor input, increased in most sectors between 2000 and 2010, peaking in 2007. However, productivity increases were interrupted by the recession. After productivity decreases from 2007 to 2009, many industries saw large productivity increases from 2009 to 2010.

⁸ "The Health and Retirement Study," 2007, National Institute of Aging, National Institutes of Health, U.S. Department of Health and Human Services.

⁹ Analysis of 2000 Decennial Census data, 2010 U.S. Census American Community Survey, 1-Year Estimates, and 2017 U.S. Census American Community Survey, 1-Year Estimates, for the table Sex by Age by Employment Status for the Population 16 Years and Over.

¹⁰ "Occupational Employment Projections to 2016-2026," Bureau of Labor Statistics, 2018.

¹¹ "Occupational Employment Projections to 2016-2026," Bureau of Labor Statistics, 2018.

¹² Bureau of Labor Statistics, Employment Projections, March 2019. <http://www.bls.gov/emp/epchart001.htm>.

Industries with the fastest productivity growth were Information Technology-related industries. These include wireless telecommunications carriers, computer and peripheral equipment manufacturing, electronics and appliance stores, and commercial equipment manufacturing wholesalers.¹³

Since the end of the recession (2010), labor productivity has increased across a handful of large sectors but has also decreased in others. In wholesale trade, productivity—measured in output per hour—increased by 19% over 2009 to 2017. Retail trade gained even more productivity over this period at 25%. Food services, however, have remained stagnant since 2009, fluctuating over the nine-year period and shrinking by 0.01% over this time frame. Additionally, the Bureau of Labor Statistics reports multifactor productivity in manufacturing has been slowing down 0.3% per year over the 2004 to 2016 period. Much of this, they note, is due to slowdown in semiconductors, other electrical component manufacturing, and computer and peripheral equipment manufacturing.¹⁴

- **The importance of entrepreneurship and growth in small businesses.** According to the U.S. Small Business Office of Advocacy, small businesses are those that have fewer than 500 employees. However, the Oregon Office of Small Business Advocacy defines small businesses as those with fewer than 100 employees. For consistency in our small business data comparisons, we will maintain the definition of small businesses to be those with fewer than 100 employees.

The U.S. Census Bureau's Statistics of U.S. Businesses (SUSB) shows in 2016 that about 98% of all firms in the United States had fewer than 100 employees. Their employees accounted for approximately 33% of American workers.¹⁵ The National League of Cities suggests ways that local governments can attract entrepreneurs and increase the number of small businesses including strong leadership from elected officials; better communication with entrepreneurs, especially about the regulatory environment for businesses in the community; and partnerships with colleges, universities, small business development centers, mentorship programs, community groups, businesses groups, and financial institutions.¹⁶

- **Increases in automation across sectors.** Automation is a long-running trend in employment, with increases in automation (and corresponding increases in productivity) over the last century and longer. The pace of automation is increasing, and the types of jobs likely to be automated over the next 20 years (or longer) is broadening.

¹³ Brill, Michael R. and Samuel T. Rowe, "Industry Labor Productivity Trends from 2000 to 2010." Bureau of Labor Statistics, *Spotlight on Statistics*, March 2013.

¹⁴ Michael Brill, Brian Chanksy, and Jennifer Kim. "Multifactor productivity slowdown in U.S. manufacturing," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, July 2018. Retrieved from: <https://www.bls.gov/opub/mlr/2018/article/multifactor-productivity-slowdown-in-us-manufacturing.htm>.

¹⁵ U.S. Census Bureau, Statistics of U.S. Businesses. Data by Enterprise Employment Size, 2016. Retrieved from: <https://www.census.gov/data/tables/2016/econ/susb/2016-susb-annual.html>

¹⁶ National League of Cities "Supporting Entrepreneurs and Small Businesses" (2012). <https://www.nlc.org/supporting-entrepreneurs-and-small-business>.

Lower paying jobs are more likely to be automated, with potential for automation of more than 80% of jobs paying less than \$20 per hour over the next 20 years. About 30% of jobs paying \$20 to \$40 per hour and 4% of jobs paying \$40 or more are at risk of being automated over the next 20 years.¹⁷

Low- to middle-skilled jobs that require interpersonal interaction, flexibility, adaptability, and problem solving will likely persist into the future as will occupations in technologically lagging sectors (e.g. production of restaurant meals, cleaning services, hair care, security/protective services, and personal fitness).¹⁸ This includes occupations such as (1) recreational therapists, (2) first-line supervisors of mechanics, installers, and repairers, (3) emergency management directors, (4) mental health and substance abuse social workers, (5) audiologists, (6) occupational therapists, (7) orthotists and prosthetists, (8) healthcare social workers, (9) oral and maxillofacial surgeons, and (10) first-line supervisors of firefighting and prevention workers. Occupations in the service and agricultural or manufacturing industry are most at-risk of automation because of the manual-task nature of the work.^{19,20,21} This includes occupations such as (1) telemarketers, (2) title examiners, abstractors, and searchers, (3) hand sewers, (4) mathematical technicians, (5) insurance underwriters, (6) watch repairers, (7) cargo and freight agents, (8) tax preparers, (9) photographic process workers and processing machine operators, and (10) accounts clerks.²²

- **Consolidation Transformation of retail.** Historical shift in retail businesses, starting in the early 1960s, was the movement from one-off, ‘mom and pop shops’ toward superstores and the clustering of retail into centers or hubs. Notably, we still see this trend persist; for example, in 1997, the 50 largest retail firms accounted for about 26% of retail sales and by 2007, they accounted for about 33%.²³ The more recent shift began in the late 1990s, where technological advances have provided consumers the option to buy goods through e-commerce channels. The trend toward e-commerce has become increasingly preferential to millennials and Generation X, who are easier to reach online and are more responsive to digital ads than older generations.²⁴ Since 2000, e-commerce

¹⁷ Executive Office of the President. (2016). Artificial Intelligence, Automation, and the Economy.

¹⁸ Autor, David H. (2015). Why Are There Still So Many Jobs? The History and Future of Workplace Automation. *Journal of Economic Perspectives*, Volume 29, Number 3, Summer 2015, Pages 3–30.

¹⁹ Frey, Carl Benedikt and Osborne, Michael A. (2013). *The Future of Employment: How Susceptible Are Jobs to Computerisation?* Oxford Martin School, University of Oxford.

²⁰ Otekhile, Cathy-Austin and Zeleny, Milan. (2016). Self Service Technologies: A Cause of Unemployment. *International Journal of Entrepreneurial Knowledge*. Issue 1, Volume 4. DOI: 10.1515/ijek-2016-0005.

²¹ PwC. (n.d.). Will robots really steal our jobs? An international analysis of the potential long-term impact of automation.

²² Frey, Carl Benedikt and Osborne, Michael A. (2013). *The Future of Employment: How Susceptible Are Jobs to Computerisation?* Oxford Martin School, University of Oxford.

²³ Hortaçsu, Ali and Syverson, Chad. (2015). The Ongoing Evolution of US Retail: A Format Tug-of-War. *Journal of Economic Perspectives*, Volume 29, Number 4, Fall 2015, Pages 89-112.

²⁴ Pew Research Center (2010b). *Generations 2010*. Retrieved Online at: <http://www.pewinternet.org/Reports/2010/Generations-2010.aspx>

sales grew from 0.9% of total retail sales to 9.7% (2018). Over 2000 to 2018, e-commerce retail sales have grown at a rate 18% per year.²⁵ It is reasonable to expect this trend to continue. While it is unclear what impact e-commerce will have on employment and brick and mortar retail, it seems probable that e-commerce sales will continue to grow, shifting business away from some types of retail. Over the next decades, communities must begin considering how to redevelop and reuse retail buildings in shopping centers, along corridors, and in urban centers.

- ~~▪ With it has come closures of retail stores. By 2027 for example, an estimated 15% of about 1,050 U.S. malls in smaller markets will close, impacting local employment levels, local government revenue streams (tax dollars), and neighborhood character.~~

~~While it is unclear what impact e-commerce will have on employment and brick and mortar retail, it seems probable that e-commerce sales will continue to grow, shifting business away from some types of retail. Over the next decades, communities must begin considering how to redevelop and reuse retail buildings in shopping centers, along corridors, and in urban centers.~~

The types of retail and related services that remain will likely be sales of goods that people prefer to purchase in person or that are difficult to ship and return (e.g., large furniture), specialty goods, groceries and personal goods that maybe needed immediately, restaurants, and experiences (e.g., entertainment or social experiences). According to the Urban Land Institute, in the post-disruption era of retail, new trends in this sector are beginning to emerge. These changes include the convergence of technology and shopping, as businesses focus on brand awareness and customer engagement via digital channels in the physical retail space.²⁶

In addition to dynamics with e-commerce, other factors influencing changes in retail include the growth of big box stores, income inequality, and changing preferences. The New York Times reported that while Amazon had \$38 billion in sales between 2000 and 2013, Costco had about \$50 billion and Sam's Club had about \$32 billion.²⁷ The other factors influencing traditional retail—income inequality and emphasis on services over goods—result in either less consumer spending overall or changes in preferences of consumers who increasingly spend more on services or experiences.

This shift in the retail industry is also described in the *Three-Mile Lane Area Plan: Market Analysis*, which documents proactive steps to adapt to the changing retail landscape by "commissioning studies of the marketplace and developing new strategies to maintain

²⁵ U.S. Census Bureau, Monthly Retail Trade, Latest Quarterly E-Commerce Report. Retrieved online at: <https://www.census.gov/retail/index.html#ecommerce>

²⁶ Diane Hoskins. "Three Trends Shaping Retail's Great Transformation." *Urban Land Institute*, September 3, 2019. Retrieved from: <https://urbanland.uli.org/economy-markets-trends/three-trends-shaping-retails-great-transformation/>

²⁷ Austan Goolsbee. "Never Mind the internet. Here's What's Killing Malls." *The New York Times*. February 14, 2020 <https://www.nytimes.com/2020/02/13/business/not-internet-really-killing-malls.html>

and foster better retail environments.”²⁸ It specifically describes the difference between “experiential consumerism” and other types of retail that are more likely to directly compete with e-commerce. Examples of “experiential consumerism” include dining, grocery, health and fitness clubs, etc.²⁹ These types of retail are typically located on main streets and neighborhood or commercial centers.

- **The importance of high-quality natural resources.** The relationship between natural resources and local economies has changed as the economy has shifted away from resource extraction. High-quality natural resources continue to be important in some states, especially in the Western U.S. Increases in the population and in households’ incomes, plus changes in tastes and preferences have dramatically increased demands for outdoor recreation, scenic vistas, clean water, and other resource-related amenities. Such amenities contribute to a region’s quality of life and play an important role in attracting both households and firms.³⁰
- **Continued increase in demand for energy.** Energy prices are forecasted to increase over the planning period. While energy use per capita is expected to decrease through 2050, total energy consumption will increase with rising population. Energy consumption is expected to grow primarily from industrial (0.7%) and, to a lesser extent, commercial users (0.2%). Residential and transportation consumption are forecasted to decrease (-0.2% for both). This decrease in energy consumption for transportation is primarily due to increased federal standards and increased technology for energy efficiency in vehicles. The unspecified sector, which is made up of consumption not attributed to residential, commercial, industrial, or transportation, is forecasted to increase consumption by 1.4% through 2050. Going forward through the projection period, potential changes in federal laws (such as decreases in car emissions) leave energy demand somewhat uncertain.

Energy consumption by type of fuel is expected to change over the planning period. By 2050, the U.S. will continue to shift from crude oil towards natural gas and renewables. For example, from 2018 to 2050, the Energy Information Administration projects that U.S. energy consumption of motor gasoline will average a 0.9% annual decrease, while consumption of renewable sources will grow at 1.6% per year and natural gases liquefied for exporting will grow 5.0% per year through 2050. With increases in energy efficiency, strong domestic production of energy, and relatively flat demand for energy by some industries, the U.S. will be able to be a net exporter of energy over the 2018 to

²⁸ McMinnville Three Mile Lane Area Plan: Market Analysis, Leland Consulting Group, April 2019.

²⁹ Ibid. pg 36.

³⁰ For a more thorough discussion of relevant research, see, for example, Power, T.M. and R.N. Barrett. 2001. *Post-Cowboy Economics: Pay and Prosperity in the New American West*. Island Press, and Kim, K.-K., D.W. Marcouiller, and S.C. Deller. 2005. “Natural Amenities and Rural Development: Understanding Spatial and Distributional Attributes.” *Growth and Change* 36 (2): 273-297.

2050 period. Demand for electricity is expected to increase 0.2% per year annually over 2018 to 2050 as the population grows and economic activity increases.³¹

- **Impact of rising energy prices on commuting patterns.** As energy prices increase over the planning period, energy consumption for transportation will decrease. These increasing energy prices may decrease willingness to commute long distances, though with expected increases in fuel economy, it could be that people commute further while consuming less energy.³² Over 2018 to 2038, the U.S. Energy Information Administration estimates in its forecast that the decline in transportation energy consumption is a result of increasing fuel economy offsetting the total growth in vehicle miles traveled (VMT). VMT for passenger vehicles is forecasted to increase through 2050.
- **Potential impacts of global climate change.** The consensus among the scientific community that global climate change is occurring expounds important ecological, social, and economic consequences over the next decades and beyond.³³ Extensive research shows that Oregon and other western states already have experienced noticeable changes in climate and predicts that more change will occur in the future.³⁴

In the Pacific Northwest, climate change is likely to (1) increase average annual temperatures, (2) increase the number and duration of heat waves, (3) increase the amount of precipitation falling as rain during the year, (4) increase the intensity of rainfall events, and 5) increase sea level. These changes are also likely to reduce winter snowpack and shift the timing of spring runoff earlier in the year.³⁵

³¹ Energy Information Administration, 2019, *Annual Energy Outlook 2019 with Projections to 2050*, U.S. Department of Energy, January 2019. <https://www.eia.gov/outlooks/aeo/pdf/AEO2019.pdf>. Note, the cited growth rates are shown in the Executive Summary and can be viewed here: <https://www.eia.gov/outlooks/aeo/data/browser/#/?id=1-AEO2019&cases=ref2019&sid=&sourcekey=0>.

³² Energy Information Administration, 2019, *Annual Energy Outlook 2019 with Projections to 2050*, U.S. Department of Energy, January 2019.

³³ Karl, T.R., J.M. Melillo, and T.C. Peterson, eds. 2009. *Global Climate Change Impacts in the United States*. U.S. Global Change Research Program. June. Retrieved June 16, 2009, from www.globalchange.gov/usimpacts; and Pachauri, R.K. and A. Reisinger, eds. 2007. *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*.

³⁴ Doppelt, B., R. Hamilton, C. Deacon Williams, et al. 2009. *Preparing for Climate Change in the Upper Willamette River Basin of Western Oregon*. Climate Leadership Initiative, Institute for a Sustainable Environment, University of Oregon. March. Retrieved June 16, 2009, from <http://climlead.uoregon.edu/pdfs/willamettereport3.11FINAL.pdf> and Doppelt, B., R. Hamilton, C. Deacon Williams, et al. 2009. *Preparing for Climate Change in the Rogue River Basin of Southwest Oregon*. Climate Leadership Initiative, Institute for a Sustainable Environment, University of Oregon. March. Retrieved June 16, 2009 from <http://climlead.uoregon.edu/pdfs/ROGUE%20WSFINAL.pdf>

³⁵ Mote, P., E. Salathe, V. Duliere, and E. Jump. 2008. *Scenarios of Future Climate for the Pacific Northwest*. Climate Impacts Group, University of Washington. March. Retrieved June 16, 2009, from <http://cses.washington.edu/db/pdf/moteetal2008scenarios628.pdf>; Littell, J.S., M. McGuire Elsner, L.C. Whitely Binder, and A.K. Snover (eds). 2009. "The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate - Executive Summary." *In The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate*, Climate Impacts Group, University of Washington. Retrieved June 16, 2009, from www.cses.washington.edu/db/pdf/

These anticipated changes point toward some of the ways that climate change is likely to impact ecological systems and the goods and services they provide. There is considerable uncertainty about how long it would take for some of the impacts to materialize and the magnitude of the associated economic consequences. Assuming climate change proceeds as today's models predict, however, some of the potential economic impacts of climate change in the Pacific Northwest will likely include:³⁶

- *Potential impact on agriculture and forestry.* Climate change may impact Oregon's agriculture through changes in growing season, temperature ranges, and water availability.³⁷ Climate change may impact Oregon's forestry through an increase in wildfires, a decrease in the rate of tree growth, a change in the mix of tree species, and increases in disease and pests that damage trees.³⁸
- *Potential impact on tourism and recreation.* Impacts on tourism and recreation may range from (1) decreases in snow-based recreation if snow-pack in the Cascades decreases, (2) negative impacts to tourism along the Oregon Coast as a result of damage and beach erosion from rising sea levels,³⁹ (3) negative impacts on availability of water summer river recreation (e.g., river rafting or sports fishing) as a result of lower summer river flows, and (4) negative impacts on the availability of water for domestic and business uses.

Short-term national trends will also affect economic growth in the region, but these trends are difficult to predict. At times, these trends may run counter to the long-term trends described above. A recent example is the downturn in economic activity in 2008 and 2009 following declines in the housing market and the mortgage banking crisis. The result of the economic downturn was decreases in employment related to the housing market, such as construction and real estate. As these industries recover, they will continue to play a significant role in the national, state, and local economy over the long run. This report takes a long-run perspective on economic conditions (as the Goal 9 requirements intend) and does not attempt to predict the impacts of short-run national business cycles on employment or economic activity.

wacciaexecsummary638.pdf; Madsen, T. and E. Figdor. 2007. *When it Rains, it Pours: Global Warming and the Rising Frequency of Extreme Precipitation in the United States*. Environment America Research & Policy Center and Frontier Group.; and Mote, P.W. 2006. "Climate-driven variability and trends in mountain snowpack in western North America." *Journal of Climate* 19(23): 6209-6220.

³⁶ The issue of global climate change is complex and there is a substantial amount of uncertainty about climate change. This discussion is not intended to describe all potential impacts of climate change but to present a few ways that climate change may impact the economy of cities in Oregon and the Pacific Northwest.

³⁷ "The Economic Impacts of Climate Change in Oregon: A preliminary Assessment," Climate Leadership Initiative, Institute for Sustainable Environment, University of Oregon, October 2005.

³⁸ "Economic Impacts of Climate Change on Forest Resources in Oregon: A Preliminary Analysis," Climate Leadership Initiative, Institute for Sustainable Environment, University of Oregon, May 2007.

³⁹ "The Economic Impacts of Climate Change in Oregon: A preliminary Assessment," Climate Leadership Initiative, Institute for Sustainable Environment, University of Oregon, October 2005.

State Trends

Short-Term Trends

According to the Oregon Office of Economic Analysis (OEA), the Oregon economy “is on firmer ground today following a rocky start to the year...” They emphasize, however, that the economy continues to strike the “sweet spot” despite a rocky start to 2019.⁴⁰ The OEA also reports that although the Oregon economy has been slowing down over the last couple of years and is not outpacing the nation any longer, its “growth is strong enough to keep up with a growing population but also deliver economic and income gains to Oregonians.”⁴¹

Wages in Oregon continue to remain below the national average, but they continue to rise and remain strong, staying at their highest point relative to the state’s mill closures in the 1980s.⁴² By the end of 2019, the OEA forecasts 39,800 jobs will be added to Oregon’s economy. This is an approximate 2.1% annual growth in total nonfarm employment relative to 2018 levels.⁴³ The health services, professional and business services, leisure and hospitality, retail trade, and manufacturing industries are forecasted to account for well over half of the total job growth in Oregon for 2019. Oregon continues to have an advantage in job growth compared to other states, due to its industrial sector and in-migration flow of young workers in search of jobs.

The housing market continues to recover as Oregon’s economy improves, though new supply is not keeping up with demand. As a result, prices continue to rise to considerable levels and the OEA reports housing “(in)affordability is becoming a larger risk” to Oregon’s economic outlook.⁴⁴ Oregon is seeing an increase in household formation rates, which is good for the housing market as this will “help drive up demand for new houses.”⁴⁵ Though younger Oregonians are tending to live at home with their parents longer, the aging Millennial generation (from their early 20s to mid-to-late 30s) and the state’s increase in migration will drive demand for homes in the coming years. Housing starts in 2019 are on track to reach 20,600 units and in 2020, starts are expected to increase to 21,800. Beyond 2020, the OEA forecasts an average growth of 24,000 units per year to satisfy the demand for Oregon’s growing population and to make up for the under development of housing post-recession.⁴⁶

The Oregon Index of Leading Indicators (OILI) continues to grow quite rapidly in 2019 despite a decrease in 2018. The leading indicators showing improvement are: air freight, consumer sentiment, and withholding. Indicators that are slowing down include: help wanted ads, housing permits, industrial production, initial claims, the manufacturing purchasing managers

⁴⁰ Office of Economic Analysis. Oregon Economic and Revenue Forecast, May 2019. Vol. XXXIX, No. 2, page 2. Retrieved from: <https://www.oregon.gov/das/OEA/Documents/forecast0519.pdf>.

⁴¹ *Ibid*, page 2.

⁴² *Ibid*, page 6.

⁴³ *Ibid*, page 36.

⁴⁴ *Ibid*, page 13.

⁴⁵ *Ibid*, page 12.

⁴⁶ *Ibid*, page 12.

index (PMI), new incorporations, and the Oregon Dollar Index. The one indicator not improving at this point in time is semiconductor billings. Relative to their September 2018 forecast, many economic indicators in their May 2019 forecast have changed from *improving* to *slowing*, which further illustrates the slowing down of Oregon's economy after several years of extended growth.⁴⁷

Oregon's economic health is dependent on export markets. The value of Oregon exports in 2018 was \$22.3 billion, a 2% growth from 2017. In 2018, Oregon's exports made up approximately 9.4% of its total 2018 GDP.⁴⁸ The countries that Oregon exports the most to are China (21.4% of total Oregon exports), Canada (14.4%), Japan (9.8%), South Korea (7.6%), Malaysia (6.6%), and Vietnam (5.0%).⁴⁹ With the escalating trade war occurring overseas, specifically with China, Oregon exports are left potentially vulnerable, as China is a top destination for Oregon exports.⁵⁰ The OEA notes that it is too soon to assess the disruptiveness of the trade war on global supply chains, however, developments will be tracked as it continues. An economic slowdown across many parts of Asia will have a spillover effect on the Oregon economy.

Long-term Trends

State, regional, and local trends will also affect economic development in McMinnville over the next 20 years. The most important of these trends includes: continued in-migration from other states, distribution of population and employment across the state, and change in the types of industries in Oregon.

- **Continued in-migration from other states.** Oregon will continue to experience in-migration (more people moving *to* Oregon than *from* Oregon) from other states, especially California and Washington. From 1990 to 2018, Oregon's population increased by about 1.35 million, 69% of which was from people moving into Oregon (net migration). The average annual increase in population from net migration over the same time period was approximately 32,000 persons. During the early- to mid-1990's, Oregon's net migration was highest, reaching over 60,000 in 1991, with another relatively high peak of 57,100 persons in 2017. Oregon has not seen negative net migration since the early- to mid-1980's.⁵¹
- **Forecast of job growth.** Total nonfarm employment is expected to increase from 1.95 million in 2019 to 2.04 million in 2022, an increase of 88,000 jobs. The industries with the largest growth are forecasted to be Government, Health Services, Professional and

⁴⁷ *Ibid*, page 9.

⁴⁸ U.S. Bureau of Economic Analysis. Gross Domestic Product (GDP) by State (Millions of current dollars). Retrieved from: <https://apps.bea.gov/iTable/indexregional.cfm>

⁴⁹ United States Census Bureau. State Exports from Oregon, 2015-2018. Retrieved from: <https://www.census.gov/foreign-trade/statistics/state/data/or.html>.

⁵⁰ Office of Economic Analysis. Oregon Economic and Revenue Forecast, May 2019. Vol. XXXIX, No. 2, page 2.

⁵¹ Portland State University Population Research Center. 2018 Annual Population Report Tables. April 2019. Retrieved from: <https://www.pdx.edu/prc/population-reports-estimates>.

Business Services, Leisure and Hospitality, and Retail, accounting for 89% of employment growth.⁵²

- **Continued importance of manufacturing to Oregon's economy.** Oregon's exports totaled \$19.4 billion in 2008, nearly doubling since 2000, and reached \$22.3 billion in 2018. The majority of Oregon exports go to countries along the Pacific Rim, with China, Canada, Japan, South Korea, Malaysia, and Vietnam as top destinations. Oregon's largest exports are tied to high tech and mining, as well as agricultural products.⁵³ Manufacturing employment is concentrated in five counties in the Willamette Valley or Portland area: Washington, Multnomah, Lane, Clackamas, and Marion Counties.⁵⁴
- **Shift in manufacturing from natural resource-based to high-tech and other manufacturing industries.** Since 1970, Oregon started to transition away from reliance on traditional resource-extraction industries. A significant indicator of this transition is the shift within Oregon's manufacturing sector, with a decline in the level of employment in the Lumber & Wood Products industry and concurrent growth of employment in other manufacturing industries, such as high-technology manufacturing (Industrial Machinery, Electronic Equipment, and Instruments), Transportation Equipment manufacturing, and Printing and Publishing.⁵⁵
- **Income.** Oregon's income and wages are below that of a typical state. However, Oregon wages continue to grow and remain strong, and they are at their highest point relative to the mill closures resulting from the early 1980's recession. In 2018, the average annual wage in Oregon was \$53,058, and in 2017, the median household income in Oregon was \$60,212 (compared to national average wages of \$57,265 in 2018, and national household income of \$60,336 in 2017).⁵⁶ Total personal income (all classes of income, minus Social Security contributions, adjusted for inflation) in Oregon is expected to increase by 22%, from \$219.5 billion in 2019 to \$267.6 billion in 2023.⁵⁷ Per capita income is expected to increase by 16% over the same time period, from \$51,700 (thousands of dollars) in 2019 to \$60,200 in 2023 (in nominal dollars).⁵⁸

⁵² Office of Economic Analysis. Oregon Economic and Revenue Forecast, May 2019. Vol. XXXIX, No. 2, page 36.

⁵³ United States Census Bureau. State Exports from Oregon, 2015-2018. Retrieved from: <https://www.census.gov/foreign-trade/statistics/state/data/or.html>.

⁵⁴ Oregon Employment Department. *Employment and Wages by Industry (QCEW)*. 2018 Geographic Profile, Manufacturing (31-33). Retrieved from: qualityinfo.org.

⁵⁵ Although Oregon's economy has diversified since the 1970's, natural resource-based manufacturing accounts for about 37% of employment in manufacturing in Oregon in 2018, with the most employment in Food Manufacturing (29,900) and Wood Product Manufacturing (23,400) (QCEW).

⁵⁶ Average annual wages are for "Total, all industries," which includes private and public employers. Oregon Quarterly Census of Employment and Wages, 2018. Retrieved from: <https://www.qualityinfo.org>; Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2017; Total, U.S. Census American Community Survey 1-Year Estimates, 2017, Table B19013.

⁵⁷ Office of Economic Analysis. Oregon Economic and Revenue Forecast, May 2019. Vol. XXXIX, No. 2, page 36.

⁵⁸ *Ibid*, page 36.

- **Small businesses continue to account for a large share of employment in Oregon.** While small firms played a large part in Oregon’s expansion between 2003 and 2007, they also suffered disproportionately in the recession and its aftermath (64% of the net jobs lost between 2008 and 2010 was from small businesses).

In 2016, small businesses (those with 100 or fewer employees) accounted for 95% of privately-owned businesses in Oregon. Said differently, most businesses in Oregon are small (in fact, 76% of all businesses have fewer than 10 employees), but the largest share of Oregon’s employees work for medium-to-large businesses (those with 100 or more employees).⁵⁹

The average annualized payroll per employee for small businesses was \$37,958 in 2016, which is considerably less than that for large businesses (\$57,488) and the statewide average for all businesses (\$47,746).⁶⁰ Younger workers are important to continue growth of small businesses across the nation. More than one-third of Millennials (those born between 1980 - 1999) are self-employed, with approximately half to two-thirds interested in becoming an entrepreneur. Furthermore, in 2011, about 160,000 startup companies were created each month; 29% of these companies were founded by people between 20 to 34 years of age.⁶¹ According to the Kauffman Indicators of Entrepreneurship, in 2018, about 79% of startups nationwide were still active after one year. On average, startups nationwide created approximately 5.2 jobs in their first year (when normalized by population).⁶² However, it is typically the case that startups are important for job creation on a longer time horizon, well beyond their first year, as “fewer than half of all startups in America are still in business after five years.”⁶³

- **Entrepreneurship in Oregon.** The creation of new businesses is vital to Oregon’s economy as their formations generate new jobs and advance new ideas and innovations into markets. They also can produce more efficient products and services to better serve local communities. The Kauffman Foundation reports several statistics at the state level related to entrepreneurship. They report: the rate of new entrepreneurs, the opportunity share of new entrepreneurs (new entrepreneurs who created a business by choice instead of necessity), startup early job creation (the average number of jobs created by startups in their first year, normalized by population), and startup early survival rate (the percent of startups that are still active after one year).

According to Kauffman’s indicators, Oregon’s opportunity share of new entrepreneurs is at its highest relative point post-recession, reaching approximately 80% in 2017, up

⁵⁹ U.S. Census Bureau, 2016 Statistics of U.S. Businesses, Annual Data, Enterprise Employment Size, U.S and States.

⁶⁰ *Ibid.*

⁶¹ Cooper, Rich, Michael Hendrix, Andrea Bitely. (2012). "The Millennial Generation Research Review." Washington, DC: The National Chamber Foundation. Retrieved from: <https://www.uschamberfoundation.org/sites/default/files/article/foundation/MillennialGeneration.pdf>.

⁶² Kauffman Foundation. *Kauffman Indicators of Entrepreneurship*. Indicators: Startup Early Job Creation and Startup Early Survival Rate. Information retrieved on December 19, 2019 from: <https://indicators.kauffman.org/data-table>

⁶³ Nish Acharya. “Small Business Are Having A Bigger Impact on Job Creation Than Large Corporations.” Forbes, May 5, 2019. <https://www.forbes.com/sites/nishacharya/2019/05/05/who-is-creating-jobs-in-america/#5c74c156597d>

from its post-recession low of 71% in 2012. Startup early job creation also continues to increase. In 2017, the average number of jobs created by startups in their first year reached 5.24, which is comparable to the national average of 5.27. Relative to Oregon's post-recession low of 3.80 in 2010, the average number of startup jobs have increased approximately 38%. However, the two remaining entrepreneurial indicators, the rate of new entrepreneurs and startup early survival rate, are declining somewhat in Oregon. In 2017, the rate of new entrepreneurs decreased by 0.02 percentage points, from 0.34% in 2016 to 0.32% in 2017, though Oregon's 2017 rate aligns closely with the national average of 0.33%. For Oregon's startup early survival rate, it declined to 78.4% in 2017 from a post-recession peak of 80.1% in 2015. Though this decline is not substantially large, the downward trend suggests startups, on average, are not persisting as well as they used to relative to two years ago. Oregon's startup early survival rate in 2017 is 1.4 percentage points below the national average of 79.8%.⁶⁴

Moreover, in 2018, the Oregon OEA reports new business applications in Oregon are increasing. They do, however, simultaneously note startup businesses "are a smaller share of all firms than in the past."⁶⁵ Though this measurement of economic activity does not constitute a full understanding of how well entrepreneurship is performing, it does provide an encouraging signal.

Regional and Local Trends

Throughout this section and the report, McMinnville is compared to Yamhill County and the State of Oregon. These comparisons are to provide context for changes in McMinnville's socioeconomic characteristics.

Availability of Labor

The availability of trained workers in McMinnville will impact development of its economy over the planning period. A skilled and educated populace can attract well-paying businesses and employers and spur the benefits that follow from a growing economy. Key trends that will affect the workforce in McMinnville over the next 20 years include its growth in its overall population, growth in the senior population, and commuting trends.

Growing Population

Population growth in Oregon tends to follow economic cycles. Oregon's population grew from 2.8 million people in 1990 to nearly 4.2 million people in 2018, an increase of over 1,350,000 people at an average annual growth rate of 1.4%. Oregon's growth rate slowed to 1.1% annual growth between 2000 and 2018.

⁶⁴ Kauffman Foundation. *Kauffman Indicators of Entrepreneurship. State Profile: Oregon*. Retrieved from: <https://indicators.kauffman.org/state/oregon>

⁶⁵ Lehner, Josh. (August 2018). "Start-Ups, R&D, and Productivity." Salem, OR: Oregon Office of Economic Analysis. Retrieved from: <https://oregoneconomicanalysis.com/2015/03/13/start-ups-and-new-business-formation/>.

McMinnville’s population increased by 15,916 residents over 1990 to 2018, nearly doubling in size. This growth is reflected in its average annual growth rate (AAGR) of 2.3% (and notably, the growth rate used for the 2000-2020 period in the 2002 McMinnville Housing Needs Analysis), which is 0.9 percentage points higher than the State’s rate of 1.4%. Similar to McMinnville, Yamhill County’s population grew more rapidly than the State, averaging 1.8% growth year-over-year. The County added 41,864 residents over 1990 to 2018 and McMinnville accounts for about 38% of this growth.

Exhibit 12. Population Growth, McMinnville, Yamhill County, and Oregon, 1990 – 2018

Geography					Change, 1990 - 2018		
	1990	2000	2010	2018	Number	Percent	AAGR
McMinnville	17,894	26,499	32,930	33,810	15,916	89%	2.3%
Yamhill County	65,551	84,992	95,925	107,415	41,864	64%	1.8%
Oregon	2,842,337	3,421,399	3,844,195	4,195,300	1,352,963	48%	1.4%

Source: U.S. Census Bureau, 1990, 2000, and 2010. Portland State University Population Estimates, 2018.

Age Distribution

The number of people aged 65 and older in the U.S. is expected to increase by nearly three-quarters by 2050, while the number of people under age 65 will only grow by 16%. The economic effects of this demographic change include a slowing of the growth of the labor force, need for workers to replace retirees, aging of the workforce for seniors that continue working after age 65, an increase in the demand for healthcare services, and an increase in the percent of the federal budget dedicated to Social Security and Medicare.⁶⁶

Exhibit 13 through Exhibit 16 show the following trends:

- McMinnville’s population is aging slightly faster than Yamhill County’s population. Populations of both McMinnville and Yamhill County are aging faster than Oregon’s population with respect to each region’s growth in median age.
- Over the 2000 to 2013-2017 period, those in the age groups of 45 to 64 and 65 years and older in McMinnville increased by 59% and 48%, respectively. These age groups grew substantially more than all other age categories. This suggests that McMinnville may be retaining residents throughout their mid-to-late careers as they age and/or attracting more people in their mid-to-late careers.
- Yamhill County’s population is expected to continue to age, with people 60 years and older increasing from 23% of the population in 2017 to 28% of the population in 2035. This is consistent with statewide trends. McMinnville and Yamhill County may continue to attract mid-life and older workers over the twenty-year planning period. While the share of retirees in these respective areas may increase over the next 20 years, availability of people nearing retirement (e.g., 55 to 70 years old) is likely to increase.

⁶⁶ The Board of Trustees, Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds, 2017, *The 2017 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*, July 13, 2017. *The Budget and Economic Outlook: Fiscal Years 2018 to 2028*, April 2018.

People in this age group may provide sources of skilled labor, as people continue to work until later in life. These skilled workers may provide opportunities to support business growth in these areas.

McMinnville’s median age increased by about 4.6 years between 2000 and 2013-2017.

This change is slightly larger than Yamhill County’s increase of 4.1 years. Median age increases for both regions exceeded Oregon’s change of 2.8.

Exhibit 13. Median Age, McMinnville, Yamhill County, and Oregon, 2000 to 2013-2017

Source: U.S. Census Bureau, 2000 Decennial Census, Table P013; American Community Survey 2013-2017 5-year estimates, Table B01002.

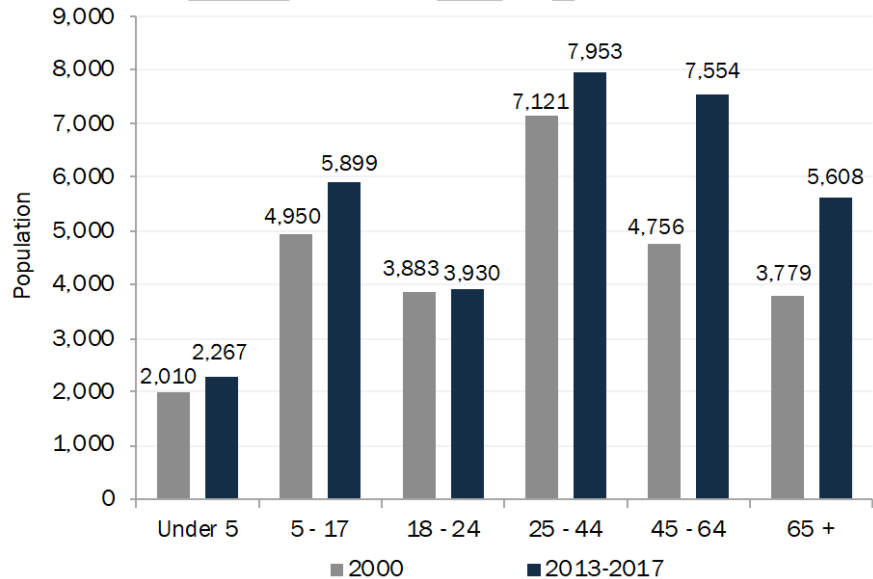
2000	31.5 McMinnville	34.1 Yamhill County	36.3 Oregon
2013-17	36.1 McMinnville	38.2 Yamhill County	39.2 Oregon

Over the 2000 to 2013-2017 period, McMinnville’s largest population increase was for those 45 to 64 (59%) and those aged 65 and older (48%).

This is consistent with statewide trends, where the aforementioned age categories increased the most relative to younger age categories. The Oregon population of those 45 to 64 years of age increased by 30% and those 65 and older increased by 50%.

Exhibit 14. McMinnville Population Change by Age Group, 2000 to 2013-2017

Source: U.S. Census Bureau, 2000 Summary File; American Community Survey 2013-2017 5-year estimates, Table B01001.



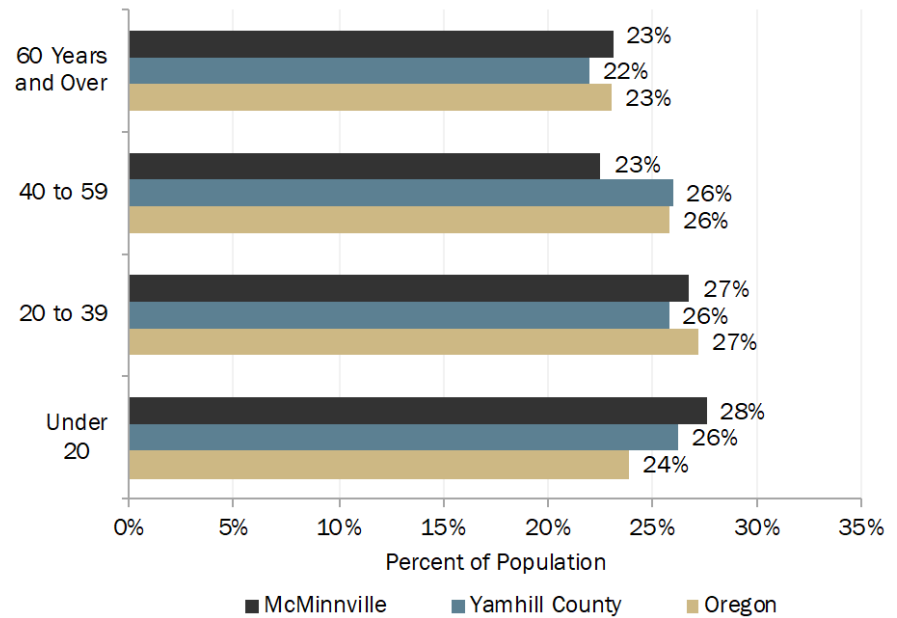
During the 2013-2017 period, the age distribution of McMinnville residents was roughly even across each category, with a slightly smaller proportion of middle-to-older aged adults (40 and older) relative to those 39 years of age and younger.

About 46% of McMinnville residents are 40 years and older and 54% are 39 and younger.

Additionally, the proportion of McMinnville residents under 20 years of age was four percentage points higher than Oregon.

Exhibit 15. Population Distribution by Age, McMinnville, Yamhill County, and Oregon, 2013-2017

Source: U.S. Census Bureau, American Community Survey, 2013-2017 5-year estimate, Table B01001.

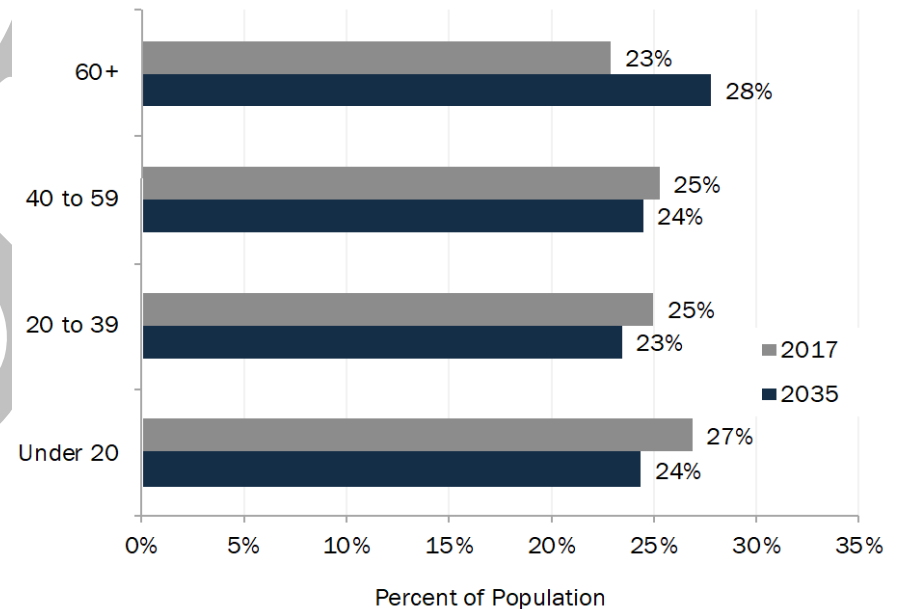


By 2035, Yamhill County will have a larger share of residents older than 60 than it does today. The population forecast for all other age groups projects smaller County population shares by 2035.

The share of residents aged 60 years and older will account for 28% of Yamhill County's population, compared to 23% in 2017.

Exhibit 16. Population Growth by Age Group, Yamhill County, 2017 - 2035

Source: Oregon Population Forecast, 2017.



Income

Income and wages affect business decisions for locating in a city. Areas with higher wages may be less attractive for industries that rely on low-wage workers. McMinnville’s median household income (\$50,299) was below the County median (\$58,392) during the 2013-2017 period. Average wages at businesses in McMinnville (\$40,105) were lower than the County average (\$42,315).⁶⁷

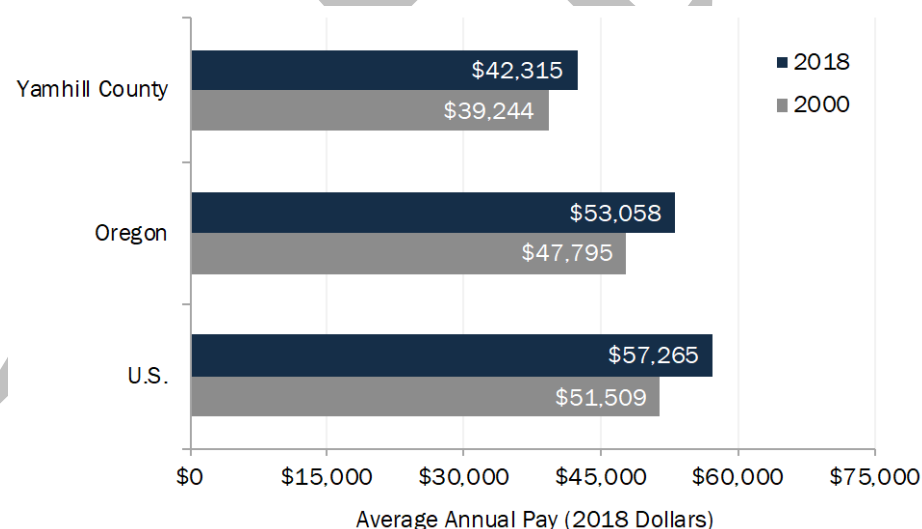
Between 2000 and 2018, Yamhill County’s average wages increased as they also did in Oregon and the nation. When adjusted for inflation to 2018 dollars, average annual wages grew by 8% in Yamhill County, 11% in Oregon, and 11% in the nation.

From 2000 to 2018, average annual wages rose in Yamhill County, Oregon, and the nation.

In 2018, average annual wages were \$42,321 in Yamhill County, \$53,058 in Oregon, and \$57,265 across the nation.

Exhibit 17. Average Annual Wage, Covered Employment, Yamhill County, Oregon, and the U.S., 2000 to 2018, Inflation-adjusted 2018 Dollars

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages.
Note: 2018 average annual pay estimates are preliminary, according to the BLS.



Over the 2013-2017 period, the median household income in McMinnville was below that of Yamhill County and Oregon by 14% and 10%, respectively.

Exhibit 18. Median Household Income (MHI),⁶⁸ 2013-2017, Inflation-adjusted 2017 Dollars

Source: U.S. Census Bureau, American Community Survey 2013-2017 5-year estimates, Table B19013.

\$50,299	\$58,392	\$56,119
McMinnville	Yamhill County	Oregon

⁶⁷ According to the Census, Household income includes the income of the householder and other income earners ages 15 or older, thus the mix of sources of income ranges in reporting of household income. Average wage is calculated using Quarterly Census of Employment and Wages data, based on payroll information and number of employees by establishment.

⁶⁸ The Census calculated household income based on the income of all individuals 15 years old and over in the household, whether they are related or not.

McMinnville median family income during the 2013-2017 period, similar to median household income, was below the median family income of both Yamhill County and Oregon by 12% and 15%, respectively.

Exhibit 19. Median Family Income,⁶⁹ 2013-2017

Source: U.S. Census Bureau, American Community Survey 2013-2017 5-year estimates, Table B19113.

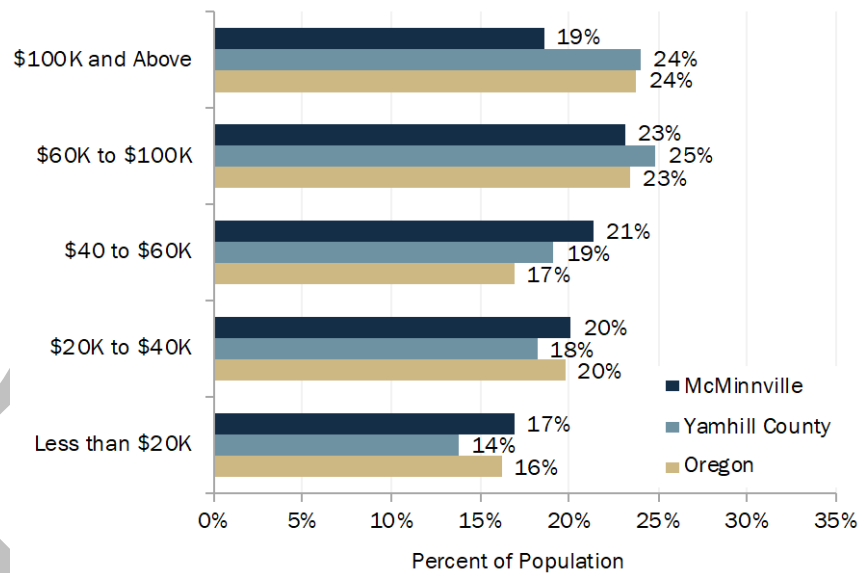
\$58,620 McMinnville	\$66,732 Yamhill County	\$69,031 Oregon
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During the 2013-2017 period, 37% of McMinnville households earned less than \$40,000 annually, compared to 32% of Yamhill County households and 36% of Oregon households.

Over the same period, McMinnville households had a lower proportion of higher income earnings (\$100,000 and above) relative to Yamhill County and Oregon.

Exhibit 20. Household Income by Income Group, McMinnville, Yamhill County, and Oregon, 2013-2017, Inflation-adjusted 2017 Dollars

Source: U.S. Census Bureau, American Community Survey 2013-2017 5-year estimates, Table B19001.



⁶⁹ The Census calculated family income based on the income of the head of household, as identified in the response to the Census forms, and income of all individuals 15 years old and over in the household who are related to the head of household by birth, marriage, or adoption.

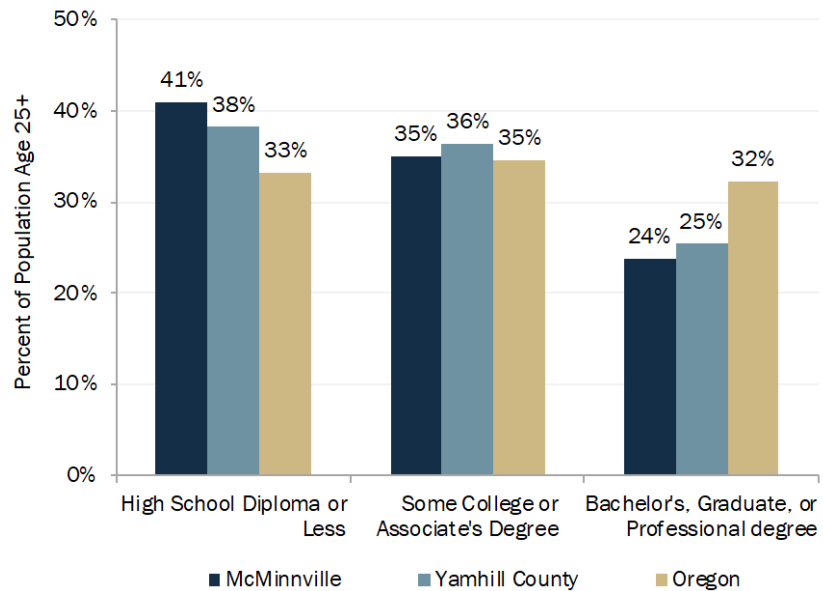
Educational Attainment

The availability of trained, educated workers affects the quality of labor in a community. Educational attainment is an important labor force factor because firms need to be able to find educated workers.

McMinnville's residents are consistent with residents statewide regarding their completion of some college or attainment of an Associate degree; however, attainment of a Bachelor's degree or a professional degree is lower for McMinnville's residents relative to statewide trends.

Exhibit 21. Educational Attainment for the Population 25 Years and Over, McMinnville, Yamhill County, and Oregon, 2013-2017

Source: U.S. Census Bureau, American Community Survey 2013-2017 5-year estimates, Table B15003.



Labor Force Participation and Unemployment

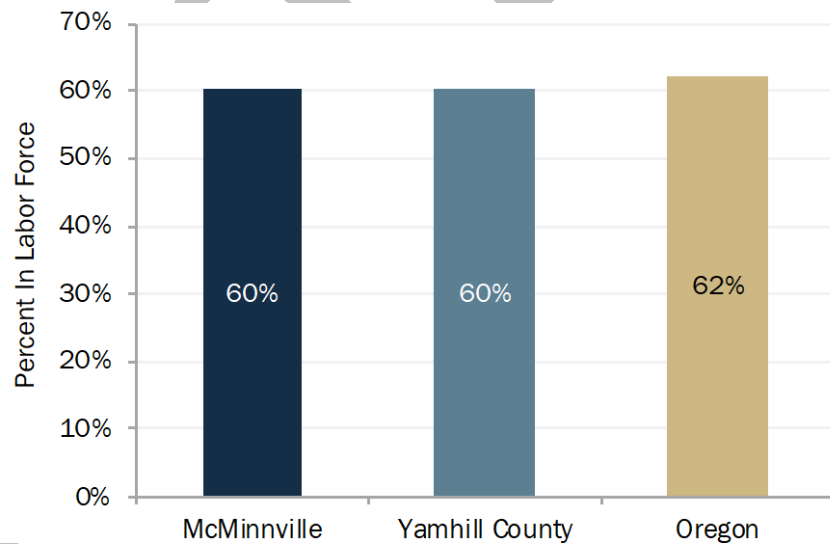
The current labor force participation rate is an important consideration in the availability of labor. The labor force in any market consists of the adult population (16 and over) who are working or actively seeking work. The labor force includes both the employed and unemployed. Children, retirees, students, and people who are not actively seeking work are not considered part of the labor force. According to the 2013-2017 American Community Survey, Yamhill County had more than 49,000 people in its labor force during that period and McMinnville had close to 15,500 people in its labor force.

In 2017, the Oregon Office of Economic Analysis reported that 64% of job vacancies were difficult to fill. The most common reason for difficulty in filling jobs included a lack of applications (30% of employers' difficulties), lack of qualified candidates (17%), unfavorable working conditions (14%), a lack of soft skills (11%), and a lack of work experience (9%).⁷⁰ These statistics indicate a mismatch between the types of jobs that employers are demanding and the skills that potential employees can provide.

McMinnville's labor force participation rate for the 2013-2017 period is comparable to Yamhill County.

Exhibit 22. Labor Force Participation Rate, McMinnville, Yamhill County, and Oregon, 2013-2017

Source: U.S. Census Bureau, American Community Survey 2013-2017 5-year estimates, Table B23001.



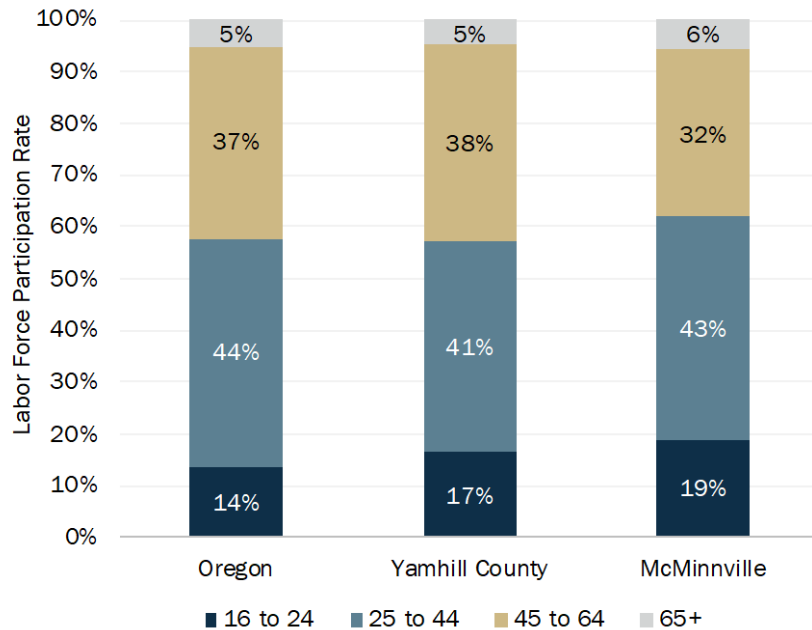
⁷⁰ Oregon's Current Workforce Gaps: Difficult-to-fill Job Openings, Oregon Job Vacancy Survey, Oregon Employment Department, June 2018.

By age group, McMinnville has a larger share of residents aged 16 to 24 participating in the labor force relative to Yamhill County and Oregon.

In contrast, McMinnville has a smaller share of residents aged 45 to 64 participating in the labor force compared to Yamhill County and Oregon.

Exhibit 23. Labor Force Participation Rate, McMinnville, Yamhill County, and Oregon, 2013-2017

Source: U.S. Census Bureau, American Community Survey 2013-2017 5-year estimates, Table S2301.

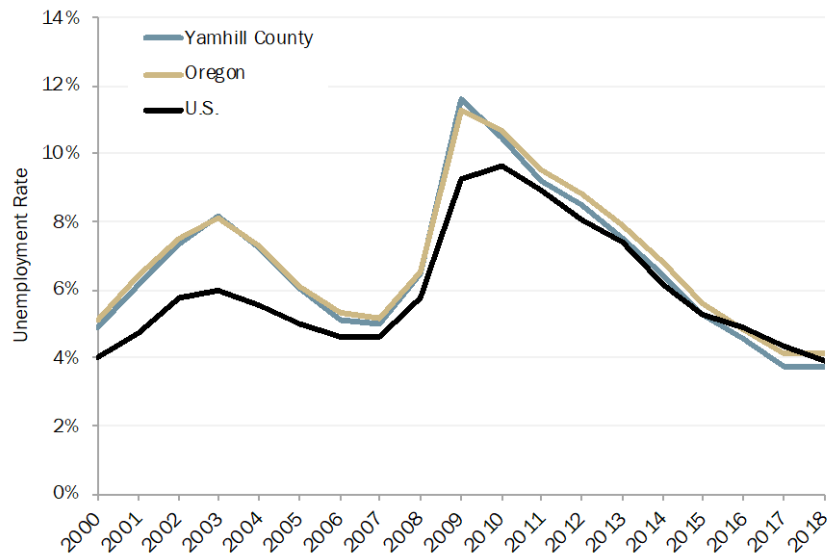


The unemployment rates in Yamhill County, Oregon, and the nation have declined below their respective 2000 rates.

Yamhill County closely follows Oregon's unemployment rate. In 2018, the unemployment rate in Yamhill County was 3.8%. In Oregon, the rate was 3.9%, and in the nation, 4.2%.

Exhibit 24. Unemployment Rate, Yamhill County, Oregon, and the U.S., 2000 - 2018

Source: Bureau of Labor Statistics, Local Area Unemployment Statistics and Labor Force Statistics.



Commuting Patterns

Commuting plays an important role in the McMinnville's economy because employers in these areas are able to access workers from people living in cities across Yamhill County and from the broader Mid-Willamette Valley Region.

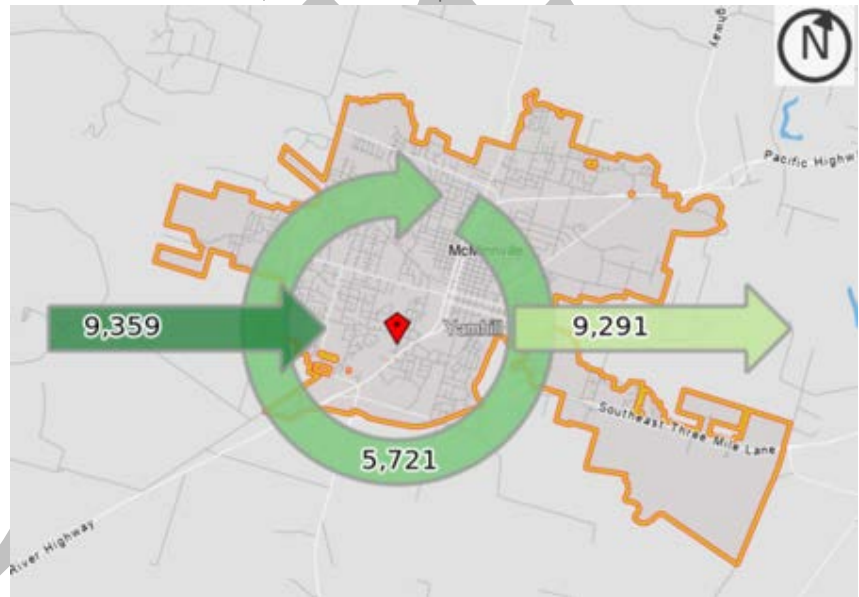
Exhibit 26 shows that 38% of people who work in McMinnville reside in McMinnville, 4% commute from Salem, 3% commute from Portland, and 3% from Newberg. The remaining workers commute from various other cities located across the Region.

McMinnville is part of an interconnected regional economy.

Of the approximate 15,080 persons employed in McMinnville (as of 2017), 62% of workers commute to their jobs from outside of the City. The remaining 38% of workers both live and are employed in McMinnville.

Exhibit 25. Commuting Flows, McMinnville, 2017

Source: U.S. Census Bureau, Census On the Map.



As of 2017, about 38% of all people who work in McMinnville also live in McMinnville.

Exhibit 26. Places Where McMinnville Workers Lived,⁷¹ 2017

Source: U.S. Census Bureau, Census On the Map.

38%	4%	3%	3%	3%
McMinnville	Salem	Portland	Newberg	Sheridan

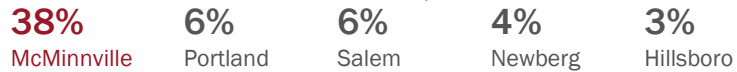
⁷¹ In 2017, 15,080 people worked at businesses in McMinnville, with 38% (5,721) people both employed and working in McMinnville.

About 38% of residents who live in McMinnville also work in McMinnville.

Six percent of McMinnville residents commute to Portland for work and another six percent commute to Salem.

Exhibit 27. Places Where McMinnville Residents were Employed,⁷² 2017

Source: U.S. Census Bureau, Census On the Map.



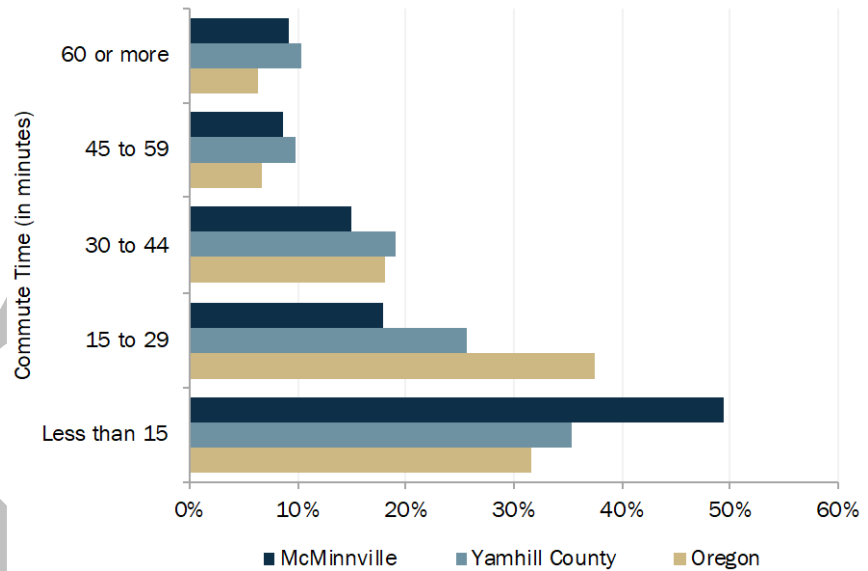
During the 2013-2017 period, about 49% of McMinnville workers had a commute of less than 15 minutes, compared to 35% of Yamhill County workers and 32% of Oregon workers.

Relative to Yamhill County and Oregon workers, McMinnville workers tend to have shorter commute times.

Where the majority (55%) of Oregon workers have commutes between 15 to 44 minutes, only 33% of McMinnville workers have commute times of that length. However, at the higher end of commuting times (45 minutes or more), almost one-fifth (18%) of McMinnville workers spend a sizable amount of time on the road.

Exhibit 28. Commute Time by Place of Residence, McMinnville, Yamhill County, and Oregon, 2013-2017

Source: U.S. Census Bureau, American Community Survey 2013-2017 5-year estimates, Table B08303.



⁷² In 2017, 5,569 residents of McMinnville worked, with 38% of McMinnville residents (5,569 people) both living and employed in McMinnville.

Tourism in the Willamette Valley Region and Yamhill County

Longwoods International provides regional statistics on travel. The following information is from Longwoods International's 2017 Regional Visitor Report for the Willamette Valley Region, which is defined as Benton, Lane (eastern, non-coastal region), Linn, Marion, Polk, and Yamhill counties.⁷³ Broadly, travelers to the Willamette Valley Region accounted for:⁷⁴

- 5.5 million overnight trips in 2017, or 16% of all Oregon overnight travel that year.
- The primary market area for travelers over 2016 and 2017 were Oregon, California, and Washington.⁷⁵ 48% of Willamette Valley visitors came from Oregon, 19% came from California, and 14% came from Washington.
- About 53% of visitors stayed 2 or fewer nights over 2016 and 2017 in the Willamette Valley, 32% stayed 3 to 6 nights, and 15% stayed 7 or more nights. The average nights spent in the Willamette Valley Region was 4.3.
- The average per person expenditures on overnight trips in 2017 ranged from \$9 on recreation, sightseeing, and entertainment to \$35 per night on lodging.
- About 75% of visits to the Willamette Valley Region over 2016 and 2017 were via personally-owned automobiles/trucks, 18% were by rental car, and 13% were via an online taxi service (such as Lyft or Uber).
- Over 2016 and 2017, visitors tended to be middle-to-older aged adults, with the average age being about 48.7. Those aged 18 to 34 made up 24% of overnight visits, 34% were between 35 and 54, and 42% were 55 and older. About 56% of visitors graduated college or completed a post-graduate education. Additionally, 44% of visitors earned less than \$50,000 in household income, 37% earned between \$50,000 and \$99,999, and 19% earned more than \$100,000. The average household income for Willamette Valley visitors was about \$64,560.

⁷³ Travel Oregon. "Oregon 2017: Regional Visitor Report, Willamette Valley Region," Longwoods International, October 2018. Retrieved from: <http://industry.traveloregon.com/research/archive/willamette-valley-oregon-overnight-travel-study-2017-longwoods-international/>.

⁷⁴ Longwoods International issues caution in interpreting these tourism estimates in the Willamette Valley Region as the sample size for the marketable trips this region is low. For this reason, the data reported is a combination of survey data from 2016 and 2017.

⁷⁵ The data reported in this bullet as well as other bullets noting years "2016 and 2017" are based on *marketable trips*. Longwoods International states marketable trips "are defined as those trip types that can be influenced by marketing efforts and include leisure and business-leisure trips."

Yamhill County's direct travel spending increased 139% from 2000 to 2018.

The Willamette Valley Region's direct travel spending increased by 100% over the same period.

Exhibit 29. Direct Travel Spending (\$ millions), 2000 and 2018

Source: Dean Runyan Associates, Oregon Travel Impacts, 1991-2018.

2000	\$1,000	\$56.7
	Willamette Valley Region	Yamhill County
2018	\$2,000	\$135.7
	Willamette Valley Region	Yamhill County

Yamhill County's lodging tax receipts increased 653% over 2006 to 2018.

Exhibit 30. Lodging Tax Receipts (\$ millions), 2006 and 2018

Source: Dean Runyan Associates, Oregon Travel Impacts, 1991-2018.

2006	\$111.0
	Yamhill County
2018	\$835.8
	Yamhill County

Yamhill County's largest visitor spending for purchased commodities is accommodation and food services.

Exhibit 31. Largest Visitor Spending Categories (\$ millions), Yamhill County, 2018

Source: Dean Runyan Associates, Oregon Travel Impacts.

\$27.9	\$6.3	\$3.9
Accommodations and Food Services	Arts, Entertainment, and Recreation	Retail

Yamhill County's largest employment generated by travel spending is also in the accommodations and food services industry.

Exhibit 32. Largest Industry Employment Generated by Travel Spending (thousands), Yamhill County, 2018

Source: Dean Runyan Associates, Oregon Travel Impacts.

1.1 jobs	0.5 jobs	0.1 jobs
Accommodations & Food Services	Arts, Entertainment, and Recreation	Retail

The number of person nights spent in Yamhill County increased from 1,706,000 in 2017 to 1,773,000 in 2018, an increase of 67,000 overnight stays, or 4%. Over the last nine years, from 2010 to 2018, person nights increased approximately 19%.

4. Economic Development Potential

The fundamental purpose of Goal 9 is to make sure that a local government plans for economic development. The planning literature provides many definitions of economic development, both broad and narrow. Broadly,

“Economic development is the process of improving a community’s well-being through job creation, business growth, and income growth (factors that are typical and reasonable focus of economic development policy), as well as through improvements to the wider social and natural environment that strengthen the economy.”⁷⁶

That definition acknowledges that a community’s wellbeing depends in part on narrower measures of economic wellbeing (e.g., jobs and income) and on other aspects of quality of life (e.g., the social and natural environment). In practice, cities and regions trying to prepare an economic development strategy typically use a narrower definition of economic development; they take it to mean business development, job growth, and job opportunity. The assumptions are that:

- Business and job growth are contributors to and consistent with economic development, increased income, and increased economic welfare. From the municipal point of view, investment and resulting increases in property tax are important outcomes of economic development.
- The evaluation of tradeoffs and balancing of policies to decide whether such growth is likely to lead to overall gains in wellbeing (on average and across all citizens and businesses in a jurisdiction, and all aspects of wellbeing) is something that decision makers do after an economic strategy has been presented to them for consideration.

That logic is consistent with the tenet of the Oregon land-use planning program: all goals matter, no goal dominates, and the challenge is to find a balance of conservation and development that is acceptable to a local government and the State. Goal 9 does not dominate, but it legitimizes and requires that a local government focus on the narrower view of economic development regarding economic variables.

In that context, a major part of local economic development policy is about local support for business development and job growth; that growth comes from the creation of new firms, the expansion of existing firms, and the relocation or retention of existing firms. Specifically, new, small businesses (those with fewer than 100 employees) are accounting for a larger share of the job growth in the United States.⁷⁷ This shift toward a focus on entrepreneurship, innovation, and small businesses presents additional options for local support for economic development

⁷⁶ *An Economic Development Toolbox: Strategies and Methods*, Terry Moore, Stuart Meck, and James Ebenhoh, American Planning Association, Planning Advisory Service Report Number 541, October 2006.

⁷⁷ According to the 2018 Small Business Profile from the US Small Business Office of Advocacy, small businesses account for over 99 percent of total businesses in the United States, and their employees account for nearly 50% of American workers. <https://www.sba.gov/sites/default/files/advocacy/2018-Small-Business-Profiles-US.pdf>

beyond firm attraction and retention. Thus, a key question for economic development policy is: *What are the factors that influence business and job growth, and what is the relative importance of each?* Specifically, OAR 660-009-0015(4) requires that cities conduct an assessment of community economic development potential, as part of the EOA. This assessment considers: market factors, infrastructure and public facility availability and access, labor, proximity to suppliers and other necessary business services, regulations, and access to job training.

The local factors that form McMinnville’s competitive advantage are summarized in the subsections below.

Factors Affecting Community Economic Development Potential

OAR 660-009-0015(4) stipulates that relevant economic advantages and disadvantages considered with the EOA “may include but are not limited to” factors of: location, size and buying power of markets; availability of transportation facilities for access and freight mobility; public facilities and public services; labor market factors; access to suppliers and utilities; necessary support services; limits on development due to federal and state environmental protection laws; and educational and technical training programs.” This 2020 EOA update is organized to address these considerations together with other factors distinctive to economic development in McMinnville.

Location, Size & Buying Power of Markets. Location is an economic factor that is prominently mentioned in prior planning documents. The 2019 *MAC-Town 2032 Economic Development Strategic Plan* identifies both strengths and weaknesses related to McMinnville’s location and associated transportation factors. Comparative advantages and disadvantages and their implications for economic opportunity in McMinnville are drawn from the 2013 EOA together with more recent MEDP, SEDCOR, and related industry analyses, summarized as follows.⁷⁸

Advantages:

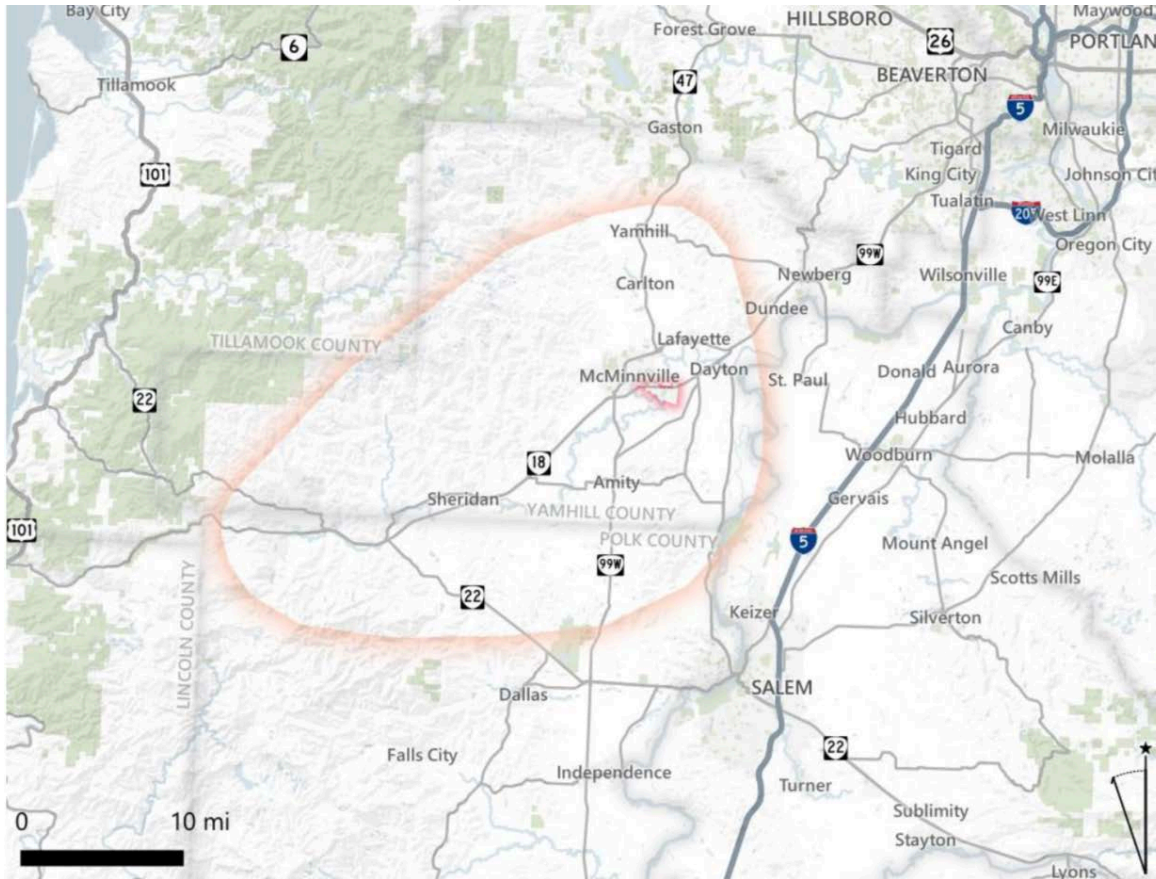
- *Ease of access – with proximity to Portland, Salem & the Oregon coast.* McMinnville is only 40 miles from Portland, 27 miles from Salem, and 51 miles from Lincoln City on the Oregon coast.⁷⁹
- *Central location to serve local community and regional employment and commercial service needs.* McMinnville is well situated to serve the employment and commercial needs of the local community and a larger market area of approximately 75,000 residents, according to the Three Mile Lane market analysis. The City’s market area encompasses

⁷⁸ The 2020 EOA update provides updated information related to comparative advantages and disadvantages, while keeping the structure of the 2013 EOA. Factors that are no longer relevant to McMinnville were removed.

⁷⁹ Source is www.maps.google.com.

the majority of Yamhill County. For reference, a map of McMinnville's market area is provided in Exhibit 33.⁸⁰

Exhibit 33. McMinnville Market Area, 2019



Source: McMinnville Three Mile Lane Area Plan: Market Analysis; TIGER, Leland Consulting Group.

McMinnville has a substantial population-to-jobs ratio of 2.2, compared to 2.5 in Newberg, and 3.0 in Yamhill County.⁸¹ This is due in part to McMinnville's ability to attract workforce both locally and regionally. As noted by the 2007 MEDP, McMinnville offers potential for commercial retail uses that often require a substantial trade area base of 50,000-100,000 or more customers for market viability.⁸² The competitive viability of service uses such as regional professional, business, financial and medical facilities also benefits from the ability to serve a market area extending beyond the immediate community. The 2019 Strategic Plan confirms opportunities for McMinnville to expand on both retail and non-retail commercial uses.

- *Proximity to regionally recognized destination attractions including Yamhill and Willamette Valley wineries, Evergreen Museum & downtown McMinnville as specialty destinations. The*

⁸⁰ McMinnville Three Mile Lane Area Plan: Market Analysis, Leland Consulting Group, April 2019.

⁸¹ Based on analysis of 2017 covered employment data from OED and population data from PSU.

⁸² Population standards for a regional center are included in sources such as the Urban Land Institute, *Shopping Center Development Handbook*, 1999. Minimum population size can vary by type of retail or service commercial business.

North Willamette Valley region—comprised of Yamhill-Carlton, Chehalem Mountains, McMinnville, Ribbon Ridge, Dundee Hills, and Eola-Amity Hills – has been identified with 503 wineries and 20,279 acres of grapes as of 2018.

In addition to recognition as the leading production area for Oregon’s wine industry, Yamhill County agricultural production adds to both local and visitor appeal. The area is known for quality fresh-to-market products including berries, nuts, milk, eggs, fruits and vegetables – and increasingly for custom/organic livestock production. Nursery crops, grass and legume seeds, Christmas trees, grain and hay add to the diversity of Yamhill County agricultural production – as the 6th leading county in terms of value of production in Oregon in 2017.⁸³

The Evergreen Air Museum attracted an estimated 88,400 visitors in 2018. With over 3 million annual visitors, the Spirit Mountain Casino located 24 miles from downtown McMinnville is widely cited as one of the top visitor draws in the state.⁸⁴

McMinnville also is recognized statewide for its remarkable comeback and current vitality of its historic downtown core area. Promoted as “Oregon’s favorite main street,” the McMinnville Downtown Association characterizes the appeal of downtown in these terms:

“Quaint boutiques, unique shops, and local galleries abound. Music fills the air from our farmers’ market performers and outdoor concerts all summer long, and pours out of our restaurants and pubs on winter evenings.”⁸⁵

Disadvantages:

- *Retail sales leakage occurring due to lack of major comparison retail.* As described by the Three Mile Lane market analysis, there is a considerable retail sales leakage of an estimated \$208 million annually throughout the McMinnville Market Area. Factoring in household growth projections, the market analysis forecasts demand for an additional 539,000 square feet of retail development in the McMinnville market area over the coming decade, with 150,000 square feet (or about 28%) being captured in the Three Mile Lane area.⁸⁶

Sites in the McMinnville UGB offer the potential to serve a local and regional market extending to Sheridan/Willamina, Polk County and even some coastal communities – with improved opportunity to serve the Newberg-Dundee area as a result of the recently completed bypass construction. Centrally located sites with good highway access and street visibility can be instrumental to attract commercial businesses that may require market areas of 50,000-100,000+ population.

⁸³ U.S. Census of Agriculture. Yamhill County Profile. 2017.

⁸⁴ As cited by Memorandum #2, Market Study Current Conditions, prepared as part of Northeast Gateway Plan by Leland Consulting Group for the City of McMinnville, May 23, 2011.

⁸⁵ As cited by www.downtownmcminnville.com, as of September 2012.

⁸⁶ McMinnville Three Mile Lane Area Plan: Market Analysis, Leland Consulting Group, April 2019.

- *Need for additional value-added opportunities for visitors.* A key challenge for the future is to provide more and better value-added opportunities for visitors to spend more time and money while visiting the McMinnville area.

Also, the 2019 *Willamette Valley Winery Association Visitor Profile Study* reported that about 53.8% of domestic visitors to the area are non-Oregon residents. Survey respondents noted difficulty of travel to the Willamette Valley as a key factor in not returning to the area. The study also stated that the typical Oregon resident wine tourist spends about \$151.63 per person per day, while the typical non-Oregon resident spends about \$416.43 per person per day.

Note: The 2013 EOA noted the following disadvantage at that time:

“Limited duration of tourism visitation & low expenditure capture. While the McMinnville area and Yamhill County can now boast some of the state’s top tourism attractions, visitor spending does not appear to match visitation. This is because visitors tend not to stay overnight (but are often day visitors) and do not appear to be making substantial expenditures while in the area.”

This has changed substantially. Visit McMinnville reports that visitor spending in Yamhill County has doubled in the last ten years. Lodging statistics in McMinnville are up across the board, including demand, rate, length of stay, occupancy, revenue, and number of properties & inventory of rooms.

Availability of Transportation Facilities for Access & Mobility. Location, size and buying power of markets are substantially affected by current and planned transportation facilities. This is particularly the case in Yamhill County which increasingly has experienced the negative economic development effects of highway congestion on the 99W corridor. However, completion of Phase 1 of the Newberg-Dundee Bypass in January of 2018 has partially reduced congestion, especially for local residents of the region.

Economic development opportunities may be substantially enhanced with further plans for transportation improvements—as with the second phase of the Newberg-Dundee bypass, which is currently in its design phase. A broader look at the role transportation plays in shaping McMinnville’s economic opportunities is outlined as follows.

Advantages:

- *Western & mid-valley cross-roads.* McMinnville is directly served by Highway 99W – as a historically significant central organizing spine to access commercial and industrial businesses throughout the community. Highway 18 has come to play an increasingly important role, not only as a by-pass route for through traffic traveling between the Oregon coast and the Portland metro area but also as a means of accessing more local and regional employment/institutional uses as well as the McMinnville airport. While not directly in McMinnville, Highway 22 (via 99W) provides access to Salem and to Interstate 5 (within approximately 30 miles).

- *Changing traffic patterns.* While serving as one indicator of overall economic activity, this is of particular importance for retail and service businesses as well as tourism oriented destinations reliant on high traffic counts. As of 2018, an estimated 22,900 vehicles per day traveled Highway 18 in the vicinity of the McMinnville airport – an increase of 44% over 2005 counts.⁸⁷

On Highway 99W, up to an estimated 21,900 vehicles traveled daily through McMinnville in 2018, (representing an increase in 99W in-town traffic with 18,900 vehicles in 2013).⁸⁸

- *Air and rail accessibility.* As a general aviation airport, McMinnville Municipal Airport has the capacity to handle corporate jet aircraft – together with availability of aircraft rentals, flight instruction, aircraft maintenance, and fuel. The Portland International Airport (PDX) is located 36 miles from McMinnville, offering daily direct flights with passenger and freight service to Asia, Europe, and Mexico as well as cities throughout the U.S.

The Willamette and Pacific Railroad maintains freight service to McMinnville industrial users. This short-line carrier connects to the Burlington Northern Santa Fe and Union Pacific carriers for transcontinental shipments to and from McMinnville.

Disadvantages:

- *Poor linkages to Interstate freeway access.* Congestion on the 99W corridor in the area of Dundee and further north is cited as a disincentive to business investment from existing and prospective new firms in documents including the 2019 *MAC-Town 2032 Economic Development Strategic Plan*. Of particular concern is the approximate 30-mile distance from McMinnville to the Interstate 5 corridor, exacerbated by substantial congestion affecting connecting routes during much of the business day, especially for the segment of the 99W corridor extending from the Highway 18 merge north of McMinnville through Newberg. The *MAC-Town 2032 Economic Development Strategic Plan* notes that the development of the Highway 99 bypass will likely “improve access to McMinnville.”
- *Challenging Air & Rail Service.* While the distance to PDX for scheduled air service is less than 50 miles, regional roadway congestion makes travel times unpredictable during business hours and about half this distance from McMinnville occurs on two-lane roadways. With increasing regional traffic congestion, access to Portland International Airport is ever more problematic both for freight shippers and employees who must travel for their jobs.

As described by the 2001 EOA, “lack of convenient and efficient access to Portland International Airport was one factor cited by Hewlett-Packard in its decision to leave McMinnville, and it may discourage other existing or prospective firms from expanding

⁸⁷ Annual Average Daily Traffic counts (point near McMinnville Airport). Oregon Department of Transportation. <https://gis.odot.state.or.us/transgis/>

⁸⁸ Annual Average Daily Traffic counts (point near McMinnville High School). Oregon Department of Transportation. <https://gis.odot.state.or.us/transgis/>

or locating in McMinnville.” Also noted is that rail traffic bound for Portland has been routed south, then north, due to the unsuitability of existing trackage north of McMinnville.

The Oregon Department of Transportation (ODOT) completed construction of Phase 1 of the Newberg-Dundee Bypass and has proceeded into the design phase for Phase 2, which will affect economic opportunities in the coming years. Per the fact sheet associated with Phase 1 of the Bypass project, congestion was reduced by approximately 20% in downtown Newberg and by 40% in downtown Dundee. Freight traffic was also reduced by approximately 45% in Newberg and 68% in Dundee. These congestion reductions have the added benefit of increasing safety on 99W and simultaneously diminishing travel time during peak commute periods.⁸⁹ The Phase 2 improvement (currently in a design phase) is expected to have the effect of further reducing travel times on the 99W corridor north of McMinnville to Newberg via an extension of the Phase 1 Bypass.

Public-Private Facilities, Services & Environmental Factors. This discussion combines related items of OAR 660-009-0015(4) as related to public facilities and public services, access to suppliers and utilities, necessary support services, and environmental limitations. This is due to the inter-connected roles of these factors in affecting overall economic activity for both industrial and commercial business activities.

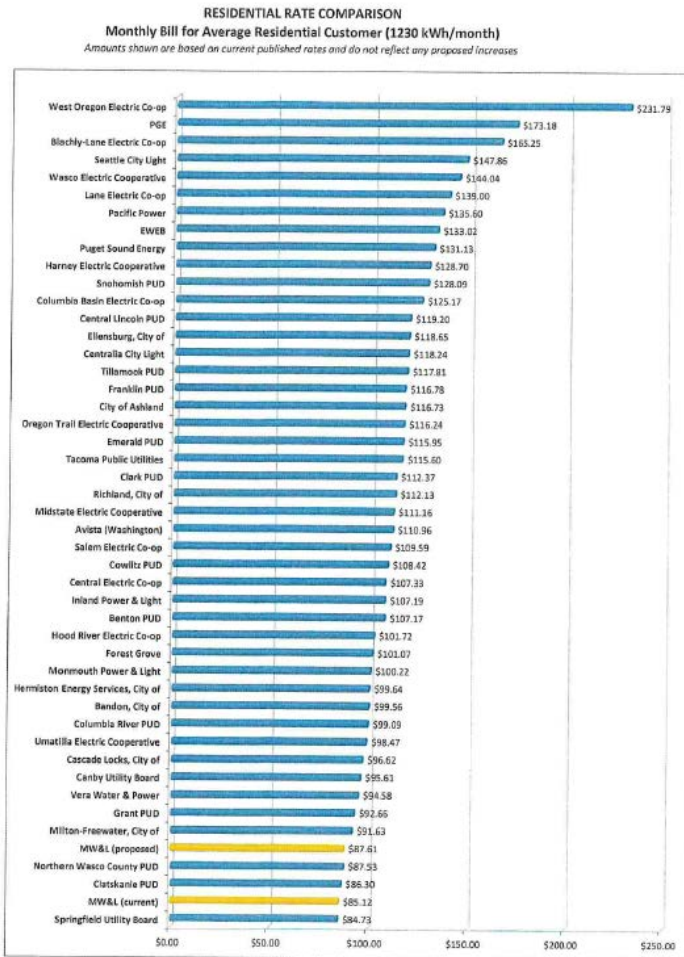
The availability and cost of both public and private support services can affect the costs of living or doing business in McMinnville. Environmental factors can similarly serve to constrain or, in some cases, benefit economic development investments. A firm’s location decision may reflect consideration of the comparative value versus cost of doing business in McMinnville or other potentially viable locations in Oregon or elsewhere.

Advantages:

- *Low public utility rates.* McMinnville is recognized as offering low electricity and water rates compared with other public and private utilities region-wide and statewide (Exhibit 34). The public utility provider, McMinnville Water and Light (MW&L), was founded in 1889 and continues to provide low cost, reliable water and power services.

⁸⁹ Oregon Department of Transportation. 2014. *Newberg-Dundee Bypass Project*. Retrieved from: <http://oregonjta.org/region2/files/highway99w/docs/overall-fact-sheet-for-web-dec-2014.pdf>

Exhibit 34. Residential Rate Comparison for Oregon Utility Services



Source: McMinnville Water and Light.

- Water & sewer capacity for growth.**
 - Water supply and water rights.* Water supply is from the Yamhill and Nestucca River basins. In 2005, MW&L completed expansion of McGuire Reservoir, more than doubling reservoir capacity, providing ample water supply through at least 2025. Beyond 2025, MW&L has sufficient capacity for water rights and supply to meet needs through at least 2075. This will address needs for the City's 20-year planning horizon of 2041 and the longer 2067 planning horizon.
 - Treatment capacity.* In 2010, MW&L completed expansion of the Water Treatment Plant (WTP). This increased capacity from 13 MGD to 22 MGD. The WTP can be expanded from the current 22 MGD to a maximum of 30 MGD. MW&L's 2010 master plan projects that this will provide treatment capacity through 2045. This addresses needs through the City's 20-year planning horizon through 2041, and MW&L can either expand treatment capacity at this location or supplement with new treatment capacity from the new intake on the Willamette to meet needs beyond 2045 through the 2067 planning horizon.

- *Long-Term Water Supply.* Previously noted as a disadvantage in the 2013 EOA, recent actions have turned long-term water supply into an advantage. While recent expansions to McGuire Reservoir are expected to provide ample supply through about 2025, actions are also being undertaken to address longer-term needs. A 2008 Yamhill County Water Supply Analysis concluded that most providers in Yamhill County have adequate water rights to meet projected maximum day demands to 2050; exceptions are noted for Dayton, Lafayette, McMinnville Water and Light (MWL), and Yamhill. As a result, MWL is partnering with the Cities of Carlton, Dayton and Lafayette in an application to the state to secure a water permit to the Willamette River as a potential second municipal source. In addition, this will provide McMinnville with a secondary source, as well as adequate supply and water rights through 2075.

In 2011, the Yamhill Regional Water Authority (YRWA) acquired a water right on the Willamette River with a 2011 priority date. In 2016, MW&L acquired an additional right with a priority date of 1982. In 2017, MW&L purchased a site on the Willamette River for a future intake and pump station. In 2018, MW&L procured the services of Carrollo Engineering to verify that the site would support facilities for a 50 MGD intake and pump station. In 2019, MW&L signed an agreement to supply water to the City of Lafayette. Engineering Design of the inter-tie is underway with construction in 2020. Tentative plans are to start supplying Lafayette with water in the summer of 2020. In 2020, MWL anticipates acquiring an additional senior water right from the Willamette for 4.8 MGD. For McMinnville, this means there will be adequate supply and water rights to meet needs through at least 2075.

- *Internet Services.* In the 2019 strategic plan, goal 1.4.3, which is to "identify and complete high-priority infrastructure projects that serve McMinnville's current and future business community," details a potential project where City staff will evaluate a 10GB fiber network with local Internet Service Provider, Online Northwest.
- *Local business entrepreneurship – with a record of technological innovation.* Focus groups conducted in 2007 for the MEDP strategic economic development plan coupled with interviews for the Marion-Polk-Yamhill County regional economic development strategy have pointed to this factor as a major distinctive strength of the mid-Willamette Valley region. The *MAC-Town 2032 Economic Development Strategic Plan* dedicates one of its target sector goals to foster opportunities in technology and entrepreneurship. This goal is comprised of four strategies, which include making McMinnville a location for small- and medium-sized technology firms to relocate and grow, provide co-working and other work arrangements enabled by telecommunications technology, incubate new businesses and start-ups, and create new talent pipelines for tech-related occupations.⁹⁰

⁹⁰ City of McMinnville. *MAC-Town 2032: Economic Development Strategic Plan*. Retrieved from: <https://www.mcminnvilleoregon.gov/sp/page/mac-town-2032-economic-development-strategic-plan>

Perhaps less readily recognized is the diversity of other small manufacturing and industrial companies that serve global markets through technological innovation and astute market positioning. Examples range from area aerospace and metals component manufacturers to technology companies to wineries.

- *Comparative property tax rates.* While the significance of property and other taxes to business investment decisions is debated nationally and regionally, there is no question that McMinnville’s relative tax burden has changed appreciably in a more favorable direction in recent years.
- *Economic development assistance.* A public services advantage noted with the 2001 EOA is the presence of the McMinnville Downtown Association, providing economic development assistance for businesses locating or expanding in the historic downtown. Since its formation in 1976, the association has been recognized for successful downtown revitalization and leadership among Oregon Main Street communities. Formed in 2006, the public-private organization, McMinnville Economic Development Partnership (MEDP), continues to serve as a single point of contact for economic development assistance for industrial and other firms throughout the McMinnville community. Further, the 2019 *MAC-Town 2032 Economic Development Strategic Plan* identified a “positive business climate perceptions and a sense of civic leadership” as a strength in McMinnville.

Disadvantages:

- *Environmental Effects on Land Supply.* The City of McMinnville has identified lands in steep slopes (of 15% or greater), floodplains, and wetlands identified in the National Wetlands Inventory (NWI) as environmental constraints. Lands with any of these characteristics are considered as constrained or unbuildable and have been deducted from lands identified as available whether vacant or partially vacant.

Labor Market Factors (including Training). This discussion combines two factors listed by OAR 660-009-0015(4) – notably items (d) labor market factors and (h) education and technical training programs – due to their mutual interdependence.

The availability of adequate, qualified labor is critical for economic development. This labor force is not limited to local McMinnville residents as local firms can draw workers from surrounding communities situated within a reasonable commute distance. Similarly, a portion of the McMinnville adult population may find employment in other communities – both nearby as well as extending into the Salem and Portland metro areas.

While direct information on the quality of the workforce is not always readily available, demographic characteristics that are typically used to indicate the quality of the labor force include age distribution, educational attainment, employment by occupation or industry, and race/ethnicity. Also of importance are opportunities for workforce training.

Advantages:

- *Favorable workforce demographics.* As detailed with the comparative demographic and economic data in Chapters 2 and 3 of this EOA update, factors conducive to adequacy of abundant labor supply in McMinnville include above average population growth rates, low median age of population, and high proportion of McMinnville residents who are able to find work locally. A well-represented Latino population also offers advantages for businesses that benefit from greater cultural diversity in accessing customers in a more diverse marketplace both regionally and nationally.
- *Ability to access much larger metro area workforce pool.* With an in-city labor pool of over 15,000, McMinnville employers have ready access to a countywide labor market of nearly 50,000. For some specialty positions in which the local market may not have adequate depth, there is an even larger regional Mid-Valley labor pool on which to draw – much of which is located within a 20-40 mile drive from McMinnville. However, employers have noted the immediately available labor pool in McMinnville as an issue.
- *Moderate local & countywide unemployment.* The 2013 EOA noted that McMinnville unemployment in McMinnville (in 2010) was 9.3%—above the U.S. rate of 9.0% and below the statewide rate of 10.4%. Comparatively, unemployment has improved since the recession. In 2018, the unemployment rate in Yamhill County was 3.8%.
- *The Linfield/Chemeketa Community College connection.* As a top-ranked U.S. News & World Report college in the western U.S., Linfield College has established a west coast if not national reputation for academic excellence and value. In December 2019, Linfield was ranked #117 among national liberal arts colleges by the national magazine U.S. News & World Report.⁹¹ A question for the future may be how best to leverage this reputation for greater community and economic benefit.

The Chemeketa Community College – Yamhill Campus offers increasing opportunity for linkages with economic development, particularly through workforce training targeted to the needs of local employers. Another example of a partnership opportunity would be the creation of an entrepreneurship program – marketed cooperatively to area businesses. The Yamhill Valley Campus was expanded to a new location directly adjacent to the Highway 18 corridor in 2011.

- *Workforce training resources.* Workforce recruitment programs are available through the McMinnville WorkSource Center (Oregon’s public workforce system), Express Employment Professionals, and the Oregon Employment Department. For young professionals, career centers at Linfield College, Chemeketa Community College (Yamhill Valley Campus), George Fox University, Portland Community College (Newberg), and McMinnville High School, provide support for improving skills and

⁹¹ U.S. News. *Best Colleges Rankings*. Linfield College, 900 S.E. Baker St., McMinnville, OR. Rank information retrieved on December 19, 2019 from: <https://www.usnews.com/best-colleges/linfield-college-3198>

connecting them with businesses in the broader Yamhill County region.⁹² Additionally, the MDEP operates a summer internship program named McMinnville WORKS, which assists in connecting local businesses with talented collegiate youth.⁹³

Disadvantages:

- The most significant labor force disadvantage is indicated by relatively low rates of college graduates. Only 24% of McMinnville adults have college degrees, compared to 25% in Yamhill County and 32% in Oregon, according to 2013-2017 ACS 5-year estimates.
- A related disadvantage may lie with relatively high proportions of service workers – as compared with the entire county, Mid-Valley region, entire state and U.S. This is one reason that McMinnville household incomes are also below those of the comparison geographies.

However, in some cases this available labor force will constitute a comparative advantage for firms that depend on service occupations. This is especially the case if local work force skills can also be enhanced over time to allow for improved wages and career options.

Other Factors. In addition to the factors identified in conjunction with OAR 660-009-0015(4), there are other factors of importance specifically to the McMinnville community. These relate to local demographics and also land availability. Key advantages and disadvantages as noted from this and other similar analyses pertinent to McMinnville are outlined below.

Advantages:

- *Diverse industry mix.* McMinnville has a relatively diverse mix of industry for a community its size, a factor noted by the 2001 EOA. This diverse employment base is attributed, in part, to the actions of McMinnville Economic Development Partnership (MEDP). Also noted by the 2001 EOA, the 2007 MEDP Strategic Plan, and more recently in the 2019 *MAC-Town 2032 Economic Development Strategic Plan*, is that the local diversity of employment is due in part to the perceived quality of life in McMinnville. This factor is important to attracting businesses and entrepreneurs seeking quality communities for themselves and their employees.
- *A relatively young & diverse population – with increased Latino presence.* Median age of McMinnville residents is three years less than that of the entire state of Oregon. Higher proportions of residents are found locally for all age cohorts from childhood to young adults (to age 39). Companies looking for youthful workforce can find it in McMinnville.

⁹² McMinnville Economic Development Partnership (MDEP), Find Your Workforce. <https://www.mcminnvillebusiness.com/workforce>

⁹³ MDEP, The McMinnville WORKS Summer Internship Program. <https://www.mcminnvillebusiness.com/mcminnville-works-internship-program>

McMinnville is at the leading edge of Oregon's population transformation. The community's Latino population increased from less than 15% of the city-wide total in 2000 to 22% in 2013-2017 (well above the statewide proportion of 13%). Throughout the entire mid-Willamette Valley region as well as statewide, the Hispanic/Latino population is expected to represent an increasingly important component of the next generation of workers and of customers for commercial services. McMinnville has an opportunity to lead the way – providing new career options for Latino workers and business development options for Hispanic-owned businesses.

- *Small-town residential charm including a walkable downtown.* While quality of life is often considered difficult to quantitatively assess, perceptions of quality of life relative to other communities can affect business location and expansion decisions. This is especially the case for entrepreneurial and other individually owned, non-corporate enterprises.

The 2018 Economic Development Strategic Plan's mission states, "Businesses leverage local and regional talent pipelines while attracting new employees and residents who value McMinnville's high quality of life... As we evolve, we prize our small-town roots and we maintain McMinnville's character."⁹⁴ As described by the website of the McMinnville Area Chamber of Commerce, "McMinnville is located in the western portion of Oregon's agriculturally rich Willamette Valley on U.S. Highway 99W."

The quiet, friendly city enjoys a central location to Pacific Ocean beaches (50 miles), the big city (Portland - 30 miles to the northeast), and the state capitol (Salem - 25 miles southeast), with an easy scenic drive to Mt. Hood and other ski areas. "McMinnville offers small-town charm in a full-service city."⁹⁵

- *Adequacy of buildable industrial land.* The previous EOA process concluded that the McMinnville UGB had a surplus of buildable industrial land during a 20-year planning period. The 2020 EOA update shows that McMinnville continues to have a surplus of industrial land, with 323 unconstrained buildable industrial acres. About 266 of those acres are on lots greater than 10 acres. Further discussion of the industrial land supply and forecast is provided with Chapter 5 of this report.

Disadvantages:

- *Restricted population growth.* Since 2000, population has been increasing somewhat more rapidly than the state, but at an approximate 1.4% per year average rate. In the past, City services have been able to match without experiencing major fiscal issues. However, continued population growth at a somewhat reduced coordinated population growth rate averaging about 1.2% per year is now forecast through 2067. Constrained land supply is restricting growth and the cost of services is increasing faster than increases in assessed values.

⁹⁴ MAC-Town 2032 Economic Development Strategic Plan. 2019. p.10.

⁹⁵ Cited from www.mcminnville.org, as of September 2012.

- *Vulnerability to eroding incomes & standard of living.* As of 2013-2017, median household incomes for McMinnville are 14% below Yamhill County and 10% below statewide medians. Average wages for the McMinnville UGB are comparable to Yamhill County but below comparable regional, statewide and national figures.

As is occurring statewide and nationally, wages are now accounting for less than a 50% share of total personal income. Yamhill County residents also are more dependent on transfer payments than is the case regionally or nationally.

Future prosperity may be jeopardized to the extent that non-wage sources of income are subject to changing federal policies and the status of national/global investment markets – combined with social service needs for those dependent on transfer payments. Improving the ratio of wage to non-wage income will be influenced directly through the combination of providing more jobs and better paying job opportunities locally.

- *Tentative integration of Latino population into community & business leadership.* As noted with the 2007 MEDP Strategic Plan, in many communities with rapidly growing Hispanic populations, it has proven challenging to effectively draw Latinos into positions of community leadership and business ownership. The result can be lost opportunity for Latino business patronage and a more dynamic cultural environment that draws new blood, new ideas and new investment. A foundational strategy in the *MAC-Town 2032 Economic Development Strategic Plan* is to “improve systems for economic mobility and inclusion,” with emphasis on training, resources, and support for underrepresented entrepreneurs and workers.
- *Inadequacy of commercial buildable land.* The 2001/03 and 2013 EOA processes all concluded that the McMinnville UGB would experience a deficit of buildable commercial land over a 20-year time horizon. The 2013 EOA resulted in a 36-acre deficit for the 2013 to 2033 planning period, while the results in Chapter 5 show a 179-acre deficit of commercial land for the 2021 to 2041 planning period.

McMinnville's Strengths, Weaknesses, Opportunities, and Threats

As part of the *MAC-Town 2032 Economic Development Strategic Plan*, McMinnville community members completed a SWOT analysis for economic development in McMinnville. It describes McMinnville's Strengths, Weaknesses, Opportunities, and Threats.

<p>Strengths</p> <ul style="list-style-type: none"> • High quality of life to boast about and attract investment • Strong, widely-recognized downtown • Robust wine and tourism economy, as well as cultural (e.g. Air and Space Museum) and recreational amenities that bring visitors • Well known regionally and nationally as a destination for wine and food, with some supporting tourist assets • Balanced employment across industry sectors • Presence and involvement of postsecondary educational institutions (Linfield College and Chemeketa Community College) • Location advantages: <ul style="list-style-type: none"> • Good location in proximity to major metro area • High quality soils in surrounding areas, climate suited for agriculture • Natural environment assets nearby, including Yamhill River, access to the ocean and mountains • Inexpensive power and water, with sustainable sources • Major infrastructure assets: major highways, freight rail, airport • Various parks and recreational assets • Positive business climate perceptions and a sense of civic leadership 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Relatively low educational attainment • A limited labor pool for local companies and those looking to relocate • Difficult access to and from I-5 and no near-term possibility of a more direct connection • End-of-the-line location for wine country visitors coming from the Portland area • Lack of housing options • Low levels of professional and office-using employment • Comparatively high poverty rates and low median household income
<p>Opportunities</p> <ul style="list-style-type: none"> • Proximity to Portland allows McMinnville to capitalize on urban infrastructure and amenities • Local airport has comparative advantages over other regional airports • Highway 99 bypass : future completion will improve access to McMinnville • A stronger framework for regional collaboration , improved opportunity in surrounding communities • Opportunity sites for new downtown development • New housing development – higher density , diversity of types, live live-work units • Improved connections to the University of Oregon and Oregon State University • Stronger branding and improved gateways into McMinnville • Innovation in agriculture and food systems <ul style="list-style-type: none"> • Wine -oriented makerspace • Food hub • \$6M gift to Linfield College's wine program • Expanded culinary and craft beverage retail offerings 	<p>Threats</p> <ul style="list-style-type: none"> • Limited land availability for residential, commercial and industrial development • Regulatory challenges associated with UGB expansion • Worsening housing affordability • Brain drain due to local graduates leaving for other job markets • Absorption of projected growth without detrimental impacts to character, congestion, affordability • Future oversaturation of wine/tourism and increasing concentration of low-wage service industry jobs • Need to find a sustainable solution to homelessness • Future impacts of climate change on agriculture and related industries, including tourism

Target Industries

The characteristics of McMinnville will affect the types of businesses most likely to locate in the city. McMinnville's attributes that may attract firms are: McMinnville's access to land and resources; recreational opportunities; and quality of life.

2013 Updated Cluster Targets

The 2013 EOA recommended a short list of cluster target industries, described as:

- **Advanced Manufacturing.** Corresponds to an industry cluster pivotal to the Oregon Business Plan and Business Oregon (the Business Development Department). In McMinnville, this cluster is exemplified by major McMinnville employers including Cascade Steel, Meggitt Polymers and Composites, NW Unmanned Aerial Systems, Betty Lou's, Inc., and Freelin-Wade Co. Also included are agricultural producers ranging from employers in the emerging breweries to small boutique wineries as in the Granary district which also serve to complement the Yamhill County Agri-Business Economic and Community Development Plan.
- **Healthcare/Traded Sector Services.** Aimed to facilitate continued competitiveness and future expansion of non-manufacturing businesses that serve area residents plus customers located beyond the immediate McMinnville/Yamhill County community. Willamette Valley Medical Center and associated health care facilities can be expected to continue to experience employment growth in the years ahead. Examples of traded sector service activities are diverse, ranging from Linfield College to Evergreen International Airlines to Oregon Mutual Insurance. Also included is a significant component of small firms as the export-focused portion of McMinnville's fast growing and entrepreneurial service business sector such as Precision Analytical, Hurst Berry Farms Corporate Headquarters, and NW Rapid Manufacturing.

MAC-Town 2032 Economic Development Strategic Plan Target Sectors

Furthermore, Goals 4-8 of the *MAC-Town 2032 Economic Development Strategic Plan* outline the "target sector goals and strategies," as well as potential tasks and projects, as follows:

- **4. Sustain and Innovate within Traditional Industry and Advanced Manufacturing**
 - 4.1 Ensure workforce availability in trades and other mid-skill positions.
 - Encourage expansion and allocate resources for middle, high school, and community and technical college programs that encourage career exploration and skills development in trades and mid-skill occupations
 - Convene a panel of business leaders from traditional industry and advanced manufacturing employers in McMinnville to pioneer a collaborative approach to expanding apprenticeships and volunteering employee time to teach in-demand skills to individuals evaluating trade-based careers.

- 4.2 Connect traditional industry and advanced manufacturing to innovation resources for sustainable growth.
 - Highlight industrial innovation in McMinnville through periodic events, posts and other marketing, connecting innovators through storytelling and innovation partnerships.
 - Plan and participate in an industrial innovation working group or recurring social event to facilitate idea sharing and cross-pollination among business leaders.
 - Connect business leaders with regional innovation resources through Business Oregon and other innovation-oriented organizations.
 - Consider an international sister city program to share innovative practices.
- 4.3 Expand and market land availability for industrial activities.
 - Promote and market the McMinnville Industrial Park as a target area for advanced manufacturing investment within Yamhill County.
 - Coordinate with McMinnville Industrial Promotion to ensure leadership succession and continued engagement.
- **5. Foster Opportunity in Technology and Entrepreneurship**
 - 5.1 Become a place where small and medium technology firms can relocate and grow.
 - Foster physical connections to existing tech and entrepreneurship hubs through low-cost air services.
 - Market McMinnville as a destination for young and aspiring employees to find opportunity in business, entrepreneurship, computer and software engineering and other programs in Oregon's post-secondary institutions.
 - Survey local "tech" employers to identify current regulatory shortcomings or infrastructural needs for business relocation and expansion.
 - Promote the concept of McMinnville's "tech terroir" to emphasize McMinnville's potential assets to entrepreneurs, business owners and others involved in tech-oriented occupations.
 - Explore opportunities to improve connections to and otherwise better leverage McMinnville's dark fiber ring for business use.
 - Hire an innovation officer and/or complete a comprehensive strategy around smart cities and innovation in urban sustainability.
 - Create an "Invest in the Future" grant program that is targeted towards private investment and business development with living wage job outcomes.

- 5.2 Provide opportunities for co-working, teleworking, and other arrangements enabled by telecommunications technology.
 - Collaborate to develop a coworking space to foster entrepreneurship, innovation and to enable convenient telecommuting to regional employers in Portland or elsewhere. Explore unique partnership opportunities for cooperative or pop-up telecommuting spaces.
- 5.3 Incubate new businesses and start-ups.
 - Maintain a list of funding sources for start-up and expansion grants for locally-owned businesses.
 - Coordinate with partners to improve access to funding and resources available through local foundations, non-profits and other funders in McMinnville to empower local capacity-building efforts.
 - Study the feasibility of aggregators or cooperatives to efficiently distribute locally-made products from McMinnville businesses to larger metropolitan markets.
- 5.4 Create new talent pipelines for tech-related occupations.
 - Connect business leaders with interested local educators to develop extracurricular activities and to improve current curricula and align education and training with emerging employer needs.
 - Cultivate relationships with post-secondary institutions to ensure awareness of job opportunities in McMinnville, and ensure that McMinnville job opportunities are represented on school job boards, in job fairs, and other promotional events.
- **6. Be a Leader in Hospitality and Place-Based Tourism**
 - 6.1 Make downtown the best it can be.
 - Evaluate current zoning, historical districts and designations, and existing land use patterns, including underutilized parcels, to ensure that key downtown parcels offer the highest and best use for their location.
 - Communicate with County officials to explore the potential for a purpose-built County facility, outside of downtown, that includes a courthouse, commissioners offices, and clerks office.
 - Continue to evaluate new downtown events to diversify downtown events and activities and publicize emerging retailers or other non-retail organizations.
 - Evaluate the feasibility of improving or expanding the provision of public restrooms in the downtown area.
 - 6.2 Become the preferred destination for wine-related tourism.

- Collaborate to expand marketing of McMinnville and Yamhill Valley products and to improve national and international recognition of local wine.
 - Connect hoteliers and other hospitality professionals in Oregon and elsewhere to local opportunities for high-quality additions to McMinnville’s current hospitality offerings.
 - Collaborate with Travel Oregon to host a tourism workshop for McMinnville business owners to establish and leverage competitive advantages of over similar regional offerings.
 - Leverage Linfield’s wine studies program to identify opportunities to increase visitation to the Willamette Valley region and to the viticultural areas immediately surrounding McMinnville
 - 6.3 Diversify tourism destinations beyond wine.
 - Create branded itineraries for a range of activities and distribute online and in hard copy throughout McMinnville and at local and regional airports to offer pre-planned adventures for visitors.
 - Optimize social media performance by continuing and expanding the use of hash tags, branded icons, slogans, and other techniques to highlight and encourage sharing of McMinnville-based experiences.
 - Conduct a feasibility study to identify the potential costs and economic and fiscal impacts of building an indoor sports complex for local recreation and regional event use.
 - Engage the Wings and Waves water park to identify and pursue opportunities for growth and expansion.
 - Become a national destination for bicycle tourism and other recreational and leisure activities.
 - 6.4 Market and promote McMinnville.
 - Develop and maintain robust relationships with Travel Oregon, and seek promotion opportunities accordingly.
 - Document and track the economic impact of tourism and outdoor recreation to Yamhill Valley communities.
 - Work with visit McMinnville and local hoteliers to identify gaps in available conference space and to establish a plan to expand McMinnville’s offerings for small and large conferences.
- **7. Align and Cultivate Opportunities in Craft Beverages and Food Systems**
 - 7.1 Maintain prominence in wine while looking for opportunities to innovate within supply chains, viticulture and production.

- Convene a technical assistance panel to identify new opportunities in urban wine-making and distribution and to establish a framework for collaboration and innovation in wine-making that best leverages public and private resources and identifies critical public/private partnerships.
 - Expand programming at IPNC to include a technical component for knowledge sharing between wine-makers and other professionals in viticulture and oenology.
 - Encourage collaborative research at Linfield and Chemeketa CC and facilitate connections between these schools and other viticulture programs nationally.
 - Proactively recruit beverage-makers that complement existing wineries and breweries, such as cideries and distilleries.
- 7.2 Locate higher job-density food and beverage activities within McMinnville.
- Ensure the sufficiency of regulations in applicable zones to accommodate urban wine-making and other non-retail aspects of the wine industry, including transportation and distribution.
 - Encourage further clustering of wine-oriented business in the Granary/Alpine District.
 - Contact wineries throughout the region to identify growth-oriented operations needing new or larger space, and target marketing and recruitment efforts accordingly.
 - Recruit food processing and production companies that offer synergies with wineries, such as charcuterie and cheese companies.
 - Coordinate with educational institutions to anticipate needs and ensure that McMinnville remains a hub for wine education while expanding culinary education and training locally
 - Hire an Agriculture Coordinator or Resource Officer to connect producers with resources and coordinate efforts to innovate within wine and agriculture.
 - Convene a group of wine-makers and entrepreneurs to evaluate the feasibility of a wine maker-space or similarly collaborative wine-making space for small producers, experimental products, or research.
 - Conduct a feasibility study and potentially complete a business plan for an integrated food hub and permanent, year-round farmer's market.
 - In partnership with other Oregon cities and counties, commission a study of value-added industry successes and best practices related to agriculture in western U.S. and Canadian communities.

- Liaise with researchers at OSU’s Small Farms Program and other similar agricultural programs throughout the state and the region.
 - Invite educators in the region to conduct research and teaching based in the Yamhill Valley, including possible distance learning and online college course options.
 - Explore opportunities for expanded agricultural production using hydroponics, aquaponics and other similar cultivation methods
- 7.4 Open new markets for local agricultural products.
 - Establish a branding and marketing program for local agricultural products, such as “Yamhill County Grown” or similar.
 - Develop and market a local Farm-to-Table program by connecting Yamhill Valley farmers with local restaurants.
 - Explore the potential for a cooperative distribution model to move McMinnville’s agricultural products to restaurants in the Portland metro.
- 7.5 Encourage a holistic approach to local food culture, improving connections to the local producers and cultivating a community of exceptional restaurants and culinary establishments.
 - Create a forum for local restaurateurs to connect with local agricultural producers and improve culinary offerings.
 - Work with stakeholders to establish a local demonstration or innovation kitchen that can be rented to test new recipes, host small events, or otherwise incubate local culinary endeavors.
 - Publicize local food offerings across all price levels through a branded guide to local cuisine, and distribute at and regional hotels, wineries, airports and other places frequented by travelers.
 - Partner on development of a “Farm-for-a-Day” agri-tourism program connecting local farming operations to paying guests.
 - Evaluate alignment of current food cart regulations with community goals.
- 7.6 Preserve natural assets while ensuring long-term stability in agricultural production.
 - Espouse an approach to environmental stewardship and encourage participation and support by local farmers for initiatives in keeping with this approach.
 - Establish and facilitate a business leadership group to identify solutions to sustainability challenges.

- Establish local resiliency infrastructure and training through programs like FEMA’s Community Emergency Response Teams (CERT) or other community-based models
- **8. Proactively Assist Growth in Education, Medicine and Other Sciences**
 - 8.1 Leverage institutional land assets and support planning for institutional growth and clustering.
 - Ensure that the Willamette Valley Medical Center can accommodate future growth through a master plan that includes supportive zoning, targeted capital improvements and other tools.
 - Use regulatory tools and constructive dialogue with businesses to encourage clustering of medical-professional uses near the Willamette Valley Medical Center and to create a regional anchor for health care.
 - Engage McMinnville’s large institutions in a dialogue about proactive planning for large and underutilized land assets.
 - Assess the desirability and potential feasibility of the creation of a “university district” or similar near one or more of McMinnville’s college campuses.
 - 8.2 Assist in recruitment and training to fill specific workforce needs.
 - Identify and fill gaps in education and training opportunities at local educational institutions for in-demand skills in “Eds and Meds” occupations.
 - Connect employers in education and health care to national skilled workforce pools through branding, recruitment, relocation incentives and other tools.
 - Explore public-private and other partnerships to improve amenities for students and employees, potentially including an expanded supply of student housing or housing appropriate for students on or near Linfield and Chemeketa campuses, and improved transportation to campuses and other institutions.
 - 8.3 Support the expansion of programmatic offerings at local institutions.
 - Work with Linfield College and Chemeketa CC to assess demand for education and training in health care and related services and to expand programming accordingly.
 - Engage Chemeketa CC leadership in a dialogue to explore the creation an on-site culinary and hospitality program.
 - Collaborate with leadership at the school district and at Linfield and Chemeketa to better engage Oregon’s four-year public universities.

- Connect local students with opportunities to work with OSU Extension, in labs or to participate in other UO and OSU programs prior to high school graduation.
- Explore the creation of an aviation education program that leverages McMinnville's existing infrastructure and workforce assets.
- Identify opportunities to bring programming offered at other Chemeketa Community College campuses to McMinnville, particular when serving established local industries.
- Foster R&D opportunities for existing and emerging industries.
- 8.4 Improve and expand connections between key institutions and the City of McMinnville.
 - Create safer and more intuitive physical connections to McMinnville from Linfield and Chemeketa, including better sidewalks, lighting and public transportation, particularly along Davis Street.
 - Proactively engage students in community events to improve dialogue between permanent residents and college attendees.

5. Forecast Employment and Land Needs

Goal 9 requires cities to prepare an estimate of the amount of commercial and industrial land that will be needed over a 20-year planning period. The estimate of employment land need and site characteristics for McMinnville is based on expected employment growth and the types of businesses that are likely to locate in McMinnville over the 5-, 10-, 20-, and 46-year periods. This chapter presents the buildable land inventory, analysis of target industries that build from recent economic trends, an employment forecast and associated land needs, and other land needs that aren't accounted for by the employment forecast.

EOA Update Process

The updated employment forecast and land needs estimates started with discussion of the assumptions used in the 2013 EOA. The project team conducted a detailed review of the 2013 assumptions and presented the assumptions, along with updated and new data to the Project Advisory Committee (PAC) for review and discussion during the September and October PAC meetings. The information generated considerable discussion at the PAC and ultimately resulted in PAC recommendations regarding the assumptions. The employment forecasts and land need estimates presented in this chapter reflect the PAC recommendations.

Buildable Lands Inventory

The buildable lands inventory is intended to identify commercial and industrial lands that are available for development for employment uses within the McMinnville UGB. The inventory is sometimes characterized as *supply* of land to accommodate anticipated employment growth. Population and employment growth drive *demand* for land. The amount of land needed depends on the type of development and other factors.

This chapter presents results of the commercial and industrial buildable lands inventory for the McMinnville UGB. The results are based on analyses of Yamhill County GIS property data and State of Oregon GIS employment data by ECONorthwest and reviewed by City staff. The remainder of this chapter summarizes key findings of the draft buildable lands inventory.

The general steps in the buildable lands inventory are:

1. Generate UGB "land base"
2. Classify lands by development status
3. Identify constraints
4. Verify inventory results
5. Tabulate and map results

A key step in the buildable lands analysis is to classify each tax lot into a set of mutually exclusive categories based on development status. For the purpose of this study, all commercial

and industrial tax lots in the UGB are classified into one of the following categories and based on a tax lot's status as of January 2019:

- *Vacant land.* Vacant land is defined as tax lots either (a) Equal to or larger than on half-acre not currently containing permanent buildings or improvements; or (b) Equal to or larger than five acres where less than one half-acre is occupied by permanent buildings or improvements. This is consistent with OAR 660-009-005(14).
- *Partially vacant land.* Partially vacant land is defined as tax lots between one and five acres occupied by a use that could still be further developed based on the zoning. The final determination of partially vacant land was based on a visual assessment of aerial imagery and City staff verification.
- *Developed land.* OAR 660-009-0005(1) defines developed land as “Non-vacant land that is likely to be redeveloped during the planning period.” Lands not classified as vacant, partially-vacant, or public or exempt are considered developed.
- *Public or exempt land.* Lands in public or semi-public ownership are considered unavailable for commercial or industrial development. This includes lands in Federal, State, County, or City ownership as well as lands owned by churches, institutions, and other semi-public organizations, and properties with conservation easements. Public lands were identified using the Yamhill County Assessment property tax exemption codes and City staff verification.

The next section provides a summary of the results of the commercial and industrial buildable lands inventory for the McMinnville UGB in both tabular and map formats. Appendix A presents the detailed methodology for developing the inventory.

Buildable Lands Inventory Results

Exhibit 35 summarizes all land included in the employment land base (e.g., lands with plan designations that allow employment) in the McMinnville UGB. ECONorthwest used this land base in the buildable lands inventory for McMinnville. The land base includes traditional employment designations within the McMinnville UGB, which includes about 1,388 acres in 958 tax lots in total.⁹⁶

Exhibit 35. Tax lots and total acres in employment land, McMinnville UGB, 2019

Source: ECONorthwest analysis of data from Yamhill County and City of McMinnville.

Zone/Plan Designation	Number of taxlots	Percent	Total taxlot acreage	Percent (total)
Commercial	708	74%	580	42%
C-1 Neighborhood Business	1	0%	1	0%
C-2 Travel Commercial	3	0%	13	1%
C-3 General Commercial	641	67%	487	35%
O-R Office Residential	58	6%	12	1%
Commercial Plan Des.	4	0%	54	4%
EF-80 (County Zone)	1	0%	13	1%
Industrial	250	26%	809	58%
M-1 Light Industrial	43	4%	74	5%
M-2 General Industrial	199	21%	594	43%
M-L Limited Light Industrial	2	0%	115	8%
Industrial Plan Des.	6	1%	25	2%
Total	958	100%	1,388	100%

Development Status

Exhibit 36 shows commercial and industrial land in McMinnville by development status. Of the 1,388 total acres, about 861 acres (62%) are in classifications with no development capacity (or, “committed acres”). Of the remaining 527 acres, 111 acres (8%) are constrained and 416 acres (30%) are buildable land with development capacity. Appendix A provides more detail about the constraints associated with employment land, as recommended by the PAC.

Exhibit 36. Employment acres by classification and plan designation, McMinnville UGB, 2019

Source: ECONorthwest analysis of data from Yamhill County and City of McMinnville.

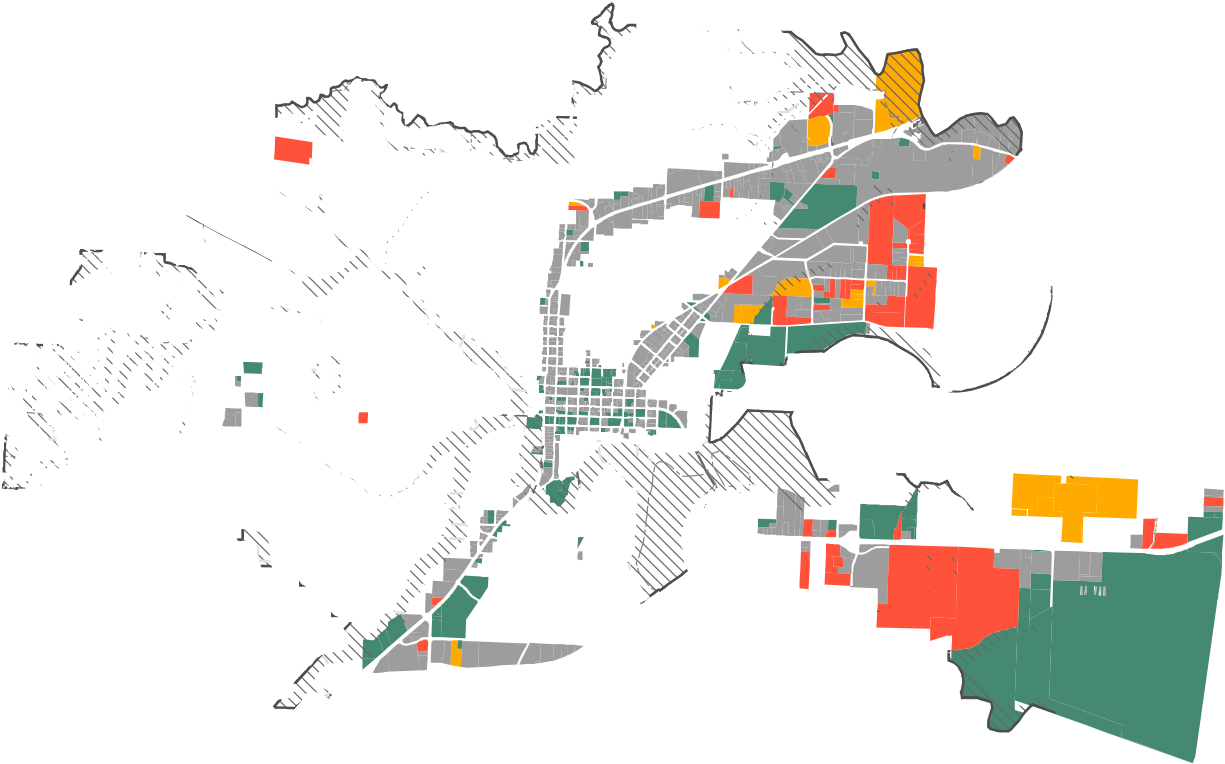
⁹⁶ Note: the 2013 EOA reported a total acreage that included land with a public or semi-public (i.e., institutional) use. Since the 2020 update accounted for public and semi-public land need separately, the resulting total acreage of employment land is lower.

Zone/Plan Designation	Total acres	Committed acres	Constrained acres	Buildable acres
Commercial	580	432	54	94
C-1 Neighborhood Business	1	1	0	-
C-2 Travel Commercial	13	0	-	12
C-3 General Commercial	487	418	6	63
O-R Office Residential	12	11	0	-
Commercial Plan Des.	54	1	48	5
EF-80 (County Zone)	13	-	-	13
Industrial	809	429	57	323
M-1 Light Industrial	74	55	5	14
M-2 General Industrial	594	347	26	221
M-L Limited Light Industrial	115	25	3	88
Industrial Plan Des.	25	2	22	-
Total	1,388	861	111	416

Draft

Exhibit 37. Employment land by classification with development constraints, McMinnville UGB, 2019

Status



Vacant Buildable Land

The next step in the commercial and industrial buildable land inventory was to net out portions of vacant tax lots that are unsuitable for development. Areas unsuitable for development fall into three categories: (1) developed areas of partially vacant tax lots, (2) areas with service constraints, (3) areas with physical constraints (areas with wetlands, floodways, floodplain, and steep slopes as summarized in Appendix A).

Exhibit 38 shows unconstrained buildable acres for vacant and partially vacant land by zone (or plan designation). The results show that McMinnville has about 416 unconstrained buildable acres in commercial and industrial designations. Of this, 22% (94 acres) is in commercial designations, and 78% (323 acres) is in industrial designations.

Also, in McMinnville, it is common that development applications include approvals for “Planned Developments” which may modify the underlying zoning regulations, and may include an associated master plan for a property. Permitted uses in zoning districts may be amended to include other uses on a portion of the property, or certain uses otherwise permitted in the underlying zoning may be precluded by the Planned Development overlay regulations. For example, while the Evergreen property is zoned C-3 General Commercial, it is subject to a Planned Development overlay that restricts uses to certain tourism-related uses.

Exhibit 38. Employment land with unconstrained development capacity (vacant and partially vacant) by plan designation, McMinnville UGB, 2019

Source: ECONorthwest analysis of data from Yamhill County and City of McMinnville.

Zone/Plan Designation	Total buildable acres	Buildable acres on vacant lots	Buildable acres on partially vacant
Commercial	94	60	33
C-1 Neighborhood Business	-	-	-
C-2 Travel Commercial	12	12	-
C-3 General Commercial	63	35	28
O-R Office Residential	-	-	-
Commercial Plan Des.	5	-	5
EF-80 (County Zone)	13	13	-
Industrial	323	305	17
M-1 Light Industrial	14	12	2
M-2 General Industrial	221	206	15
M-L Limited Light Industrial	88	88	-
Industrial Plan Des.	-	-	-
Total	416	366	50

Exhibit 39 shows the size of lots by plan designations for buildable employment land. McMinnville has 18 lots between 0.5 and 1 acres (12.7 acres of land), 34 lots between 1 and 5 acres in size (72.4 acres of land), 10 lots between 5 and 10 acres in size (64.6 acres of land), 3 lots between 10 and 20 acres in size (39.9 acres), and 4 lots over 20 acres in size (226.7 acres of land).

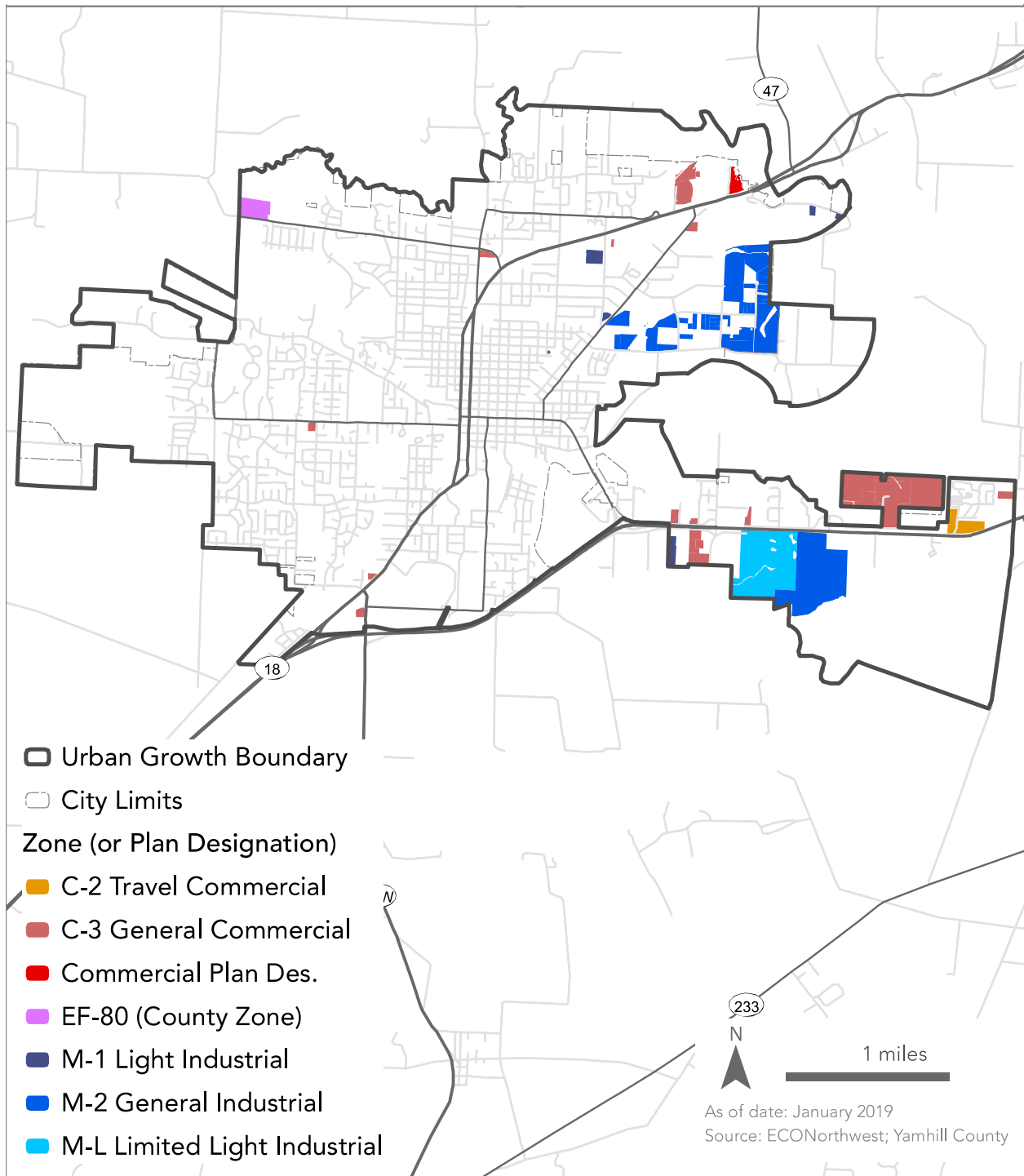
Exhibit 39. Lot size by plan designation, buildable acres, McMinnville UGB, 2019

	Buildable acres in taxlots								Total
	<0.50 acre	0.50-0.99 acres	1.00-1.99 acres	2.00-4.99 acres	5.00-9.99 acres	10.00- 19.99 acres	20.00- 49.99 acres	50.00+ acres	
Buildable acres on partially vacant tax lots									
<i>Commercial</i>	0.4	0.8	1.5	4.5	13.8	12.1	-	-	33
C-3 General Commercial	0.4	0.8	1.5	4.5	8.8	12.1	-	-	28
Commercial Plan Des.	-	-	-	-	5.0	-	-	-	5
<i>Industrial</i>	0.5	3.5	5.0	8.1	-	-	-	-	17
M-1 Light Industrial	0.1	-	2.3	-	-	-	-	-	2
M-2 General Industrial	0.4	3.5	2.7	8.1	-	-	-	-	15
Buildable acres on vacant tax lots									
<i>Commercial</i>	-	2.0	7.5	24.6	12.9	13.5	-	-	60
C-2 Travel Commercial	-	-	-	5.0	7.2	-	-	-	12
C-3 General Commercial	-	2.0	7.5	19.7	5.6	-	-	-	35
EF-80 (County Zone)	-	-	-	-	-	13.5	-	-	13
<i>Industrial</i>	-	5.4	15.8	5.3	37.9	14.4	49.5	177.1	305
M-1 Light Industrial	-	1.0	-	-	10.9	-	-	-	12
M-2 General Industrial	-	4.4	15.8	5.3	27.0	14.4	49.5	89.6	206
M-L Limited Light Industrial	-	-	-	-	-	-	-	87.5	88
Acreage subtotal	0.9	11.8	29.8	42.6	64.6	39.9	49.5	177.1	416
Number of partially vacant taxlots with buildable acreage									
<i>Commercial</i>	1	1	1	1	2	1	-	-	7
C-3 General Commercial	1	1	1	1	1	1	-	-	6
Commercial Plan Des.	-	-	-	-	1	-	-	-	1
<i>Industrial</i>	2	5	4	2	-	-	-	-	13
M-1 Light Industrial	1	-	2	-	-	-	-	-	3
M-2 General Industrial	1	5	2	2	-	-	-	-	10
Number of vacant taxlots with buildable acreage									
<i>Commercial</i>	-	3	5	8	2	1	-	-	19
C-2 Travel Commercial	-	-	-	1	1	-	-	-	2
C-3 General Commercial	-	3	5	7	1	-	-	-	16
EF-80 (County Zone)	-	-	-	-	-	1	-	-	1
<i>Industrial</i>	-	6	11	2	6	1	2	2	30
M-1 Light Industrial	-	1	-	-	2	-	-	-	3
M-2 General Industrial	-	5	11	2	4	1	2	1	26
M-L Limited Light Industrial	-	-	-	-	-	-	-	1	1
Lot subtotal	3	15	21	13	10	3	2	2	69

Source: ECONorthwest analysis of data from Yamhill County and City of McMinnville.

Buildable Lands Inventory

Vacant and Partially Vacant Commercial and Industrial Land



Forecast of Employment Growth and Commercial and Industrial Land Demand

Demand for industrial and commercial land will be driven by the expansion and relocation of existing businesses and by the growth of new businesses in McMinnville. The employment projections in this section build off of McMinnville's existing employment base, assuming overall future growth is similar to Yamhill County's long-term historical employment growth rates.

The employment forecasts do not take into account a major change in employment that could result from the location (or relocation) of one or more large employers in the community during the planning period that would account for a substantial portion of the overall forecast. Such a major change in the community's employment would exceed the growth anticipated by the city's employment forecast and its implied land needs (for employment, but also for housing, parks, and other uses). Major economic events, such as the successful recruitment of a very large employer, are difficult to include in a study of this nature. The implications, however, are relatively predictable: more demand for land (of all types) and public services.

The 2013 EOA defined the process of projecting demand for industrial and commercial land as a series of 10 steps. The table below outlines these steps and identifies the recommendations, if applicable, decided by the PAC during meetings held between July and November of 2019. Generally, the PAC started with a discussion of the assumptions used in the 2013 EOA, and reviewed alternatives for the 2020 update.

Exhibit 41. Steps to project demand for commercial and industrial land in McMinnville

Step	Purpose	Options	Recommended Option
Step 1. Set Forecast Time Period	Establish the 20-year planning period; select a base year	2021-2041 with adjustments to account for 2019-21	The state requires a 20-year planning period; 2021-41 is used for consistency with the Housing Needs Analysis
Step 2. Population Forecast	The population forecast does not serve a direct purpose other than being the basis for one of the safe harbor employment forecast methods.	Use the required PSU forecast.	State policy allows no flexibility in this process.
Step 3. Evaluate UGB Employment Trend	Inform allocations of employment to land use types.	This is an analytical step and does not require assumptions.	
Step 4. Evaluate and Select Job Forecast	Develop a 20- and 46-year employment forecast.	Option 1 (low-growth, 1.13%): OED safe harbor method Option 2 (medium-growth, 1.36%): PSU safe harbor population forecast Option 3 (high-growth, 1.70%): Non-safe harbor method used as the baseline in the 2013 EOA.	Option 2
Step 5. Allocate Job Growth by Land Use Type Scenarios	Allocate jobs to land using land use types.	Option 1: 2013 EOA Method Option 2: Four land use types (service commercial, retail, industrial, govt) Option 3: Five land use types (the four above plus a tourism category).	Option 3
Step 6. Allocate Job Growth by Land Development Status	This step makes deductions for employment that will not require vacant land.	Option 1: 17% (per 2013 EOA) Option 2: Alternative assumption justified by PAC.	5% for all land use types
Step 7. Apply Job Density Factors	Analyze existing job densities to inform density factors (expressed in employees per acre - EPA)	Option 1: use factors from the 2013 EOA Option 2: use modified factors based on analysis	11 employees per acre for industrial land use type 23 employees per acre for commercial land use types
Step 8. Estimate 20-Year Employment Land Demand	Apply all of the assumptions to the land demand model to estimate 20- and 46- year land demand.	No options - this is an analytical step	n/a
Step 9. Estimate Additional Land Need Not Determined in Forecast	This step accounts for other types of employment land need including exogenous other needed sites and retail leakage.	Option 1: Do not assume additional need Option 2: Provide findings and analysis that supports additional land needs.	Option 2.
Step 10. Compare Land Demand to Supply	Compare land need to the supply as documented in the buildable land inventory. Conduct one further step of assessing land suitability.	No options - this is an analytical step	n/a
Step 11. Evaluate Policy Options and Objectives	This update will not include a top to bottom review of policy options and objectives - those were assessed in the 2013 EOA and in the 2019 EDSP. Some modifications may be required to reflect changing conditions.		

Employment Base for Projection

This section addresses Step 1: Set Forecast Time Period, Step 2: Population Forecast, and Step 3: Evaluate UGB Employment Trend.

The purpose of the employment projection is to model future employment land need for general employment growth. The forecast of employment growth in McMinnville starts with a base of employment growth on which to build the forecast. Exhibit 42 shows ECONorthwest's estimate of total employment in McMinnville in 2017.

To develop the figures, ECONorthwest started with estimated covered employment in the McMinnville UGB from confidential Quarterly Census of Employment and Wages (QCEW) data provided by the Oregon Employment Department. Based on this information, McMinnville had about 14,964 covered employees in 2017.

Covered employment, however, does not include all workers in an economy. Most notably, covered employment does not include sole proprietors. Analysis of data shows that *covered* employment reported by the Oregon Employment Department for Yamhill County is only about 76% of *total* employment reported by the U.S. Department of Commerce.⁹⁷ We evaluated this ratio for each industrial sector for Yamhill County and used the resulting ratios to determine the number of non-covered employees. This allowed us to determine the total employment in McMinnville. Exhibit 42 shows McMinnville had an estimated 20,990 *total* employees within its UGB in 2017.

The PAC approved the use of the covered to total employment ratios shown in Exhibit 42.

⁹⁷ **Covered** employment includes employees covered by unemployment insurance. Examples of workers not included in covered employment are sole proprietors, some types of contractors (often referred to as “1099 employees”), or some railroad workers. Covered employment data is from the Oregon Employment Department.

Total employment includes all workers based on data from the U.S. Department of Commerce. Total employment includes all covered employees, plus sole proprietors and other non-covered workers.

Exhibit 42. Estimated total employment by sector, McMinnville UGB, 2017

Sector	Generalized Land Use Type	Covered Employment	Estimated Total Employment	Covered % of Total
Agriculture, Forestry, and Mining	Industrial	356	356	100%
Construction	Industrial	585	852	69%
Manufacturing	Industrial	2,277	2,549	89%
Wholesale Trade	Industrial	127	180	71%
Retail Trade	Retail Commercial	2,170	2,842	76%
Transportation and Warehousing and Utilities	Industrial	140	250	56%
Information	Office & Commercial Services	127	211	60%
Finance and Insurance	Office & Commercial Services	459	912	50%
Real Estate and Rental and Leasing	Office & Commercial Services	113	867	13%
Professional and Technical Services	Office & Commercial Services	367	998	37%
Management of Companies	Office & Commercial Services	117	161	73%
Admin. and Support/Waste Mgmt/Remediation Serv.	Office & Commercial Services	584	1,044	56%
Health Care and Social Assistance; Private Education Serv.	Office & Commercial Services	3,159	4,457	71%
Arts, Entertainment, and Recreation	Tourism Services	168	458	37%
Accommodation and Food Services	Tourism Services	1,503	1,666	90%
Other Services	Office & Commercial Services	630	1,105	57%
Government	Government	2,082	2,082	100%
Total Non-Farm Employment		14,964	20,990	76%

Source: 2017 covered employment from confidential Quarterly Census of Employment and Wage (QCEW) data provided by the Oregon Employment Department.

Forecast growth rates

This section addresses Step 4: Evaluate and Select Job Forecast.

The employment forecast covers the 2021 to 2067 period, with increments of 5, 10, 20, and 46-years. This forecast requires an estimate of total employment for McMinnville in 2021. While there is no required method for employment forecasting, OAR 660-024-0040(9) sets out some optional “safe harbors”⁹⁸ that allow a city to determine employment land need. The PAC evaluated three options for the forecast, including use of two safe harbors from OAR 660-024.

- **Low-growth scenario (1.13%).** The low-growth option uses the safe harbor that allows a city to base their employment forecast on regional employment projections from the Oregon Employment Department (OED).⁹⁹ The regional employment projection for the

⁹⁸ A safe harbor is an assumption that a city can use in a housing needs analysis that the State has said will satisfy the requirements of Goal 14. OAR 660-024 defines a safe harbor as, “... an optional course of action that a local government may use to satisfy a requirement of Goal 14. Use of a safe harbor prescribed in this division will satisfy the requirement for which it is prescribed. A safe harbor is not the only way or necessarily the preferred way to comply with a requirement and it is not intended to interpret the requirement for any purpose other than applying a safe harbor within this division.”

⁹⁹ OAR 660-024-0040(9) states: “The following safe harbors may be applied by a local government to determine its employment needs for purposes of a UGB amendment under this rule, Goal 9, OAR chapter 660, division 9, Goal 14 and, if applicable, ORS 197.296.

(a) A local government may estimate that the current number of jobs in the urban area will grow during the 20-year planning period at a rate equal to either:

(A) The county or regional job growth rate provided in the most recent forecast published by the Oregon Employment Department; or

Mid-Valley Area (Linn, Marion, Polk, and Yamhill Counties) for the 2017 to 2027 period shows that employment will grow at an average annual growth rate of 1.13%.

- **Medium-growth scenario (1.36%).** The medium-growth option is another safe harbor, based on the rate of growth from the current population projections from Portland State University. The coordinated population forecast for the McMinnville UGB between 2021 and 2041 shows that population will grow at an average annual growth rate of 1.36%, and long-term average annual growth rate between 2021 and 2067 of 1.19%.
- **High-growth scenario (1.70%).** The high-growth option aligns with the moderate (referred to as “baseline”) forecast rate used in the 2013 EOA. The 2013 EOA evaluated low, moderate, and high growth alternative scenarios. At the time the 2013 EOA was completed, the OED forecast for the Mid-Valley region was the “low-growth” scenario at 1.5%, and the “high-growth” scenario of 1.9% was based on the OED forecast for the Portland metro area. This option does not conform to the safe harbors in OAR 660-024-0040(9) and would require substantial evidence as a factual basis for choosing a non-safe harbor growth rate. Examples of substantial evidence to justify a non-safe harbor growth rate include adopted and relevant economic development policies or site needs considerations.

Exhibit 43 shows employment growth in McMinnville between 2021 and 2041, as well as 2021 and 2067, based on the average annual growth rate of each forecast scenario. The estimated number of employees for the beginning of the planning period is extrapolated from the estimate of total employment in 2017 from Exhibit 42 (20,990 employees), using the appropriate forecast rate for each scenario.

For the 2021 to 2041 period, the low-growth scenario would result in an increase of 5,544 employees; an increase of 6,885 employees in the medium-growth scenario; and an increase of 9,003 employees in the high-growth scenario.

(B) The population growth rate for the urban area in the appropriate 20-year coordinated population forecast determined under rules in OAR chapter 660, division 32.

Exhibit 43. Employment growth scenarios, total employment, McMinnville UGB, 2021–2067

Year	Low-growth (based on OED forecast)	Medium-growth (based on PSU population forecast)	High-growth (based on 2013 EOA moderate forecast)
2021	21,957	22,157	22,454
2026	23,228	23,708	24,429
2031	24,573	25,367	26,577
2041	27,501	29,042	31,457
2067	36,853	38,158	48,759
Change 2021 to 2041			
Employees	5,544	6,885	9,003
Percent	25%	31%	40%
AAGR	1.13%	1.36%	1.70%
Change 2021 to 2067			
Employees	14,896	16,001	26,305
Percent	68%	72%	117%
AAGR	1.13%	1.19%	1.70%

Source: ECONorthwest

The PAC recommended using the medium-growth option (1.36% AAGR) for the employment forecast for the 2021-2067 planning period. The results of the employment forecast presented in the EOA reflect this growth rate.

Allocation to land use types

This section addresses Step 5: Allocate Job Growth by Land Use Type Scenario

The next step in forecasting employment is to allocate future employment to broad categories of land use. Firms wanting to expand or locate in McMinnville will look for a variety of site characteristics, depending on the industry and specific circumstances. For example, small retail stores may look for an existing space in a shopping center in an area with high visibility for attracting customers, while a new food product manufacturer may need a mid-sized site of 5 to 10 acres in an area with direct access to a state highway.

At direction from the PAC, ECONorthwest grouped employment into five broad proposed categories of land use based on North American Industrial Classification System (NAICS): industrial, retail commercial, office and commercial services, tourism services, and government.¹⁰⁰ This approach differs from the 2013 EOA, which defined three land use types—commercial, industrial, and institutional. The primary difference in the proposed updated categories is a separation of different types of commercial land into retail, office, and tourism commercial. Some of these land use types might have different site needs considerations, and these land use types better align with the City’s economic development goals, such as a focus on tourism-related employment. This was based on identifying commercial sub-types associated with the target industries in the Economic Development Strategy, to assess whether land needs

¹⁰⁰ The generalized land use type categories are defined by the NAICS sectors listed in Exhibit 42.

might differ for these commercial sub-types. ECONW informed the PAC that the sub-types could ultimately be recombined at the end of the analysis if the differentiation didn't prove useful. Ultimately, the three commercial subtypes were recombined into a single commercial category, as the employment sectors didn't necessarily correlate to distinct land uses that would be differentiated through zoning. For example, the NAICS codes included in the tourism category included food and beverage, which are typically permitted in the same zones as retail commercial. Ultimately, the land uses almost exclusively related to destination tourism uses that weren't consistent with the [employment forecast and](#) employment density factors were instead addressed as [other needed sites and](#) that is addressed in more detail in the respective section in this chapter.

Exhibit 44 shows the expected share of employment by land-use type in 2021 and the forecast of employment growth by land-use type in 2041 in the McMinnville UGB, and Exhibit 45 shows employment growth for all growth increments. The PAC recommended the future share of land use types will align with both projections from the Oregon Employment Department (OED) for the Mid-Valley Area, as well as economic development goals and policies as stated in the *MAC-Town 2032 Economic Development Strategic Plan* and *Three Mile Lane Area Plan*.

OED projects that in the 2017 to 2027 period, the share of future employment in industrial sectors will increase; the share of retail commercial as well as government employment will decrease; and the share of office and commercial services and tourism services will increase.¹⁰¹ These trends closely align with McMinnville's future economic development goals, though the *MAC-Town 2032 Economic Development Strategic Plan* estimates growth in office employment, as well as an emphasis on tourism-related services, advanced manufacturing (i.e., industrial), and food and beverage manufacturing target industries.

The values highlighted in green in Exhibit 44 show the future share of total new employment for each land use type in 2041, based on the information summarized above. **The green highlighted percentages in the 2041 “% of Total” column are assumptions recommended by the PAC.**

Exhibit 44. Forecast of employment growth by land use type, McMinnville UGB, 2021–2041

Land Use Type	2021		2041		Change 2021 to 2041
	Employment	% of Total	Employment	% of Total	
Industrial	4,431	20%	6,099	21%	1,667
Retail Commercial	3,102	14%	3,485	12%	383
Office & Commercial Services	10,192	46%	13,650	47%	3,458
Tourism Services	2,216	10%	3,485	12%	1,269
Government	2,216	10%	2,323	8%	108
Total	22,157	100%	29,042	100%	6,885

Source: ECONorthwest

¹⁰¹ Oregon Employment Department Industry Employment Forecast 2017-2027, Mid-Valley Area (Linn, Marion, Polk, and Yamhill Counties). Published June 26, 2018.

Exhibit 45. Forecast of employment growth by land use type, McMinnville UGB, 2021–2026, 2021–2031, 2021–2041, and 2021–2067

Land Use Type	New Employment Growth			
	5-year (2021-2026)	10-year (2021-2031)	20-year (2021-2041)	46-year (2021-2067)
Industrial	417	834	1,667	3,582
Retail Commercial	96	192	383	1,477
Office & Commercial Services	864	1,729	3,458	7,742
Tourism Services	317	635	1,269	2,363
Government	27	54	108	837
Total	1,721	3,443	6,885	16,001

Source: ECONorthwest

Estimate of Demand for Commercial and Industrial Land

The next step in the employment forecast is to estimate the demand of commercial and industrial land.

The estimate of demand for commercial and industrial land included three components: (1) employment forecast and employment density assumptions, with deduction for employment that won't require vacant employment land, (2) recapture of existing retail leakage, and (3) [exogenous other needed sites](#) which are not accounted for in the [employment forecast and average](#) employment density factors; these are target industries and uses in the *MAC-Town 2032 Economic Development Strategic Plan*. In addition, employment for public/semi-public uses was backed out of the employment forecast and land needs were calculated separately.

The employment forecast includes all new employment in the McMinnville UGB. Some of this employment, however, will not be located on vacant commercial or industrial land. Other lands that will accommodate new employment growth include residential land and redevelopment sites. Another factor in estimating the demand for commercial and industrial land is consideration for employment density, or employees per acre. Appendix B provides additional background information developed for the PAC to make recommendations for new employment on vacant commercial and industrial land, as well as employment density. Government employment was also backed out of the forecast because government land need was addressed as part of the public/semi-public land need process.

The next section describes the approach for (1) estimating employment on vacant commercial and industrial land with considerations for employment on redevelopment sites, and (2) estimating employees per acre by land use type.¹⁰²

¹⁰² Note: the government land use type is excluded from the remaining employment forecast calculations, as we account for government employment in calculations for other land needs. Deductions for private education were also made in the office and commercial services category, based on employment reported (IPEDS data) for Linfield College of 360 employees. Adjustments for future employment at Linfield assumed the share of Linfield employment would remain the same.

Employment that does not require vacant commercial and industrial land

This section addresses Step 6: Allocate Job Growth by Land Development Status

Some employment growth in McMinnville will not require vacant (or partially vacant) employment land over the planning period. This includes redevelopment of areas with existing employment, where redevelopment increases the intensity of employment uses (i.e., more employees are accommodated on the same amount of land). The 2013 EOA assumed that 17% of employment for each land use type would not require vacant commercial or industrial land.¹⁰³ **Based on the information presented in Appendix B, the PAC determined that a reasonable assumption would be 5% refill/redevelopment for both commercial and industrial employment.**

Exhibit 46 shows the estimate of employment on vacant commercial and industrial land by land use type for each scenario, using the 5% assumption for employment that will occur through redevelopment, refill, or on non-employment sites. The table (reading left to right) starts with the number of new employment growth calculated over the planning period; then calculates the amount of employment that does not require vacant employment land based on 5% of the new employment growth; and results in the amount of new employment growth on vacant industrial and commercial land. From this point in the analysis forward, the commercial land use types (i.e., retail commercial, office and commercial services, and tourism services) were combined as the land needs for these land use types overlap.

Exhibit 46. Estimate of employment on vacant land by land use type, McMinnville UGB, 2021–2041

Land Use Type	New Employment Growth	Emp. on Other Land	New Emp. on Vacant Land
Industrial	1,667	83	1,584
Commercial	4,998	249	4,749
Total	6,665	332	6,333

Source: ECONorthwest Note: As described above, government employment is calculated separately and is not included in Exhibits 45-48.

Exhibit 47. Estimate of employment on vacant land by land use type, McMinnville UGB, 2021–2026, 2021–2031, 2021–2041, and 2021–2067

Land Use Type	Employment on Vacant Land			
	5-year (2021-2026)	10-year (2021-2031)	20-year (2021-2041)	46-year (2021-2067)
Industrial	396	792	1,584	3,403
Commercial	1,187	2,373	4,749	10,756
Total	1,582	3,165	6,333	14,159

Source: ECONorthwest

¹⁰³ The 2013 EOA used a 17% assumption, based on a PAC recommendation. The 2001/03 EOA assumed 14-17%, depending on the land use type. This EOA updated used 5% based on empirical analysis that showed refill and redevelopment rates didn't achieve employment densities that would be associated with 17% refill/redevelopment on employment land.

Employment density

This section addresses Step 7: Apply Job Density Factors and Step 8: Estimate 20-Year Employment Land Demand.

This section shows the resulting demand for vacant (including partially vacant) land in McMinnville over the 20-year period, accounting for potential variations in employment density. The assumptions about employment density are based on the 2013 EOA, as stated in text excerpt below. Based on information provided in Appendix B, the PAC recommended using an employment density of 11 employees per acre for industrial employment and 23 employees per acre for commercial employment (i.e., retail commercial, office and commercial services, and tourism services). Further explanation of employment density and the conversion of net to gross acres is provided below.

- **Employment density.** Employees per acre is a measure of employment density based on the ratio of the number of employees per acre of employment land that is developed for employment uses. Employment densities factor in all employment on a site, whether full or part time or different shifts in a workday. Thus, employment at a given site may overrepresent the number of employees at a site at a specific time. For example, retail service locations often have many part-time employees who work different shifts. Despite the potential for overestimating the number of employees on site at a given time, the data do provide a reasonable estimate of total employment on a site and therefore total employees per acre, and this is reflected in the analysis of historic employment density, too.
- **Conversion from net-to-gross acres.** The data about employment density is in *net* acres, which does not include land for public right-of-way.¹⁰⁴ Future land need for employment should include land in tax lots needed for employment plus land needed for public right-of-way. One way to estimate the amount of land needed for employment, including public right-of-way, is to convert from *net* to *gross* acres based on assumptions about the amount of land needed for public right-of-way.¹⁰⁵ A net-to-gross conversion is expressed as a percentage of gross acres that are in public right-of-way.

Based on empirical evaluation of McMinnville’s existing net-to-gross ratios, ECONorthwest uses a net-to-gross conversion factor of 6% for industrial and 18% for commercial, retail, and tourism.

Using these assumptions, the forecasted growth of 6,333 new employees between 2021 and 2041 will result in the following demand for vacant (and partially vacant) employment land: 153

¹⁰⁴ The 2013 EOA does not describe a method for converting net to gross acres.

¹⁰⁵ OAR 660-024-0010(6) uses the following definition of net buildable acre. “Net Buildable Acre” consists of 43,560 square feet of residentially designated buildable land after excluding future rights-of-way for streets and roads. While the administrative rule does not include a definition of a gross buildable acre, using the definition above, a gross buildable acre will include areas used for rights-of-way for streets and roads. Areas used for rights-of-way are considered unbuildable.

gross acres of industrial land and 252 gross acres of commercial land (Exhibit 48). Exhibit 49 shows the demand for vacant land to accommodate employment growth in the 5-, 10-, 20-, and 46-year planning periods.

Exhibit 48. Demand for vacant land to accommodate employment growth, McMinnville UGB, 2021–2041

Land Use Type	New Emp. on Vacant Land	Employees per Acre		Land Demand (Net Acres)	Land Demand (Gross Acres)
			(Net Acres)		
Industrial	1,584	11		144	153
Commercial	4,749	23		206	252
Total	6,333			351	405

Source: ECONorthwest

Exhibit 49. Demand for vacant land to accommodate forecasted employment growth, McMinnville UGB, 2021–2026, 2021–2031, 2021–2041, and 2021–2067

Land Use Type	Land Demand (Gross Acres)			
	5-year (2021-2026)	10-year (2021-2031)	20-year (2021-2041)	46-year (2021-2067)
Industrial	38	77	153	329
Commercial	63	126	252	570
Total	101	202	405	899

Source: ECONorthwest

Estimated Land Need 2019-2021

The buildable lands inventory (BLI) shows employment land status as of January 2019, while the forecast of need for employment land begins in 2021. We estimated land needed for employment between 2019 and 2021 using the same assumptions as the other planning periods. McMinnville employment in 2019¹⁰⁶ was about 21,566 employees, resulting in an increase of 591 employees between 2019 and 2021. About 496 of these 591 employees will require vacant commercial or industrial land. Using data on vacant unconstrained land from Exhibit 38, Exhibit 50 shows that McMinnville has supply of 323 gross acres of industrial land and 93 gross acres of commercial land. Between 2019 and 2021, the McMinnville UGB has a demand for 11 gross acres of industrial land and 20 gross acres of commercial land. This results in a surplus of 312 gross acres of industrial and 73 gross acres of commercial land as of 2021. These values are used as the land supply in the land sufficiency calculations starting in 2021.

¹⁰⁶ 2019 total employment was extrapolated from the 2017 Quarterly Census of Employment and Wages, using the methods described in the “Employment Base for Projection” section. We assumed the 20-year growth rate of 1.36%.

Exhibit 50. Comparison of the capacity of unconstrained vacant land with employment land demand by land use type, McMinnville UGB, 2019-2021

Land Use Type	Land Supply		Land Sufficiency (Deficit)
	(Suitable Gross Acres)	Land Demand (Gross Acres)	
Industrial	323	11	312
Commercial	93	20	73

Source: ECONorthwest

Retail Leakage

In 2018, the city of McMinnville initiated development of a plan for the Three Mile Lane Area Plan (3MLAP). The project updates the 1981 Three Mile Lane Overlay District (amended in 1994) and the 1996 Highway 18 Corridor Refinement Plan. The 3MLAP will integrate a wide range of land uses and a multi-modal transportation system that serves both local and state transportation needs and provides active connectivity within the plan area as well as to the City’s downtown core. Leland Consulting Group performed the market analysis for the project.

The project analyzed a market area that represents the area from which the most demand for residential, commercial, and industrial uses will originate, and where most of the competitive development is located. The market area (shown in Exhibit 1 and Exhibit 33) is roughly bounded by the Willamette River to the east, Tillamook State Forest to the west, and Polk County to the south—although the market does extend into Polk County, there are few residents or jobs located in this area—and the City of Yamhill to the north. The study includes a retail leakage analysis, with the express intent that the city would capture some of the retail spending that is occurring in the larger Salem, Portland, and I-5 corridor markets.¹⁰⁷

Leland characterizes retail leakage as follows:

“Retail sectors in which household spending is not fully captured are called “leakage” categories, while retail categories in which sales are higher than estimated household demand generated by existing residents are called “surplus” categories. A retail sales surplus indicates that a community pulls consumers and retail dollars in from outside the trade area, thereby serving as a regional market. Conversely, when local demand for a specific product is not being met within a trade area, consumers are going elsewhere to shop, creating retail leakage.”¹⁰⁸

The study reports overall demand for 529,000 square feet of retail space in the study area for a 10-year period (Table ES-3, pg 4). The study also shows a breakdown of the 10-year demand broken out by demand from household growth, leakage recapture, and replacement space (Figure 38, pg 51). Data provided by Leland show that the leakage

¹⁰⁷ Note: As discussed in Chapter 3, while retail environments are changing at a national level, the extent to which e-commerce will replace all types of retail is unclear and unlikely. The need for certain types of retail will persist both nationwide and in places like McMinnville.

¹⁰⁸ McMinnville Three Mile Lane Area Plan: Market Analysis, Leland Consulting Group, April 2019.

recapture component of the 10-year demand is 131,808 square feet. This is an element of retail land need that is not reflected in the employment forecast.

Exhibit 51 shows an estimate of land needed to accommodate recapture of retail leakage. The analysis builds from the Leland estimates and assumes 470 square feet per employee. The square feet per employee assumption comes from Metro’s Employment Density Study (pg 17). Dividing recapturable existing leakage by square feet per employee provides an estimate of the amount of employment generated by the space; dividing that by the PAC approved assumption of 23 employees per acre yields the land need assumption. The results show that McMinnville needs an additional 12.2 acres of land to accommodate recapture of retail leakage.

Exhibit 51. Demand for Regional Commercial and Office Space

Sector	Recapture-able Existing Leakage (s.f.)	SF/Emp	Employees (20 years)	Employees Per Acre (EPA)	Acres
Furniture & Home Furnishings	6,257	470	13	23	0.6
Electronics and Appliance	4,450	470	9	23	0.4
Building Material, Garden Equip	-	470	-	23	-
Food & Bev. (grocery)	0	470	-	23	-
Health & Personal Care	-	470	-	23	-
Clothing & Accessories	9,600	470	20	23	0.9
Sporting Gds, Hobby, Books, Music	6,076	470	13	23	0.6
General Merchandise	83,278	470	177	23	7.7
Misc. Store Retailers	-	470	-	23	-
Food & Drinking Places	21,611	470	46	23	2.0
Other (incl. cinema, prof./med office, banks)	538	470	1	23	0.0
Totals	131,808		280		12.2

Source: Demand estimates by Leland Consulting Group; sq ft per employee assumptions from the Metro Employment Density Study; EPA assumptions from EOA PAC

Land Needs Not Addressed in the [Average Employment Densities \(Other Needed Sites\)](#)

This section addresses Step 9: Estimate Additional Land Need Not Determined in Forecast

Statewide planning Goal 9 requires cities to “Provide for at least an adequate supply of sites of suitable sizes, types, locations, and service levels for a variety of industrial and commercial uses consistent with plan policies.”¹⁰⁹ McMinnville has identified several employment land needs that ~~are exogenous (outside of, or not reflected in) to the employment forecast~~ have **other needed sites**. [These related to](#) target industry sectors identified in the *MAC-Town 2032 Economic Development Strategic Plan*. These are addressed in the respective subsections below, describing these land needs and the factual basis for each need.

¹⁰⁹ <https://www.oregon.gov/lcd/OP/Documents/goal9.pdf>

Other Needed Sites Calculated Separately from Average Employment Densities

The City's Economic Development Strategic Plan provides the City's economic development opportunities, vision, and strategy. The City need not be bound by history and past trends, but can rather seek to achieve the community's economic vision, supported by data, and realistically achievable given competitive advantage, as supported by data and emerging trends.

Statewide Planning Goal 9 states that comprehensive plans for urban areas shall: "Provide for at least an adequate supply of sites of suitable sizes, types, locations, and service levels for a variety of industrial and commercial uses consistent with plan policies." This indicates that cities have some degree of flexibility in determining land needs as long as (1) they are consistent with plan policies, and (2) are justifiable. The land needs described in this section are all identified in existing city plans, but are not considered in the employment forecast.

~~Cities have found that when there are large firms seeking sites that aren't available in a region, this precludes economic development organizations such as Business Oregon and MEDP from marketing the area to these prospects. Attracting such activities to the region may be newly identified in the economic development strategy and additive to past economic development efforts. An otherwise Goal 9-compliant Economic Opportunities Analysis based on projected growth reflective of traditional patterns may not account for these new efforts, and attraction of a large site user would be considered an exogenous impact to these projections. This often applies to industrial users, but also applies to uses such as destination tourism uses that can require unique sites.~~

The needs analysis also needs to account for these "~~exogenous sites~~" other needed sites for uses anticipated as part of the Economic Development Strategy. Below are some examples of ~~exogenous~~ other needed sites in McMinnville and other Oregon communities:

- For example, when McMinnville's UGB was established in the early 1980s, it wasn't anticipated that there would be a need for a large site for the Evergreen Museum or water park. These facilities occupy approximately 70 acres of their sites. These have substantial economic benefits to the McMinnville economy. In 2018, they had over 88,000 visitors. They also require large sites, differ from traditional employment uses, don't fit neatly within an employment ~~forecast~~ density assumptions, and they consume a significant amount of the land supply in the UGB.
- Another example of a needed site for tourism is the US Cellular Park in Medford. The park is 132 acres with 15 sports fields. The 2018 Annual Report shows that in 2018 it generated \$11.5 million estimated economic impact, surpassing \$100 million cumulative local economic impact since its inception in 2008, helping to sustain 110 jobs in the local economy based on the direct spending of visiting teams.¹¹⁰

¹¹⁰ U.S. Cellular Community Park Annual Report. Medford Parks, Recreation & Facilities. 2018. <https://www.sportsmedford.com/Assets/48/2018%20USCCP%20Annual%20Report.pdf>

- The City of Redmond is expanding its UGB to add nearly 949 acres for several employment uses. This allows the Deschutes County Fair and Expo Center to build out and become more of a regional player (with an additional 120 acres), while providing a new home for the Oregon National Guard’s Redmond Armory (approximately 40 acres). It also provides nearly 700 acres for large industrial projects.¹¹¹
- The Allison Inn and Spa in Newberg takes advantage of place-based tourism. It is on a 35 acre site in the City of Newberg. It is situated adjacent to rural land with surrounding views of wine country and farmland. It includes accommodations, restaurant and bar, spa and meeting and event center. This could be considered an adaptation of one of the prototypes described in the agri-tourism plan described below, but adapted for an urban location interfacing with a rural setting, rather than located in a rural location.
- Over a decade ago, a County-wide plan was undertaken related to agri-tourism. It identified six prototype projects, each with specific assumptions about characteristics. These were predominantly rural prototypes, but the opportunities for these prototypes haven’t been realized.¹¹²

The Economic Development Strategic Plan identifies 57 items that potentially have site-related needs. Based on further review and discussions, we assume the approximately 47 other items not included in the list of ten site needs below would be addressed through traditional sites needs within the [standard site needs and average employment density calculations. work completed on the employment forecast and/or public/semi-public land needs analysis.](#) Exhibit 52 summarizes the land needs for these [exogenous other needed sites.](#)

¹¹¹ “Fairground expansion, armory and more coming to SE Redmond.” Stephen Hamway. The Bulletin. Feb 3, 2019. <https://www.bendbulletin.com/localstate/6884610-151/fairgrounds-expansion-armory-and-more-coming-to-se-redmond>

¹¹² *Yamhill County Agri-Business Economic and Community Development Plan Summary Report.* Barney & Worth, Inc. June 2009. https://www.co.yamhill.or.us/sites/default/files/Summary_Report_-_Yamhill_County_Agri-Business.pdf

Exhibit 52. Land needs identified in the MAC-Town 2032 Economic Development Strategic Plan (EDSP): Other needed sites that are not represented in the employment forecast have special site needs not reflected in average employment density calculations

Draft

Use	Description or Example*	Land Need	Employment Adjustment (Source)	EDSP or Other Reference
1. Community Center/Recreation Facility	Update, improve, expand and add recreational facilities that serve the community's needs <u>including a</u> (Community Center and Aquatic Center).	10 acres	<u>22 FTE</u> (Source: Parks Director)	3.2.2
2. Outdoor Stage/ Amphitheater	<u>Britt, Jacksonville</u> <u>Cuthbert, Eugene</u> <u>Bi-Mart, Central Point</u> <u>Les Schwab, Bend</u>	5 acres plus parking	<u>30 FTE</u> (Source: Britt Festival - 2,200 seating capacity)	3.2.1.
3. See Ya Later Foundation – Champions Center	The Champions Center is planned as a youth and family recreational and educational complex.	28 acres (4 acres for buildings, 6 acres for parking, 12 acres for 6 athletic fields, 6 acres for associated facilities)	<u>20 FTE</u> (Source: See Ya Later Foundation Proposal)	See Ya Later Foundation UGB Application
4. Arts and culture focused event center	Chehalem Cultural Center, Newberg)	3.5 acres	<u>9 FTE</u> (Source: Chehalem Cultural Center)	3.3
5. Evergreen Aviation and Space Museum and Yamhill County Heritage Museum	Support existing facilities; <u>based on facilities in master plan</u>	27 acres	<u>30 FTE</u> (Source: Evergreen Master Plan)	<u>3.3</u>
6. Wings and Waves	Opportunities for growth and expansion	Location-specific land need at existing partially vacant site	<u>Included in Evergreen Master Plan, see above</u>	6.3.
7. Conference Center:	40,000 sf conference space, accommodation, and parking:	5 acres	<u>13 FTE</u> (Source: Feasibility Analysis)	6.4
8. Equestrian center with supporting commercial activity inside UGB	Would include facilities that cannot be developed on EFU land	20 acres in UGB, larger footprint outside	<u>80 FTE</u> (Source: Comparable feasibility studies)	(6.3)
9. Food hub and public market	Focused on local craft foods & beverages	3.5 acres	<u>13 FTE</u> (Source: USDA Regional Food Hub Resource Guide)	3.2.2.
10. Makerspace/innovation hub/ fabrication center	Supports local innovation & entrepreneurial ecosystem	2 acres	<u>3 FTE</u> (Source: Talent Maker City)	6.3.
TOTAL		104 acres		
NET	<u>Deduct 220 employees @ 23 emp/ac = 10 ac</u>	<u>104 ac – 10 ac = 94 net additional acres</u>		

*Additional examples are provided in the following narrative.

1. COMMUNITY CENTER/RECREATION FACILITY

Strategy 3.2.2 of the MAC-Town 2032 EDSP seeks to cultivate partnerships to develop and market McMinnville’s recreation amenities. A specific action in that section is to add recreational facilities that serve the community’s needs including a Community Center and Aquatic Center.

The McMinnville Parks Department is in the process of completing a feasibility analysis for a facility and is currently estimating demand of 10 acres. Further information is expected to be available in February 2020.

This is consistent with other examples reviewed by ECONorthwest. ECONorthwest reviewed characteristics of comparable community centers. These include two facilities run by the Salvation Army (Kroc centers in Salem and Coeur d’Alene), and three city-managed facilities in Eugene, Portland, and Federal Way Washington. Exhibit 53 provides a summary of the facilities.

Exhibit 53. Community Center Characteristics

Facility	Facility Size (sq ft)	Site Size (acres)	Description
Salem Kroc Center	91,500	22.0	LEED certified with a waterpark (including a Jr. Olympic competition pool, water slide, lazy river, hot tub, and splash pad), Fitness Center, Gymnasium, Game Room, Art Studio, Library/Media Center, Amphitheater, Chapel/Performing Arts Center, 4000 ft ² of Event Space
Coeur d’Alene Kroc Center	132,000	12.0	Competition and leisure pools, health and wellness center, gym and climbing wall, game room, and classrooms
East Portland Community Center	45,000	5.7	Full-size gymnasium with retractable bleachers Transverse bouldering wall Fitness center with cardiovascular and circuit strength equipment Exercise studio with sprung wood floor and mirrors Multi-purpose, and poolside rooms Outdoor courtyard Indoor 4-lane Pool Indoor zero-depth entry leisure pool with current channel, waterslide, splashdown
Federal Way Community Center	72,000	10.0	Aquatics center, three gyms, fitness center, climbing pinnacle and Splash Café
Eugene Amazon Community Center	n/a	12.0	Outdoor pool, two community centers with many amenities, parking

Based on information from the Parks Department, and consistent with review of comparable facilities, the land need for this use is assumed to be 10 acres.

2. OUTDOOR STAGE/AMPHITHEATER

Strategy 3.2.1 of the MAC-Town 2032 EDSP seeks to update City Plans to evaluate and prioritize investments in recreation infrastructure. The strategy specifically identifies the desire to “add an outdoor stage or amphitheater to one of McMinnville’s existing parks.” The following list provides capacity and site sizes for amphitheatres in other Oregon cities.

- Les Schwab Amphitheater, Bend ~8,000 capacity ~5 acres plus parking (parking co-located with other uses)
- Bi-Mart Amphitheater, Central Point: ~6,000+ total capacity (~1985 fixed seats plus lawn), (parking co-located with other uses); ~5+ acres, plus parking & other support areas
- Britt Festival, Jacksonville: 2,200 total capacity (1,000 fixed seating plus lawn), parking co-located with other uses); Approximately 4 acres plus parking, (includes main stage, small stage, concession buildings, seating, staging area)
- Cuthbert Amphitheater, Eugene: 5,000 total capacity; parking co-located with Alton Baker Park; Approximately 4.3 acres without patron parking (includes main stage, seating, concession areas, and performer/equipment parking).

Based on review of comparable facilities, the land need for this use is assumed to be 5 acres. Assume shared parking, otherwise additional land will be needed for dedicated parking.

Note: This is calculated separate from the See Ya Later Foundation Champion Center. While that facility proposed an amphitheater. That site plan identified an amphitheater, but the concept is a different facility than what is identified in the Economic Development Strategic Plan. The Champion center would rely on use of two athletic fields for area comparable to above facilities ranging from 2,200-8,000 capacity (plus parking).

3. SEE YA LATER FOUNDATION-CHAMPIONS CENTER

In 2015, the See Ya Later Foundation (SYLF) proposed a UGB amendment for a sports complex which was not further pursued at that location given access constraints. The Foundation is still moving forward with the concept and envisions a 165,000 sf indoor recreational and educational building with the following amenities:

- Six athletic fields
- Sport fields, court gyms, fitness equipment
- Art, music, technology, and mentoring
- Outdoor amphitheater and regulation sports courts (for large-scale events, drawing visitors and dollars to McMinnville year-round)
- Meeting rooms and facilities for use by non-profits and social service organizations
- Non-denominational prayer room
- Great hall for events, commercial kitchen, coffee shop, variety of meeting facilities
- Parking (shared for uses)

To accommodate these facilities, SYLF requires a 28-acre site that meets specific suitability requirements and is accessible to the school-aged children it is intended to serve. A year-round site on the west side of McMinnville is preferred - recognizing that Joe Dancer Park is closed

from November to March, and the west side is rapidly growing with two additional planned schools.

Based on the 2015 application, we assume a land need of 28 useable acres (4 acres for buildings, 6 acres for parking, 12 acres for 6 athletic fields, 6 acres for associated facilities (walkways, landscaping, bleachers, campus open space, and driveways)).

Note: The ESDP identifies needs for regional athletic events and an indoor sports complex. These uses are assumed as part of a single site complex as represented in the Se Ya Later Foundation Champions Center described above. Therefore, these are not calculated separately. Other examples of these types of facilities of various scale and scope include the following:

- Facility for regional athletic events: 132 acres (US Cellular Park, Medford), 15 sports fields: 3 full-size baseball, 7 softball/baseball, 5 soccer/football
- Separate indoor sports complex: 5-8 acres

4. ARTS AND CULTURE FOCUSED EVENT CENTER

Strategy 3.3 (Leverage arts and culture amenities) of the MAC-Town 2032 EDSP identifies the desire for an arts and culture focused center. Specifically, the plan states “Initiate a conversation between local artists, arts organizations, philanthropies and other parties to identify the potential for an arts and culture-focused event center in McMinnville.” The strategy also includes the need for a community art space “Evaluate the feasibility of a public private partnership to create a community art space or collaborative studio and cooperative gallery.” Following is a summary of similar cultural centers:

- Chehalem Cultural Center, Newberg – is located in a historic building and houses a fine arts gallery and exhibition hall, three multipurpose arts studio classrooms, a state-of-the-art clay studio, a recording studio with four music practice studios, meeting space, and a 5,200 square foot grand ballroom for public and private events.

Based on review of comparable facilities, the land need for this use is assumed to be 3.5 acres.

5. OPPORTUNITIES TO SUPPORT EVERGREEN AVIATION AND SPACE MUSEUM-AND YAMHILL COUNTY HERITAGE MUSEUM

This opportunity is identified as part of Strategy 3.3 – Leverage arts and culture amenities. Specifically, the project is to establish periodic, formal dialogue with the Evergreen Aviation and Space Museum ~~and the Yamhill County Heritage Museum~~ to anticipate their needs and identify opportunities to provide support.

This expansion is consistent with the adopted Evergreen Master Plan and would build out about 27 additional buildable acres of the property (with constrained areas left intact –wetlands, ravine, etc.) The master plan also includes an adventure course and associated features that extend would outside the UGB. The use of the site is limited by the Planned Development Ordinance to the master plan unless the PD Ordinance is amended.

This opportunity assumes expansion onto ownership of partially vacant land of 27 acres. This deduction is included as part of the ~~exogenous land need~~ other needed sites since a portion of the site (27 acres) was inventoried as vacant in the buildable lands inventory.

6. WINGS AND WAVES OPPORTUNITIES FOR GROWTH AND EXPANSION

This opportunity is related to Strategy 3.3 and is part of McMinnville’s overall tourism strategy. The Waterpark was bought by The Falls Event Center in 2017, and is now run as a separate organization.

This opportunity assumes expansion onto ownership of partially vacant land.

7. CONFERENCE SPACE

This opportunity relates to Strategy 6.4 – Market and promote McMinnville. The plan includes a project to “Work with visit McMinnville and local hoteliers to identify gaps in available conference space and to establish a plan to expand McMinnville’s offerings for small and large conferences.” Towards that end, Visit McMinnville retained Johnson Consulting to complete a market analysis for conference facilities. The January 2018 report, titled *McMinnville Conference Center and Destination Analysis*, identifies need for a 40,000 sq ft conference space not including accommodations and parking. We looked at the following comparable facilities:

- Washington County Event Center: 89,000 sf; ~8 acres with parking
- Seaside: 25,000 sf, 10 meeting rooms; 4 acres with parking
- Pendleton: 28,000 sf, 9 meeting rooms; 12.5 acres with parking
- Blair County Convention Center, PA. 2 levels, ~50,000 sf; 11 acres with parking
- Blue Water Convention Center, MI: ~40,000 sf; 12 acres

Based on review of comparable facilities, the land need for this use is assumed to be 5 acres.

8. EQUESTRIAN CENTER

In 2012, developer JW Millegan proposed a major equestrian center in Yamhill County. The concept was not further pursued, due in part to restrictions on EFU lands. As proposed, the facility would require approximately 325 acre and would include a gallop track, polo fields, steeplechase facilities, plus resort, RV park, distillery, brewpub, and cobblestone plazas. In effect, this would be a rural/urban interface tourism use with supporting commercial activity inside UGB.

Due to land use restrictions, elements such as resort, RV park, distillery, brewpub, would need to be sited within the UGB at a location interfacing with rural lands.

Other equestrian facilities in the region include:

- Hunter Creek Equestrian Park, 14441 SW Wilsonville Rd, Wilsonville, (120 ac site)
- Wilsonville Equestrian Center, 24040 SW 8nd Avenue, Tualatin
- Swan Training/Whip ‘n Spur, 16091 SW Wilsonville Rd

- Arbor Grove Equestrian Center, 7359 Hwy 219 NE, Woodburn

An example of an RV Park near McMinnville includes:

- Willamette Wine Country RV Park and the Vintages are 191 sites on 14.5 acres

Based on the facility concept, and review of comparable facilities, the portion of the land need within the UGB for this use is assumed to be 20 acres.

9. CRAFT FOOD AND BEVERAGE FOOD HUB/FARMERS MARKET

McMinnville wants to develop an integrated food hub and year-round farmers market. Farmers markets are physical retail marketplaces intended to sell foods directly by farmers to consumers. Food hubs offer a combination of aggregation, distribution, and marketing services at an affordable price. Food hubs make it possible for many producers to gain entry into new larger-volume markets that boost their income and provide them with opportunities for scaling up production. Combining food hubs and farmers markets creates opportunities to better integrate local food value chains. Examples of farmers markets and food hubs include:

- Olympia Farmers Market, Olympia WA - supports local sustainable agriculture by connecting the public with local farmers, artisans, and other producers in an economically viable marketplace, has over 100 vendors and an estimated 400,000 visitors per year; 4.7 acres
- Bellingham Farmers Market, Bellingham WA – promotes and encourages the development of local, small scale agriculture and ensure a market balance for small, local growers and has over 100 vendors and is co-located at a transit station in downtown Bellingham; 1.5 acres
- Fallon Food Hub Co-op, Fallon NV – has the mission of educate residents about the benefits of eating seasonally and healthfully in order to create a thriving and expanding local food scene resulting in increased opportunities for area producers; 2.2 acres
- Catskills Food Hub, Sullivan County NY – a non-profit organization working to strengthen local agriculture, increase access to fresh food, and improve health outcomes for Sullivan County and the region; 2.7 acres
- Puget Sound Food Hub, Mt. Vernon WA – supports the relationship between regional farmers and their customers, enabling a values-based supply chain for food safety and transparency; 3.2 acres

Based on review of comparable facilities, the land need for this use is assumed to be 3.5 acres.

10. MAKERSPACE/INNOVATION HUB/ FABRICATION CENTER

Most industrial land demand is already reflected in the employment forecast. McMinnville wants to develop additional strategies to bolster the local maker community and the entrepreneurial ecosystems. Makerspace and fabrication laboratories are strategies that communities are pursuing. Makerspaces are community-operated, often nonprofit, workspaces

where people with common interests, such as computers, machining, technology, science, digital art, or electronic art, can meet, socialize and collaborate. CraterWorks Makerspace, located in Central Point, also includes a commercial kitchen and market space. It is about 2 acres in size.

Based on review of comparable facilities, the land need for this use is assumed to be 2 acres.

Site Characteristics and Needed Sites

OAR 660-009-0015(2) requires the EOA to “identify the number of sites by type reasonably expected to be needed to accommodate the expected [20-year] employment growth based on the site characteristics typical of expected uses.” The Goal 9 rule does not specify how jurisdictions conduct and organize this analysis.

The rule, OAR 660-009-0015(2), states that “[i]ndustrial or other employment uses with compatible site characteristics may be grouped together into common site categories.” The rule suggests, but does not require, that the City “examine existing firms in the planning area to identify the types of sites that may be needed.” For example, site types can be described by: (1) plan designation (e.g., heavy or light industrial), (2) general size categories that are defined locally (e.g., small, medium, or large sites), or (3) industry or use (e.g., manufacturing sites or distribution sites). For purposes of the EOA, McMinnville groups its future employment uses into three general categories based on land use types: (1) commercial (includes retail commercial, office & commercial services, and tourism services)¹¹³; (2) industrial; and (3) sites needed to meet specific economic development objectives (e.g., other land needs not addressed in the employment forecast as discussed above).

In short, in addition to estimating the acreage needed to accommodate current and future employment, it is necessary for the city to determine if it has sites with characteristics suitable for the development to address needs and opportunities. This includes site size, topography, access, utilities, and other characteristics such as location and proximity to other uses and amenities.

As a first step, ECO analyzed the size distribution of developed employment sites in McMinnville by land use type. Exhibit 54 shows the results. The majority of commercial lots are small – 89% of commercial lots are less than 1 acre, and 43% of the commercial land (in acres) is in lots less than 1 acre. No developed commercial lots are larger than 20 acres. (Some shopping centers include multiple tax lots).

¹¹³ At early stages of the EOA, McMinnville broke commercial out into separate land use categories, but found that many overlap and do not have distinct site needs from other commercial categories by NAICS sector.

Industrial sites show a different pattern. Seven industrial sites (about 2 percent of all industrial sites) are greater than 20 acres but account for 25% of all industrial land in acres. While McMinnville has 126 industrial sites less than 1 acre, those sites account for only 7% of developed industrial land (in acres). Some industrial users occupy multiple buildings and/or tax lots.

Exhibit 54. Size distribution of developed employment sites by land use type, McMinnville UGB, 2019

Land Use Type	Developed acres size								Total
	<0.50 acre	0.50-0.99 acres	1.00-1.99 acres	2.00-4.99 acres	5.00-9.99 acres	10.00- 19.99 acres	20.00- 49.99 acres	50.00+ acres	
Commercial									
Acres	99	54	57	90	26	34	-	-	360
Percent of Acres	28%	15%	16%	25%	7%	9%	0%	0%	100%
Tax Lots	524	80	41	30	4	3	-	-	682
Percent of Tax Lots	77%	12%	6%	4%	1%	0%	0%	0%	100%
Industrial									
Acres	13	19	43	87	91	61	25	79	418
Percent of Acres	3%	4%	10%	21%	22%	15%	6%	19%	100%
Tax Lots	100	26	32	29	13	5	1	1	207
Percent of Tax Lots	48%	13%	15%	14%	6%	2%	0%	0%	100%

In addition to basic logistical considerations, there are workforce considerations for locating within a community. For example, in the Three Mile Lane study, it was found that employers located to the area because there were sites that had land needed for expansion; however, employees preferred to be in amenity-rich locations. Employers have had to adjust business practices to accommodate employees in these locations absent the presence of amenities, such as those which were available in prior locations before relocating to accommodate space needs. This largely illustrates the need for the city's growth management strategy of balanced land uses that provide for a nearby mix of uses and opportunities to reduce vehicle miles travelled.

For certain development types, there is a standardized taxonomy and these types have specific site characteristic needs. The City's economic development vision and strategy may deviate from some of these typical prototypes in order to promote an authentic place-based experience, but the real estate principles must still function properly. Exhibit 55 and Exhibit 56 show taxonomies for industrial and commercial categories. It should be noted that certain development types need larger sites that must be planned and located all at one time, even if future phases within the development build out over time. Therefore, those sites need to be accounted for up-front, rather than incrementally. Other land uses have needs that don't fit into these broad categories but have other programmatic needs that define the site needs. Examples of these ~~exogenous~~ other needed sites apply to uses such as convention/ conference space, regional athletic facilities, etc. For those facilities identified in the Economic Development Strategy that have special sites needs that aren't sufficiently accounted for in the land needs calculated by the employment forecast and employment density, site characteristics have been separately described below.

Exhibit 55. Shopping Center Taxonomy, ICSC



U.S. Shopping-Center Classification and Typical Characteristics*								
Type of Shopping Center	Concept	Typical GLA Range (Sq. Ft.)	Acres	# of Anchors	% Anchor GLA	Typical Number of Tenants	Typical Type of Anchors	Trade Area Size
General-Purpose Centers								
Super-Regional Mall	Similar in concept to regional malls, but offering more variety and assortment.	800,000+	60-120	3+	50-70%	N/A	Full-line department store, mass merchant, discount department store, fashion apparel store, mini-anchor, cineplex or other large-scale entertainment attraction, and food-and-beverage service cluster.	5-25 miles
Regional Mall	General merchandise or fashion-oriented offerings. Typically, enclosed with inward-facing stores connected by a common walkway. Parking surrounds the outside perimeter.	400,000-800,000	40-100	2+	50-70%	40-80 stores	Full-line department store, mass merchant, discount department store, fashion apparel store, mini-anchor, cineplex or other large-scale entertainment attraction, and food-and-beverage service cluster.	5-15 miles
Community Center ("Large Neighborhood Center")	General merchandise or convenience-oriented offerings. Wider range of apparel and other soft goods offerings than neighborhood centers. The center is usually configured in a straight line as a strip, or may be laid out in an L or U shape, depending on the site and design.	125,000-400,000	10-40	2+	40-60%	15-40 stores	Discount store, supermarket (toys, books, electronics, home improvement/furnishings or sporting goods, etc.)	3-6 miles
Neighborhood Center	Convenience-oriented.	30,000-125,000	3-5	1+	30-50%	5-20 stores	Supermarket	3 miles
Strip/Convenience	Attached row of stores or service outlets managed as a coherent retail entity, with on-site parking usually located in front of the stores. Open canopies may connect the storefronts, but a strip center does not have enclosed walkways linking the stores. A strip center may be configured in a straight line, or have an "L" or "U" shape. A convenience center is among the smallest of the centers, whose tenants provide a narrow mix of goods and personal services to a very limited trade area.	< 30,000	<3	Anchor-less or a small convenience-store anchor.	N/A	N/A	Convenience store, such as a mini-mart.	<1 mile
Specialized-Purpose Centers								
Power Center	Category-dominant anchors, including discount department stores, off-price stores, wholesale clubs, with only a few small tenants.	250,000-600,000	25-80	3+	70-90%	N/A	Category killers, such as home improvement, discount department, warehouse club and off-price stores	5-10 miles
Lifestyle	Upscale national-chain specialty stores with dining and entertainment in an outdoor setting.	150,000-500,000	10-40	0-2	0-50%	N/A	Large-format upscale specialty	8-12 miles
Factory Outlet	Manufacturers' and retailers' outlet stores selling brand-name goods at a discount.	50,000-400,000	10-50	N/A	N/A	N/A	Manufacturers' and retailers' outlets	25-75 miles
Theme/Festival	Leisure, tourist, retail and service-oriented offerings with entertainment as a unifying theme. Often in urban areas, they may be adapted from older—sometimes historic—buildings, and part of a mixed-use project.	80,000-250,000	5-20	Unspecified	N/A	N/A	Restaurants, entertainment	25-75 miles
Limited-Purpose Property								
Airport Retail	Consolidation of retail stores located within a commercial airport.	75,000-300,000	N/A	N/A	N/A	N/A	No anchors; retail includes specialty retail and restaurants	N/A

*Disclaimer: While every effort is made to ensure the accuracy and reliability of the information contained in this report, ICSC does not guarantee and is not responsible for the accuracy, completeness or reliability of the information contained in this report. Use of such information is voluntary, and reliance on it should only be undertaken after an independent review of its accuracy, completeness, efficiency, and timeliness. Criteria used in the definitions above are intended to be only typical of general features, rather than covering all situations.



Exhibit 56. Industrial Development Profile Matrix, Business Oregon and Johnson Reid

	General Site	Clean Tech Campus		Heavy Industrial/	General	Food	High-Tech	Campus	Warehouse/	Call Center/
		Regional	Global	Manufacturing	Manufacturing	Processing	Manufacturing Processes	Industrial/Electronic	Distribution	Business Services
Physical Site Characteristics										
Net Contiguous Developable Area										
50-100 acres	x	x		x	x	x	x	x	x	x
101-200 acres	x	x	x	x	x	x	x	x	x	x
200+ acres	x	x	x	x	x	x	x	x	x	x
Maximum Slope	5%	5%	5%	5%	5%	5%	7%	10%	5%	12%
Infrastructure										
Transportation										
Auto/Truck	Req	Req	Req	Req	Req	Req	Req	Req	Req	Req
Interstate - Miles	10	15	10	10	20	30	15	10	5	NA
Trip Generation - ADT/Acre	65-192	76-106	76-106	42-58	76-106	76-106	76-106	76-106	65-86	144-192
Rail	Pref	Pref	Pref	Pref	Pref	Pref	NR	NR	Pref	NR
Marine	NA	Pref	Pref	Pref	Pref	Pref	NR	NR	Pref	NR
Airport - Regional Commercial	Pref	Pref	Pref	Pref	Pref	Pref	Pref	Pref	Pref	Pref
Max Distance - Miles	30	60	30	60	60	60	30	30	60	60
Airport - International	Pref	Pref	Pref	Pref	Pref	Pref	Pref	Pref	Pref	Pref
Distance - Miles	300	100	100	300	300	300	100	100	300	300
Water										
Min. Domestic Line Size/inches	8	10	8	8	8	10	10	10	4	4
Min. Fire Line Size/inches	10	10	10	10	10	10	10	8	10	8
High Pressure Supply	Pref	Pref	Pref	Pref	Pref	Pref	Pref	Pref	NR	NR
Flow/GPD	50-75,000	74,300	74,300	36,100	17,000	24,900	65,300	74,300	11,700	4,600
Sanitary Sewer	Req	Req	Req	Req	Req	Req	Req	Req	Req	Req
Min. Size/inches	8-10	10	10	8	8	10	10	8	4	4
Natural Gas/Preferred Min./inches										
Electricity		6	6	6	4	6	6	2	2	2
Min. Service Demand/kva	30-100 kva	x	x	x	x	x	x	x	x	x
Proximity to Substation	Pref	50	100	30	30	30	30	30	10	30
Secondary System Dependency	Pref	Req	Req	Pref	Pref	NR	Pref	Pref	NR	Pref
Telecommunications										
High Capacity	Req	Req	Req	Pref	Pref	Pref	Req	Req	Pref	Req
Route Diversity	Pref	Req	Req	NR	NR	NR	Req	Pref	NR	Req
Fiber Optics	Req	Req	Req	Pref	Pref	Pref	Req	Req	Pref	Req
Location										
Workforce/50 Mile Radius	20,000-50,000	50,000	300,000	30,000	30,000	20,000	50,000	50,000	20,000	25,000
Executive & Workforce Housing	Pref									

Req Required
 Pref Preferred
 NR Not Required
 NA Not Applicable

Business Oregon and Johnson Reid



To meet the requirements of OAR 660-009-0015(2) to identify the number of needed sites by type, we analyzed the existing distribution of developed sites by size (Exhibit 57) and applied it to overall land need for the 2021-2041 period. Acres are converted to number of sites using average acres per tax lot (0.531.65 for commercial, and 2.023.78 for industrial).¹¹⁴ Note that this method likely underestimates the need for larger sites as many employment developments – both commercial and industrial – are on multiple tax lots.

Exhibit 57 shows that McMinnville has a deficit of sites needed in both commercial and industrial land, across most size classes. Discussions with McMinnville Industrial Promotions (MIP) also confirmed need for industrial sites in the 5 to 30 acre range. Currently, McMinnville has about nine industrial sites in this range, and an estimated need for 7 sites in this range.

Exhibit 57. Size distribution of needed employment sites compared to sites with buildable acres, by land use type, McMinnville UGB, 2021-2041

Land Use	Developed acres size							Total
	<1 acre	1.00-1.99 acres	2.00-4.99 acres	5.00-9.99 acres	10.00-19.99 acres	20.00-49.99 acres	50.00+ acres	
Number of Sites								
Commercial	422	29	21	3	2	0	0	477
Industrial	44	12	11	5	2	1	1	76
Total	466	40	32	8	4	1	1	553

Land Use	Acre size							Total
	0.50-0.99 acre	1.00-1.99 acres	2.00-4.99 acres	5.00-9.99 acres	10.00-19.99 acres	20.00-49.99 acres	50.00+ acres	
Number of Needed Sites								
Commercial	77	40	29	4	3	0	0	153
Industrial	10	12	11	5	2	0	0	40
Number of Sites with Buildable Acres								
Commercial	4	6	9	4	2	0	0	25
Industrial	11	15	4	6	1	2	2	41
Surplus (Deficit)								
Commercial	(73)	(34)	(20)	0	(1)	-	-	(128)
Industrial	1	3	(7)	1	(1)	2	2	1

Source: ECONorthwest

Land Sufficiency

This section addresses Step 10: Compare Land Demand to Supply

Exhibit 58 shows commercial and industrial land sufficiency within the McMinnville UGB. It shows:

- **Vacant or partially vacant unconstrained land** from Exhibit 50 within the UGB. Exhibit 58 shows that McMinnville will have 312 gross acres of industrial land, and 73 gross acres of commercial land in 2021.

¹¹⁴ We excluded sites less than 0.5 acres from this table based on the OAR 660-009-0005(14) definition for vacant land, which was used for the BLL. Those sites are assumed to be available to meet identified refill and development needs.

- **Demand for commercial and industrial land** from Exhibit 48. Exhibit 58 shows McMinnville will need a total of 153 gross acres for industrial uses and ~~368~~358 gross acres for commercial uses over the 2021-2041 period based on portion of demand determined through the forecast.
- Retail Leakage Additional needs, addressed previously in this Chapter, include retail leakage that is current demand that predates the employment forecast associated with new population growth(12-acre demand over the 20-year period)
- Demand for ~~additional~~ commercial land needs **with other needed sites** not identified in the forecast adequately accounted for in the average employment density calculations. Forecast commercial land includes land use types of retail commercial, office and commercial services, and tourism services. Additional needs, addressed previously in this Chapter, include retail leakage (12-acre demand over the 20-year period) and other These uses **withfor other needed sites** exogenous commercial land needs for target sectors are identified in the Economic Development Strategic Plan (104-acre demand over the 20-year period), a net difference of 94 additional acres after adjusting for associated employment.
- Needed site sizes from Exhibit 57 shows that McMinnville has a deficit of needed site sizes for commercial land for sites between 0.5 and 5 acres, as well as between 10 and 20 acres. McMinnville also has a deficit of industrial sites between 2 and 5 acres, as well as between 10 and 20 acres.

Note to reviewers: This evaluation may change depending on decision to adjust needs based on MIP and MEDP letters.

Exhibit 58 shows that McMinnville has:

- A 159-acre surplus of industrial land in 2041
- A ~~286~~95-acre deficit of commercial land in 2041.

Exhibit 58. Comparison of the capacity of unconstrained vacant land with employment land demand by land use type, McMinnville UGB, 2021-2041

Land Use Type	Land Supply (Suitable Gross Acres)	Demand (Gross Acres)	Land Sufficiency (Deficit)
Industrial	312	153	159
Commercial	73	358	(286)
<i>Forecast</i>		252	
<i>Retail leakage</i>		12	
<i>Other needed sites</i>		94	

Land Use Type	Land Supply (Suitable Gross Acres)	Demand (Gross Acres)	Land Sufficiency (Deficit)
Industrial	312	153	159
Commercial	73	368	(295)
<i>Forecast</i>		252	
<i>Retail leakage</i>		12	
<i>Exogenous</i>		104	

Source: ECONorthwest

Summary of Land Sufficiency for Employment Land in McMinnville

This section summarizes the analysis completed in Chapter 5 and the findings related to land sufficiency for employment land in McMinnville.

Demand

McMinnville will need at least 512 gross acres (153 industrial and 358 commercial) for employment for the 2021 to 2041 period and 899 gross acres (329 industrial and 570 commercial) for the 2021 to 2067 period (Exhibit 4).

Demand was calculated in following components:

- By developing an employment forecast and assigning employment density factors to determine associated land needs, Employment forecasts indicate that McMinnville will add 6,885 jobs between 2021 and 2041 and 16,001 jobs between 2021 and 2067. For this component of the demand, McMinnville will need at least 405 gross acres (153 industrial and 252 commercial) for employment for the 2021 to 2041 period and 783 gross acres (329 industrial and 454 commercial) for the 2021 to 2067 period (Exhibit 4).

~~Demand was calculated in following components:~~

- ~~▪ By developing an employment forecast and assigning employment density factors to determine associated land needs, Employment forecasts indicate that McMinnville will add 6,885 jobs between 2021 and 2041 and 16,001 jobs between 2021 and 2067. Based on this employment forecast and employment density estimates, McMinnville will need at least 521 gross acres (153 industrial and 368 commercial) for employment for the 2021 to 2041 period and 899 gross acres (329 industrial and 570 commercial) for the 2021 to 2067 period (Exhibit 59)~~
- By removing the following employment from the employment forecast, and instead estimating land needs for these employers based on interviews with the respective entities: local government, K-12, and higher education. *These are discussed in the public and semi-public land needs section of the Urbanization Summary report, and are not discussed in the land sufficiency analysis for commercial and industrial employment.*
- By identifying the existing retail leakage identified in a market analysis, which identifies existing deficits in the base year which are not otherwise accounted for in the forecast of future employment from 2021-2041. *McMinnville will need about 12.2 acres to address existing retail leakage.*
- By estimating “exogenous” special site needs other needed sites which are not accounted for in the average density assumption employment forecast. The sites for these uses are unique and not accounted for in the employment forecast and standard employment density factors. These are target industries and uses in the Mac Town 2032 Economic Development Strategic Plan. *McMinnville will need 104 acres for exogenous-commercial land special site needs other needed sites (e.g., land needs not accounted for in the employment projections) in the 2021 to 2041 period. A net increase of 94 acres when*

[adjusting the employment forecast to reflect these unique site needs and adjustments to average density assumptions for these sites and uses.](#)

The City assumed 5% of new employment would be accommodated on sites that don't require new vacant land, through infill, redevelopment, and locations that don't require new employment land.

Draft

Supply

In 2019, within the UGB, McMinnville has 416 buildable acres of employment land, with 366 buildable acres in vacant lots and 50 buildable acres in partially-vacant lots. This includes 93 buildable acres of commercial land and 323 buildable acres of industrial land. By 2021, the forecast assumes there will have been demand for 31 gross acres of employment land: 11 gross acres of industrial land and 20 gross acres of commercial land. That leaves a 2021 supply of 385 buildable acres of employment land: 312 buildable acres of industrial land and 73 buildable acres of commercial land

- Commercial.** Of the 93 buildable acres of commercial land, about 60 acres are in vacant lots, and 33 acres are in partially-vacant lots. About 27 acres (approximately 30% of the buildable commercial land) is on the Evergreen property, which is subject to a Planned Development that limits uses to tourism-related uses consistent with the master plan. There are only about two dozen tax lots with buildable commercial acreage, and only some of these contiguous. There are only about a half dozen sites or contiguous properties that have buildable acreage over five acres, accounting for about 72% of the buildable acres.
- Industrial.** Of 323 buildable acres of industrial land, about 305 acres are in vacant lots, and 17 acres are in partially-vacant lots. About 55% of the supply (177 acres) is in two tax lots over 50 acres, about 88 and 90 acres. One site is just under 50 buildable acres (15% of the supply), and the remaining sites are below 15 buildable acres.

Sufficiency

Exhibit 59 shows the capacity of unconstrained vacant land and the demand for employment land over the 5-, 10-, 20-, and 46-year planning periods, as well as the pre-2021 period.

Exhibit 59. Comparison of the capacity of unconstrained vacant land with employment land demand by land use type, McMinnville UGB, 2019-2021, 2021-2026, 2021-2031, 2021-2041, and 2021-2067

Land Use Type	2019-2021			5-year (2021-2026)			10-year (2021-2031)			20-year (2021-2041)			46-year (2021-2067)		
	Land Supply	Land Demand	Land Sufficiency (Deficit)	Land Supply	Land Demand	Land Sufficiency (Deficit)	Land Supply	Land Demand	Land Sufficiency (Deficit)	Land Supply	Land Demand	Land Sufficiency (Deficit)	Land Supply	Land Demand	Land Sufficiency (Deficit)
Industrial	323	11	312	312	38	274	312	77	236	312	153	159	312	329	(17)
Commercial	93	20	73	73	63	10	73	126	(53)	73	368	(295)	73	570	(498)

Land Use Type	2019-2021			5-year (2021-2026)			10-year (2021-2031)			20-year (2021-2041)			46-year (2021-2067)		
	Land Supply	Land Demand	Land Sufficiency (Deficit)	Land Supply	Land Demand	Land Sufficiency (Deficit)	Land Supply	Land Demand	Land Sufficiency (Deficit)	Land Supply	Land Demand	Land Sufficiency (Deficit)	Land Supply	Land Demand	Land Sufficiency (Deficit)
Industrial	323	11	312	312	38	274	312	77	236	312	153	159	312	329	(17)
Commercial	93	20	73	73	63	10	73	126	(53)	73	358	(286)	73	570	(498)

Source: ECONorthwest.

The next chapter provides a discussion of McMinnville's existing Comprehensive Plan goals and policies related to economic development. It suggests updates to policies that may not align with the findings of this EOA or recent updates to supporting planning work including the MAC-Town 2032 Economic Development Strategic Plan.

6. Comprehensive Plan Policies

OAR 660-009-0020 outlines requirements for industrial and other economic development policies.

Local comprehensive plans are to provide a commitment to provide a competitive short-term supply together with a commitment to provide adequate sites and facilities. With this EOA, also identified are fulfillment of community economic development objectives.

Economic Development Goals and Policies

As noted at the outset of this EOA update report, the 2019 MAC-Town Economic Development Strategic Plan states the City of McMinnville's mission related to economic development:

"McMinnville provides economic opportunity for all residents through sustainable growth across a balanced array of traditional and innovative industry sectors, from steel manufacturing to technology. Economic growth is collaborative, and inclusive of individuals from diverse backgrounds. Businesses leverage local and regional talent pipelines while attracting new employees and residents who value McMinnville's high quality of life. Our strong downtown serves residents and visitors alike, featuring unique shops and world-class restaurants that offer locally-produced food products and globally-renowned wine. As we evolve, we prize our small-town roots and we maintain McMinnville's character."

The currently adopted Comprehensive Plan also includes more detailed goal statements, and some goals include specific policies. This EOA update provides suggested changes to goals and policies that may not align with the city's current vision for economic development. The suggested changes are indicated with items to **remove** or items to consider **adding**.

Goal IV 1: To encourage the continued growth and diversification of McMinnville's economy in order to enhance the general well-being of the community and provide employment opportunities for its citizens.

Goal IV 2: To encourage the continued growth of McMinnville as the commercial center of Yamhill County in order to provide employment opportunities, goods, and services for the city and county residents.

Policy:

- 21.00 Commercial uses and services which are not presently available to McMinnville residents will be encouraged to locate in the City. Such uses shall locate according to the goals and policies in the comprehensive plan.
- 21.01 The City shall periodically update its economic opportunities analysis to ensure that it has within its urban growth boundary (UGB) a 20-year supply of lands designated for commercial and industrial uses. The City shall provide an adequate

number of suitable, serviceable sites in appropriate locations within its UGB. If it should find that it does not have an adequate supply of lands designated for commercial or industrial use it shall take corrective actions which may include, but are not limited to, redesignation of lands for such purposes, or amending the UGB to include lands appropriate for industrial or commercial use. (Ord.4796, October 14, 2003)

- 21.02 The City shall encourage and support the start up, expansion or relocation of high-wage businesses to McMinnville.
 - 1. The City shall coordinate economic efforts with the Greater McMinnville Area Chamber of Commerce, McMinnville Industrial Promotions, McMinnville Downtown Association, Yamhill County, Oregon Economic and Community Development Department, and other appropriate groups.
 - 2. Economic development efforts shall identify specific high-wage target industries and ensure that adequately sized, serviced, and located sites exist within the McMinnville urban area for such industries. (Ord.4796, October 14, 2003)
- 21.03 The City shall support existing businesses and industries and the establishment of locally owned, managed, or controlled small businesses. (Ord.4796, October 14, 2003)
- 21.04 The City shall make infrastructure investments that support the economic development strategy a high priority, in order to attract high-wage employment. (Ord.4796, October 14, 2003)
- 21.05 Commercial uses and services which are not presently available to McMinnville residents will be encouraged to locate in the city. Such uses shall locate according to the goals and policies in the comprehensive plan. (Ord.4796, October 14, 2003)

Goal IV 3: To ensure commercial development that maximizes efficiency of land use through utilization of existing commercially designated lands, through appropriately locating future neighborhood and community serving commercial lands and discouraging strip development.

General Policies:

- 22.00 The maximum and most efficient use of existing commercially designated lands will be encouraged as will the revitalization and reuse of existing commercial properties.
- 23.00 Areas which could in the future serve as commercial sites shall be protected from encroachment by incompatible uses.
- 24.00 The cluster development of commercial uses shall be encouraged rather than auto-oriented strip development. (Ord.4796, October 14, 2003)

Locational Policies:

- 24.50 The location, type, and amount of commercial activity within the urban growth boundary shall be based on community needs as identified in the Economic Opportunities Analysis. (Ord.4796, October 14, 2003)

- 25.00 Commercial uses will be located in areas where conflicts with adjacent land uses can be minimized and where city services commensurate with the scale of development are or can be made available prior to development.
- 26.00 The size of, scale of, and market for commercial uses shall guide their locations. Large-scale, regional shopping facilities, and heavy traffic-generating uses shall be located on arterials or in the central business district, and shall be located where sufficient land for internal traffic circulation systems is available (if warranted) and where adequate parking and service areas can be constructed.
- 27.00 Neighborhood commercial uses will be allowed in residential areas. These commercial uses will consist only of neighborhood oriented businesses and will be located on collector or arterial streets. More intensive, large commercial uses will not be considered compatible with or be allowed in neighborhood commercial centers.
- 28.00 A commercial planned development should be encouraged in the proximity of the intersection of Hill Road and West Second Street. Such a development should service the needs of people in western McMinnville. The development should be anchored by a grocery store.

Design Policies:

- 29.00 New direct access to arterials by large-scale commercial developments shall be granted only after consideration is given to the land uses and traffic patterns in the area of development as well as at the specific site. Internal circulation roads, acceleration/deceleration lanes, common access collection points, signalization, and other traffic improvements shall be required wherever necessary, through the use of planned development overlays.
- 30.00 Access locations for commercial developments shall be placed so that excessive traffic will not be routed through residential neighborhoods and the traffic-carrying capacity of all adjacent streets will not be exceeded.
- 31.00 Commercial developments shall be designed in a manner which minimizes bicycle/pedestrian conflicts and provides pedestrian connections to adjacent residential development through pathways, grid street systems, or other appropriate mechanisms. (Ord.4796, October 14, 2003)
- 32.00 Where necessary, landscaping and/or other visual and sound barriers shall be required to screen commercial activities from residential areas.
- 33.00 Encourage efficient use of land for parking; small parking lots and/or parking lots that are broken up with landscaping and pervious surfaces for water quality filtration areas. Large parking lots shall be minimized where possible. All parking lots shall be interspersed with landscaping islands to provide a visual break and to provide energy savings by lowering the air temperature outside commercial structures on hot days, thereby lessening the need for inside cooling. (Ord.4796, October 14, 2003)
- 34.00 The City of McMinnville shall develop and maintain guidelines concerning the size, placement, and type of signs in commercial areas.

- 35.00 The City of McMinnville shall encourage the development of a sign system that directs motorists to parking areas.

Goal IV 4: To promote the downtown as a cultural, administrative service, and retail center of McMinnville.

Downtown Development Policies:

- 36.00 The City of McMinnville shall encourage a land use pattern that:
 - 1. Integrates residential, commercial, and governmental activities in and around the core of the city;
 - 2. Provides expansion room for commercial establishments and allows dense residential development;
 - 3. Provides efficient use of land for adequate parking areas;
 - 4. Encourages vertical mixed commercial and residential uses; and,
 - 5. Provides for a safe and convenient auto-pedestrian traffic circulation pattern. (Ord.4796, October 14, 2003)
- 37.00 The City of McMinnville shall strongly support, through technical and financial assistance, the efforts of the McMinnville Downtown Steering Committee to implement those elements of Phase II of the “Downtown Improvement Plan” that are found proper, necessary, and feasible by the City. (Ord.4796, October 14, 2003)
- 38.00 The City of McMinnville shall encourage the renovation and rehabilitation of buildings in the downtown area, especially those of historical significance or unique design.
- 39.00 The City of McMinnville shall encourage and allow the development of pocket parks, landscaping, and other natural amenities to provide a visual contrast between streets and parking lots and buildings to enhance the general appearance of the downtown.
- 40.00 The City of McMinnville shall encourage and develop a policy of cooperation with federal, state, and local governments and agencies regarding the location of public administrative and service facilities in the downtown area and further encourage these same agencies to develop off-street parking opportunities and transportation alternatives for their employees.
- 41.00 The City of McMinnville shall encourage the expansion of retail and other commercial enterprises east of the railroad tracks and north and south of Third Street consistent with the adopted “Downtown Improvement Plan.” (Ord.4796, October 14, 2003)
- 42.00 The City of McMinnville shall continue to redesignate streets and traffic patterns in and around the downtown area to facilitate the movement of automobile traffic and provide for the safety and convenience of pedestrians.

- 43.00 The City of McMinnville shall allow the closing and/or vacating of streets to provide additional areas for off-street parking where such closure will not affect the ability of the police and fire departments, and public utilities to provide their designated service functions or where such closures will not negatively affect the overall traffic circulation in the downtown area.
- 44.00 The City of McMinnville shall encourage, but not require, private businesses downtown to provide off-street parking and on-site traffic circulation for their employees and customers.
- 45.00 The City of McMinnville shall study the feasibility of developing bicycle and pedestrian paths and/or lanes between residential areas and the activity centers in the downtown. (Ord.4961, January 8, 2013)
- 46.00 The City shall work to implement the recommendations of the adopted “McMinnville Downtown Improvement Plan.”
- 46.01 The City shall, through its Landscape Review Committee, develop a list of street trees acceptable for planting within the public rights-of-way, parks and open spaces, and downtown. In addition, the committee shall develop standards for the planting of these trees, particularly within the downtown area, such that sidewalk and tree root conflicts are minimized. This effort should be coordinated with McMinnville Water and Light in an effort to minimize conflicts with utility lines.
- 46.02 The City shall, as funding permits and generally in the following order, periodically inventory trees within its public rights-of-way, parks and open spaces, and downtown area in order to assess the overall health of the city’s urban forest and to determine those specific trees that may require maintenance, or removal and replacement. As a goal, the City seeks to maintain a diverse urban forest in terms of age and species.
- 46.03 The City shall take steps to minimize hardships to property owners situated adjacent to street trees that may have been found to be the cause of, but not limited to, the cracking or raising of a public sidewalk, or interfering with sewer lines that serve his/her property. In such cases, the City shall install root barriers, if practicable, or remove the offending tree(s). (Ord. 4816, December 14, 2004; Ord.4796, October 14, 2003)

Proposals:

- 6.00 A planned development overlay should be placed on the large cluster commercial development areas and the entrances to the City to allow for review of site design, on-site and off-site circulation, parking, and landscaping. The areas to be overlaid by this designation shall be noted on the zoning map and/or comprehensive plan map.
- 7.00 The City of McMinnville should study the feasibility of designating areas fronting Third Street east of the railroad tracks for retail commercial only, and designated areas on the fringes of the downtown as office residential.

- 8.00 The City of McMinnville should encourage the development of a commercial planned development center in the southwestern portion of the city large enough in scale to serve the needs of the area’s population. The center should be in proximity of the intersection of Old Sheridan Road, U.S. Highway 99W, and Oregon Highway 18.

Goal IV 5: To continue the growth and diversification of McMinnville’s industrial base through the provision of an adequate amount of properly designated lands.

Goal IV 6: To insure industrial development that maximizes efficiency of land uses, that is appropriately located in relation to surrounding land uses, and that meets necessary environmental standards.

General Policies:

- 47.00 Industries that locate in the community shall meet federal, state, and local environmental standards. These standards shall be given full weight in evaluating the desirability of the industry. Criteria for evaluation shall include, but not be limited by the effect the industry would have on:
 - 1. The natural environment, including air and water quality, natural drainage ways, and soil properties and other physical characteristics of the land including topography.
 - 2. The human environment, including the amount of noise and traffic generated and the ability of the housing industry to provide sufficient dwelling units with at least an adequate level of required urban services.
 - 3. The physical facilities of the community, including the ability of sanitary and storm sewer systems, water supply and distribution system, energy supply distribution systems, police and fire, and schools to provide designated services.
- 48.00 The City of McMinnville shall encourage the development of new industries and expansion of existing industries that provide jobs for the local (McMinnville and Yamhill County) labor pools.

Locational Policies:

- 49.00 The City of McMinnville shall use its zoning and other regulatory methods to prevent encroachment into industrial areas by incompatible land uses.
- 49.01 The City shall designate an adequate supply of suitable sites to meet identified needs for a variety of different parcel sizes at locations which have direct access to an arterial or collector street without having to pass through residential neighborhoods. (Ord. 4961, January 8, 2013)
- 49.02 The location, type, and amount of industrial activity within the Urban Growth Boundary shall be based on community needs as identified in the Economic Opportunities Analysis. (Ord. 4961, January 8, 2013)

- 49.03 In designating new industrial properties, and in redesignating properties to industrial zoning from other designations, the City shall work to provide employment opportunities in locations that are reasonably accessible to McMinnville residents, while minimizing the need to drive through existing or planned residential neighborhoods. (Ord. 4961, January 8, 2013)
- 50.00 The City of McMinnville shall encourage industrial uses to locate adjacent to the airport and south of Three Mile Lane, adjacent to the existing Riverside Drive industrial area, and in existing industrial areas through the proper designation of lands on the comprehensive plan and zoning maps. Comprehensive plan and/or zoning map changes to industrial designations in other areas may be granted if all the applicable goals and policies of the plan can be met.
 - *The City should consider updating this policy to reflect findings of the Three Mile Lane Area Plan, which discusses potential commercial uses in this area.*
- 51.00 The City of McMinnville shall encourage the location of airport-related industrial uses only on the industrial land which is adjacent to the airport. Those lands so reserved shall be designated in the planned development overlay covering this area.
 - *The City should consider updating this policy to reflect updated goals for the area near the airport.*
- ~~52.00—The City of McMinnville shall create a new "limited light industrial" zone which shall be placed on the industrial areas on the south side of Three Mile Lane in those areas where residential development is expected on the north side of the road. The new zone will allow only those types of industrial uses that will not conflict with the residential uses.~~
- ~~53.00—The City of McMinnville shall encourage the phased development of industrial land so that a moderate rate of growth occurs. A moderate rate of growth will be considered that rate which enables the City to provide urban services in a timely, orderly, and economic fashion, and which allows the private sector to provide for the needs of the new residents.~~
- 54.00 The City of McMinnville shall establish industrial planned development ordinances which shall be placed over the future industrial areas designated on the McMinnville Comprehensive Plan Map, the industrial reserve area, and certain existing industrially designated areas within the city limits. The overlay shall also be applied to any areas which are in the future designated for future industrial use through an amendment to the comprehensive plan map. The overlays shall provide standards to control the nuisance and negative environmental effects of industries. These controls shall cover, but not be limited to, the following areas:
 - 1. Landscaping and screening
 - 2. Noise suppression
 - 3. Light and heat suppression
 - 4. Pollution control for air, water, and land

- 5. Energy impacts
- 6. Traffic impacts
- 55.00 Deleted as per Ord. 4796, October 14, 2003.
- 56.00 Deleted as per Ord. 4796, October 14, 2003.
- 57.00 Agricultural activities shall be encouraged on industrially designated lands until such time as the lands are utilized for industrial purposes.

Draft

Appendix A. Buildable Lands Inventory

ECONorthwest prepared a Goal 10 compliant Economic Opportunities Analysis (EOA) for the City of McMinnville to assess whether the city has sufficient land within its Urban Growth Boundary (UGB) to accommodate population and employment growth forecast for the 20-year period between 2021 and 2041, as well as 5-, 10-, and 46-year planning periods. A key component of this study is the buildable lands inventory (BLI).

The legal requirements that govern the BLI for the City of McMinnville are defined in Statewide Planning Goal 10, OAR 660-009-0005, and OAR 660-009-0015(3). This Appendix summarizes the methods ECONorthwest used to conduct employment buildable lands inventory.

Study Area

The Commercial and Industrial BLI for McMinnville includes all commercial and industrial land within the McMinnville UGB. From a practical perspective, this means that all lands within tax lots identified by the Yamhill County Assessment and Taxation Office that fall within a commercial or industrial plan designation were inventoried. Note that tax lots do not generally include road or railroad rights-of-way or water. ECONorthwest used a July 2018 tax lot shapefile (the same data used for the residential BLI) from Yamhill County for the analysis, as well as previous information used for the 2013 EOA. The inventory then builds from the tax lot-level database to estimates of buildable land by plan designation.

Methods for Inventory of Commercial and Industrial Lands

For commercial and industrial land, the general structure is similar to the residential lands process with a few differences. The buildable lands inventory uses methods and definitions that are consistent with OAR 660-009 and OAR 660-024. Following are the administrative rules that provide guidance on the commercial and industrial BLI.

OAR 660-009-0005:

(1) *"Developed Land"* means non-vacant land that is likely to be redeveloped during the planning period.

(2) *"Development Constraints"* means factors that temporarily or permanently limit or prevent the use of land for economic development. Development constraints include, but are not limited to, wetlands, environmentally sensitive areas such as habitat, environmental contamination, slope, topography, infrastructure deficiencies, parcel fragmentation, or natural hazard areas.

(11) *"Site Characteristics"* means the attributes of a site necessary for a particular industrial or other employment use to operate. Site characteristics include, but are not limited to, a minimum acreage or site configuration including shape and topography, visibility, specific types or levels of public facilities, services or energy infrastructure, or proximity to a particular transportation or freight

facility such as rail, marine ports and airports, multimodal freight or transshipment facilities, and major transportation routes.

(12) "Suitable" means serviceable land designated for industrial or other employment use that provides, or can be expected to provide the appropriate site characteristics for the proposed use.

(13) "Total Land Supply" means the supply of land estimated to be adequate to accommodate industrial and other employment uses for a 20-year planning period. Total land supply includes the short-term supply of land as well as the remaining supply of lands considered suitable and serviceable for the industrial or other employment uses identified in a comprehensive plan. Total land supply includes both vacant and developed land.

(14) "Vacant Land" means a lot or parcel:

(a) Equal to or larger than one half-acre not currently containing permanent buildings or improvements; or

(b) Equal to or larger than five acres where less than one half-acre is occupied by permanent buildings or improvements.

Unlike with residential lands, the rules for employment lands include the concept of "suitability" which can be affected by factors other than the physical attributes of land. (See OAR 660-009-0005 (11) and (12) above.) The proposed BLI methods do not fully address the suitability factors, rather, they more narrowly assess whether a parcel is buildable based solely on attributes of the land. ECONorthwest had additional discussions with City staff about the assumptions embedded in the BLI as well as whether to apply additional suitability factors to employment lands, and if so, what factors to use.

Inventory Steps

The steps in the inventory of commercial and industrial buildable lands are:

1. Generate UGB "land base"
2. Classify lands by development status
3. Identify constraints
4. Verify inventory results
5. Tabulate and map results

Step 1: Generate UGB "land base"

The commercial and industrial inventory used all of the tax lots in the McMinnville UGB with the appropriate plan designations. Specific designations that were used include:

- Commercial
- Industrial

Step 2: Classify lands

In this step, ECONorthwest classified each tax lot with a plan designation of Commercial or Industrial (based on the lot's status as of January 2019) into one of five mutually exclusive categories based on development status:

- Developed land
- Vacant land
- Partially vacant land
- Public or exempt land

ECONorthwest initially identified buildable land and classify development status using a rule-based methodology. The rules are described below.

Development Status	Definition	Statutory Authority
Vacant Land	<p>A tax lot: (a) Equal to or larger than on half-acre not currently containing permanent buildings or improvements; or (b) Equal to or larger than five acres where less than one half-acre is occupied by permanent buildings or improvements</p> <p>For the purpose of criteria (a) above, lands with improvement values of \$0 were be considered vacant.</p>	OAR 660-009-005(14)
Partially Vacant Land	Partially vacant tax lots are those between one and five acres occupied by a use that could still be further developed based on the zoning. This determination is based on a visual assessment and City staff verification.	No statutory definition
Public or Exempt Land	Lands in public or semi-public ownership are considered unavailable for commercial or industrial development. This includes lands in Federal, State, County, or City ownership as well as lands owned by churches and other semi-public organizations and properties with conservation easements. Public lands are identified using the Yamhill County Assessment property tax exemption codes.	No statutory definition
Developed Land	<p>OAR 660-009-005(1) defines developed land as "Non-vacant land that is likely to be redeveloped during the planning period."</p> <p>Lands not classified as vacant, partially-vacant, undevelopable, or public or exempt are considered developed.</p>	OAR 660-009-005(1)

Step 3: Identify constraints

The commercial and industrial inventory uses development constraints consistent with guidance in OAR 660-009-0005(2). Most of the development constraints are the same as those used for residential lands. (The exception is steep slopes, which are defined as 15% or greater for employment lands and 25% or greater for residential lands.) Note that the previous EOA in 2013 used the 25% threshold for steep slopes. In the 2020 update, the PAC recommended using 15% to better reflect needs for development of employment land.

Constraint	Statutory Authority	Threshold	File name
Goal 5 Natural Resource Constraints			
Regulated Wetlands	OAR 660-009-0005(2)	Within National Wetlands Inventory	NWI
Natural Hazard Constraints			
Floodways	OAR 660-009-0005(2)	Lands within FEMA FIRM identified floodway	Floodplains_and_Floodways
100 Year Floodplain	OAR 660-009-0005(2)	Lands within FEMA FIRM 100-year floodplain	Floodplains_and_Floodways
Steep Slopes	OAR 660-009-0005(2)	Slopes greater than 15%	TBD

These areas were treated as prohibitive constraints (unbuildable). All constraints were merged into a single constraint file, which was then used to identify the area of each tax lot that is constrained. These areas were deducted from lands that were identified as vacant or partially vacant.

Step 4: Verify inventory results

As with the residential BLI, ECONorthwest used a multi-step verification process. This included review of aerial imagery, discussion and verification with City staff, and review of 2013 EOA results.

Step 5: Tabulate and map results

The results of the commercial BLI are presented in tabular and map format in Chapter 5.

Appendix B. Employment on Other Land and Employment Density

This appendix presents research and findings that ECONorthwest completed to provide rationale for employment density and “refill” and redevelopment assumptions for the 2020 update of the City of McMinnville’s EOA. It presents empirical analysis of existing employment densities in McMinnville and information on assumptions used for EOAs in comparison cities noted in *Exhibit 1*.

Exhibit 1. Cities used for comparison to the City of McMinnville by population and county

City	Population (2018 PSU Estimate)	County
Ashland	20,815	Jackson
Newberg	23,795	Yamhill
Redmond	29,190	Deschutes
Grants Pass	37,285	Josephine
Albany	53,145	Linn & Benton
Corvallis	59,280	Benton
Bend	89,505	Deschutes

In addition, with the 2013 EOA, the City also previously collected comparative data from other cities and the 2001/03 EOA for employment density and “refill” and redevelopment factors. That is summarized in Figure 40 of the 2013 EOA, which is also attached at the end of this document. It also includes guidelines from DLCD’s Goal 9 Guidebook. The City elected to add additional comparable cities to the analysis as three of the five cities in Figure 40 are metro cities with considerably different economic development opportunities and strategies.

Employment on Other (Non-Vacant) Land

ECONorthwest compiled information from the comparison cities on assumptions used in each city’s EOA for employment that doesn’t require vacant commercial or industrial land. (This corresponds to step 6 in the EOA summary matrix.) The 2013 McMinnville EOA used an overall assumption for employment on non-vacant land of 17%. Exhibit 2 summarizes assumptions used in other Oregon comparison cities.

Exhibit 2. Employment on other land assumptions for comparison cities

City	Emp. on Other Land	Rationale/Approach	Date
Ashland	20%	Empirical analysis of capacity on redevelopable lands.	2007
Newberg	5% (retail only)	Empirical analysis. (See Figure 40 on pg. 85 of 2013 McMinnville EOA)	2006
Redmond	10%	Reasonable judgement. (pg. 5-29).	2005
Grants Pass	10%	Reasonable judgement based on comparison areas. (pg. 8-46)	2007
Albany	0%	Redevelopment was accounted for in the BLI, so they did not account for it again in the forecast. (pg. 11)	2005
Corvallis	Industrial: 11% Retail: 12% Office: 29%	Reasonable judgement based on available buildable land. (pg. 4-56)	2016
Bend		Note: Bend used a site-based approach for estimating land need. We do not recommend this approach.	2016

DLCD's Goal 9 workbook presented guidelines of 85-90% growth on vacant land, based on 10-15% refill and redevelopment cited as a rule of thumb.

The effect of applying refill and redevelopment rates to existing developed land is to implicitly increase the employment density on those lands. Employment density is discussed further in the next section, but must be evaluated together with assumptions about refill and redevelopment. As discussed in the next section, the observed density of employment in commercial and industrial plan designations is currently about 10 employees/net acre in industrial plan designations (down slightly from the 2013 EOA) and 23 employees/net acre in commercial plan designations (up slightly from the 2013 EOA). Exhibits 3A-3C show the effective densities resulting from applying 17%, 10%, and 5% of new employment to developed commercial and industrial sites.

For industrial employment, this ranges from absorbing between 96 to 325 additional employees from present through 2041, and increasing to absorb between 191 to 650 additional employees from present through 2067 on *currently* developed properties. This would increase the employment density for these sites from 10 employees/acre to between 11 to 12 employees/acre.

For commercial development, this ranges from absorbing between 295 to 1,003 additional employees from present through 2041, and increasing to absorb between 619 to 2,103 additional employees from present through 2067 on *currently* developed properties. This would increase the employment density for these sites from 23 employees/acre to between 25 to 29 employees per acre.

Exhibit 3A. Effective Employment Densities with 17% Refill/Redevelopment Assumption on Current Developed Commercial and Industrial Sites

Plan Designation	Covered Employment by Plan Des.	Total Emp. Calc. by Plan Des.	Net Unconstrained Developed Acres in Plan Designation	Effective Employment per Net Acre on Current Developed, Non-Vacant Sites							
				Current Calc Emp Density	17% of Add'l Emp to 2041	Tot Emp Exist Sites by Plan Des. In 2041	Emp. Density Exist Sites with 17% of emp to 2041	17% of Add'l Emp to 2067	Tot Emp Exist Sites by Plan Des. In 2067	Emp. Density Exist Sites with 17% of emp to 2067	
Industrial	3,422	4,485	428	10	325	4,810	11	650	5,135	12	
Commercial	6,245	8,184	357	23	1,003	9,187	26	2,103	10,287	29	

Exhibit 3B. Effective Employment Densities with 10% Refill/Redevelopment Assumption on Current Developed Commercial and Industrial Sites

Plan Designation	Covered Employment by Plan Des.	Total Emp. Calc. by Plan Des.	Net Unconstrained Developed Acres in Plan Designation	Effective Employment per Net Acre on Current Developed, Non-Vacant Sites							
				Current Calc Emp Density	10% of Add'l Emp to 2041	Tot Emp Exist Sites by Plan Des. In 2041	Emp. Density Exist Sites with 10% of emp to 2041	10% of Add'l Emp to 2067	Tot Emp Exist Sites by Plan Des. In 2067	Emp. Density Exist Sites with 10% of emp to 2067	
Industrial	3,422	4,485	428	10	191	4,676	11	383	4,868	11	
Commercial	6,245	8,184	357	23	590	8,774	25	1,237	9,421	26	

Exhibit 3C. Effective Employment Densities with 5% Refill/Redevelopment Assumption on Current Developed Commercial and Industrial Sites

Plan Designation	Covered Employment by Plan Des.	Total Emp. Calc. by Plan Des.	Net Unconstrained Developed Acres in Plan Designation	Effective Employment per Net Acre on Current Developed, Non-Vacant Sites							
				Current Calc Emp Density	5% of Add'l Emp to 2041	Tot Emp Exist Sites by Plan Des. In 2041	Emp. Density Exist Sites with 5% of emp to 2041	5% of Add'l Emp to 2067	Tot Emp Exist Sites by Plan Des. In 2067	Emp. Density Exist Sites with 5% of emp to 2067	
Industrial	3,422	4,485	428	10	96	4,581	11	191	4,676	11	
Commercial	6,245	8,184	357	23	295	8,479	24	619	8,803	25	

Both the industrial and commercial employment densities have remained nearly the same over time: from the 2001/03 EOA, the empirical calculations in the 2013 EOA, and the empirical calculations in the current analysis. Industrial densities have decreased slightly from about 11 employees/acre to about 10 employees/acre. Commercial densities have increased slightly from about 22 employees/acre to about 23 employees/acre.

The 2001/03 EOA used variable assumptions for refill/redevelopment, with 17% for industrial, 15% for commercial, and 13% for institutional, while the 2013 EOA increased these all to 17%.

Average employment densities don't appear to have increased consistent with those rates. Actual changes compared to assumptions about refill/redevelopment of the existing developed sites may be the result of:

- Refill/redevelopment has not occurred, or has occurred at lower rates than assumed in McMinnville's prior EOAs
- Employment densities of existing businesses may have declined, through reduction of employees or through expansion of facilities without commensurate increases in employment densities
- Increases in employment density in some cases may have been offset by reductions in employment density in other cases

Potential reasons may include:

- Increases in automation, where operations occupy the same space, but with fewer employees
- More new businesses/new land use of types with the same or lower employment densities than previous business' employment densities
 - Potential increases in area devoted to storage, cold storage, warehousing, and distribution, some of which may increase together with surrounding agricultural uses.
 - Potential increases in area devoted to indoor grow operations, potentially further increasing from the growth of industrial hemp production.¹¹⁵

The dynamics of new job creation should also be considered in evaluating refill and redevelopment.

- How strongly is job growth correlated with the size or age of a business? How much job growth is created through newer start-ups vs. long-term growth of more established businesses? How many smaller entrepreneurial businesses intend to grow to be larger businesses vs. remain smaller?
- While there may be capacity to add employees within established space for existing businesses, new businesses may need their own facilities that can't be located within the facilities of other businesses. Some existing businesses may retain partially vacant sites in the event they need to expand. Some businesses will require ownership of their land and facilities rather than leasing space on existing developed sites.

An assumption of 5% industrial refill/redevelopment would result in an increase in employment density from about 10 emp/ac to about 11 emp/ac on existing developed sites. This is generally consistent with McMinnville's historic trends.

¹¹⁵ <https://www.forbes.com/sites/andrebourque/2019/01/31/how-hemp-is-moving-oregon-marijuana-to-an-indoor-grow-crop/#10ff80b960ed>

The empirical calculated density for commercial sites in the 2013 EOA was 22 emp/acre, but an aspirational policy of 26 emp/acre was adopted. Any of the three scenarios calculated above (5%, 10%, or 17%) for refill/redevelopment on *currently* developed sites would result in an increase in density on these sites that would exceed currently observed densities, ranging from 24 to 26 emp/acre by 2041. Carrying over the 17% assumption from the 2013 EOA would mean an assumed employment density of 29 emp/acre on these sites by 2067, compared to the current 23 emp/acre, and exceeding even the aspirational overall assumption of 26 emp/acre used in the 2013 EOA. An assumption of 5% commercial refill/redevelopment would result in an increase in employment density from 23 emp/ac to 25 emp/ac on these sites in 2067.

Recommended approach and assumptions

This update could simply carry forward the 17% refill/redevelopment assumption from the 2013 EOA for all categories, but the analysis of empirical data, calculations of effective density, and comparisons with other cities and the DLCDC Goal 9 Guidebook suggest that assumption is high, and that McMinnville hasn't achieved this historically. Further, even if that level of refill/redevelopment had been achieved historically, carrying over an assumption for each planning period would have a compounding effect of assuming unlimited, successively higher capacity of the same existing developed sites to absorb more employment each time. This would push the employment density for those developed lands up each planning cycle, where infill and redevelopment would have already theoretically occurred and increased in each previous planning cycle.

A reasonable assumption would be 5% refill/redevelopment for both commercial and industrial employment, which is what we would recommend. This would result in an increase in employment density on currently developed sites, still exceeding the empirical employment densities from the 2013 EOA.

The assumed 17% refill/redevelopment rate from the 2013 EOA would be an aspirational assumption that exceeds the empirical densities and exceeds the aspirational density from the 2013 EOA. It is an estimate that we don't anticipate will be achieved, and is higher than most comparisons. The 2001/03 EOA refill/redevelopment assumption of 17% for industrial and 15% for commercial is another aspirational assumption that hasn't been observed historically.

The tables below show the result of the 5%, 10%, and 17% refill/redevelopment assumptions for comparison for the 2021-2041 period.

The government land use type is excluded from the remaining employment forecast calculations, as we account for government employment in calculations for other land needs.

Exhibit 4a. Estimate of new employment that will require vacant land, McMinnville UGB, 2021 to 2041 (17% Assumption)

Land Use Type	New Employment Growth	Emp. on Other Land	New Emp. on Vacant Land
Industrial	1,667	283	1,384
Retail Commercial	383	65	318
Office & Commercial Services	3,346	569	2,777
Tourism Services	1,269	216	1,053
Total	6,665	1,133	5,532

Exhibit 4b. Estimate of new employment that will require vacant land, McMinnville UGB, 2021 to 2041 (10% Assumption)

Land Use Type	New Employment Growth	Emp. on Other Land	New Emp. on Vacant Land
Industrial	1,667	167	1,500
Retail Commercial	383	38	345
Office & Commercial Services	3,346	335	3,011
Tourism Services	1,269	127	1,142
Total	6,665	667	5,998

Exhibit 4c. Estimate of new employment that will require vacant land, McMinnville UGB, 2021 to 2041 (5% Assumption)

Land Use Type	New Employment Growth	Emp. on Other Land	New Emp. on Vacant Land
Industrial	1,667	83	1,584
Retail Commercial	383	19	364
Office & Commercial Services	3,346	167	3,179
Tourism Services	1,269	63	1,206
Total	6,665	332	6,333

Employment Density

ECONorthwest completed an empirical analysis of the overall employment density in commercial and industrial areas, as well as in sample areas for the following land use types included in the employment forecast—industrial, office commercial, and retail commercial.¹¹⁶ The 2013 McMinnville EOA used the following assumptions for employment density:

- **Industrial:** 11 employees per acre
- **Commercial:** 26 employees per acre

The 2013 EOA included an empirical analysis of employment density. The 11 employee/acre industrial density was the empirical calculated density. The empirical commercial employment density was 22 employees per acre. The 26 employee/acre density was an aspirational, policy-based assumption.

In the PAC materials provided for the meeting on September 5, 2019, we completed a sensitivity analysis for employment density based on the 2013 EOA assumptions. The analysis shows the effect of a 10% increase and 10% decrease of the 2013 employment density assumptions and the range of resulting needed acreage. The PAC requested further research based on existing employment density in McMinnville. The results of that analysis are provided in this section.

Overall employment density for existing employment in McMinnville

The analysis of overall employment density for commercial and industrial areas included lots identified as “developed” in the buildable lands inventory (BLI) and summarized the employment per acre on these sites by plan designation (commercial or industrial land only). Land in wetlands was removed from the acreage calculation to better account for land used for employment. We calculated employment density, expressed here as total employees per acre, by dividing the number of employees on developed sites in commercial and industrial plan designations by the acreage (less wetlands) of those developed sites. The results of this calculation were:

- **Industrial:** 10 employees per acre
- **Commercial:** 23 employees per acre

Exhibit 5 shows the results of applying these employment density assumptions for the remaining land use types.

¹¹⁶ The other land use types—tourism services and government—were excluded from the sample area analysis. The PAC will be discussing site characteristics. The sites needed for tourism services are typically similar to the needs for retail commercial. Thus, it is reasonable to assume the same employment density for both tourism services and retail commercial. Government employment will not require vacant commercial and industrial land, so we did not analyze employment density for this land use type.

Exhibit 5a. Estimate of future land demand for new employment (plan designation approach), McMinnville UGB, 2021 to 2041, after 17% deduction

Land Use Type	New Emp. on Vacant Land	Employees per Acre (Net Acres)	Land Demand (Net Acres)	Land Demand (Gross Acres)
Industrial	1,467	10	147	156
Retail Commercial	337	23	15	18
Office & Commercial Services	2,945	23	128	156
Tourism Services	1,117	23	49	59
Total	5,866		338	389

Exhibit 5b. Estimate of future land demand for new employment (plan designation approach), McMinnville UGB, 2021 to 2041, after 10% deduction

Land Use Type	New Emp. on Vacant Land	Employees per Acre (Net Acres)	Land Demand (Net Acres)	Land Demand (Gross Acres)
Industrial	1,500	10	150	160
Retail Commercial	345	23	15	18
Office & Commercial Services	3,011	23	131	160
Tourism Services	1,142	23	50	61
Total	5,998		346	398

Exhibit 5c. Estimate of future land demand for new employment (plan designation approach), McMinnville UGB, 2021 to 2041, after 5% deduction

Land Use Type	New Emp. on Vacant Land	Employees per Acre (Net Acres)	Land Demand (Net Acres)	Land Demand (Gross Acres)
Industrial	1,584	10	158	169
Retail Commercial	364	23	16	19
Office & Commercial Services	3,179	23	138	169
Tourism Services	1,206	23	52	64
Total	6,333		365	420

While this approach provides a reasonable indication of employment densities in McMinnville, the mix of types of employment on sites may affect the overall result (i.e., not all employment in industrial areas is classified as industrial employment). However, these results align with comparable areas and previous guidelines for calculating employment density, and are therefore reasonable assumptions for the purposes of the EOA.

Sample area employment density for existing employment in McMinnville

ECONorthwest also analyzed sample areas representative of employment in McMinnville by land use type. City staff assisted in choosing these areas for further analysis based on local knowledge as well as requirements for data confidentiality. Again, we calculated the employment density by dividing the number of total employees in each sample area by the total acreage of the sample area site. The results by land use type were:

- **Industrial:** 11 employees per acre
- **Office commercial:** 29 employees per acre
- **Retail commercial:** 19 employees per acre

Similar to the first approach to calculate overall employment density, a sample area approach also has limitations. Sample areas, by definition, do not provide information on employment density across McMinnville. However, these areas were chosen based on a representation of typical employment areas in McMinnville. Limitations in data availability, reporting, and confidentiality also present limitations in results.

The results of both approaches align with results from other studies in comparable cities, as well as the guidelines in DLCD's *Industrial and Other Employment Lands Analysis—Basic Guidebook*, which states:

“Typical employment densities per net acre range from 8 - 12 jobs for industrial; 14 - 20 jobs for commercial; and 6 - 10 jobs for institutional/other jobs.”

The next section provides background information on employment density assumptions used in cities that are comparable to McMinnville.

Exhibit 6 shows the results of applying these employment density assumptions for the remaining land use types.

Exhibit 6a. Estimate of future land demand for new employment (sample area approach), McMinnville UGB, 2021 to 2041, after 17% deduction

Land Use Type	New Emp. on Vacant Land	Employees per Acre (Net Acres)	Land Demand (Net Acres)	Land Demand (Gross Acres)
Industrial	1,384	11	126	134
Retail Commercial	318	19	17	20
Office & Commercial Services	2,777	29	96	117
Tourism Services	1,053	19	55	68
Total	5,532		294	339

Exhibit 6b. Estimate of future land demand for new employment (sample area approach), McMinnville UGB, 2021 to 2041, after 10% deduction

Land Use Type	New Emp. on Vacant Land	Employees per Acre (Net Acres)	Land Demand (Net Acres)	Land Demand (Gross Acres)
Industrial	1,500	11	136	145
Retail Commercial	345	19	18	22
Office & Commercial Services	3,011	29	104	127
Tourism Services	1,142	19	60	73
Total	5,998		319	367

Exhibit 6c. Estimate of future land demand for new employment (sample area approach), McMinnville UGB, 2021 to 2041, after 5% deduction

Land Use Type	New Emp. on Vacant Land	Employees per Acre (Net Acres)	Land Demand (Net Acres)	Land Demand (Gross Acres)
Industrial	1,584	11	144	153
Retail Commercial	364	19	19	23
Office & Commercial Services	3,179	29	110	134
Tourism Services	1,206	19	63	77
Total	6,333		336	388

Employment density comparison

City of McMinnville staff provided ECONorthwest with a list of cities typically used for comparison purposes. The cities and their population are listed in Exhibit 7.

Exhibit 7. Cities used for comparison to the City of McMinnville by population and county

City	Population (2018 PSU Estimate)	County
Ashland	20,815	Jackson
Newberg	23,795	Yamhill
Redmond	29,190	Deschutes
Grants Pass	37,285	Josephine
Albany	53,145	Linn & Benton
Corvallis	59,280	Benton
Bend	89,505	Deschutes

Each city listed above has completed an EOA between 2005 and 2016. Methodologies for each EOA varied, and information related to employment density assumptions was not consistently reported. The assumptions document in each EOA are listed in Exhibit 8, along with a description of the rationale or approach used for arriving at the employment density numbers, if available. These approaches generally fell into two categories, either (1) a reasonable judgement based on comparable cities or (2) an empirical analysis of existing employment density or other metric.

Exhibit 8. Employment densities for comparison cities

City	Employment Density (employees per acre)			Rationale/Approach	Date
	Industrial	Commercial	Retail		
Ashland	12	17	--	Reasonable judgement/comparison (pg. C-6)	2007
Newberg	11	21	21	Empirical analysis (pg. 84 McMinnville 2013 EOA)	2010
Redmond	5 (low) – 12 (high)	12 (low) – 20 (high)	--	Empirical analysis/comparison (pg. 5-29)	2005
Grants Pass	10	17	17	Reasonable judgement/comparison (pg.8-47)	
Albany	12	--	20	Reasonable judgement/comparison (pg 11)	2007
Corvallis	10	35	25	Empirical analysis (pg 4-60)	2016
Bend	--	--	--	<i>Note: Bend did not use an EPA approach for the 2016 EOA.</i>	2016

Recommended assumptions and approach

The results of the empirical analysis are within reasonable ranges for employment densities. Exhibit 9 shows the recommended approach of 11 employees per acre for industrial and 23 employees per acre for all other land use types. It would also be possible to use the commercial density as a total control for the commercial subcategories and allocate a proportion of the total acreage to each subcategory based on the share from the sampled employment densities if preferred, but we believe this method is reasonable.

Exhibit 9. Estimate of future land demand for new employment (recommended approach), McMinnville UGB, 2021 to 2041, after 5% refill/redevelopment deduction

Land Use Type	New Emp. on Vacant Land	Employees per Acre (Net Acres)	Land Demand (Net Acres)	Land Demand (Gross Acres)
Industrial	1,584	11	144	153
Retail Commercial	364	23	16	19
Office & Commercial Services	3,179	23	138	169
Tourism Services	1,206	23	52	64
Total	6,333		351	405

These calculations do not include the government land needs, which are calculated separately.

During discussion of site characteristics, a portion of the commercial uses will be split out and assigned to neighborhood-serving commercial and services to be located in neighborhood areas.

Figure 40. Comparative Employment Density & Redevelopment Factors

Reference	Employment Density (Jobs per Acre)	% of Job Growth on Vacant Employment Land
2001 McMinnville EOA	11 industrial 22 commercial 35 institutional	83% industrial 85% commercial 87% institutional (based on factors including 1-5% requires no non-res built space or land, 5-7% on existing developed land, and 5% vacancy rate)
DLCD Goal 9 Guidebook (2005)	8-12 industrial 14-20 commercial 6-10 institutional & other (demand for net acres; also noted is that each acre can accommodate 10-15 jobs for general commercial and office-park industrial, 20 for offices in non-metro downtowns & suburban settings)	85-90% job growth on vacant land (based on 10-15% use of vacant or redeveloped buildings cited as general rule of thumb)
Salem-Keizer Metro Area Regional EOA 2012-2032 (May 2011)	Forecast densities @: 20 light industrial (above 12-15 current) 36 general office (reflecting current average with range from 27 in retail areas to 73 in Salem central business area) Retail/personal service uses forecast not by jobs per acre (but @ 0.30 FAR)	95% industrial 83% general office (based on assumption that 5% of industrial and 17% of office new employment will locate in existing space or sites not requiring new land; EOA also notes that "there is no study that quantifies how much employment is commonly accommodated in existing built space over a 20-year period in a city.")
Albany EOA Update (2007)	12 industrial 20 commercial retail/services 10 government	100% job growth on vacant land (was at 90% with 2000 EOA @ 10% refill rate but adjusted to 0% rate as the updated 2007 BLI already accounted for infill and redevelopment on supply side of analysis)
Newberg EOA (2010)	11 industrial (including 10% increase in density as efficiency measure) 21 commercial retail & office (overall average with office calculated @ 40% FAR & avg 201 sf/job; retail estimated @ 14.8 net buildable acres per 1,000 new households)	See density for industrial Office appears to assume 100% development on vacant land Retail assumes 95% use of vacant land (with 5% assumed for infill & redevelopment)
City of Beaverton Final Draft EOA (2010)	18 general industrial 10 warehouse 23 flex/business park 58 office 30 retail 38 institutional (@ Metro method of jobs/bldg sf & FAR for densities)	94.2% industrial 92.7% commercial (calculated for excess vacancy above 6% target normalized rate with excess figures at 5.8% industrial, 7.3% commercial)
Metro Urban Growth Report (2009)	6 general industrial & warehouse 23 flex/business park 46 office 27 retail 27 institutional (Calculated using jobs/bldg sf & FAR for densities; @ low end of spectrum for outer ring suburbs)	80-90% general industrial, warehouse & flex/business park (10-20% refill) 70% office (30% refill) 40-70% retail (or 30-60% refill with most (generally @ lower end of refill rates) 60-65% institutional (or 35-40% refill) (Eange for outer ring suburbs, 2015-30 time period)

Sources: From documents prepared by ECONorthwest, Johnson-Gardner and E. D. Hovee & Company, LLC.

McMinnville Three Mile Lane Area Plan: Market Analysis

Date April 16, 2019 | FINAL DRAFT
To McMinnville Three Mile Lane Area Plan
Project Management Team
From Chris Zahas and Sam Brookham,
Leland Consulting Group

Executive Summary

This executive summary provides an overview of the McMinnville Three Mile Lane Market Analysis, which assesses conditions for residential, commercial, office, and industrial development, as well as public recreational facilities. The executive summary includes a description of residential, commercial, office, and industrial forecasts and demand.

Population and Employment Forecasts

The Population Research Center at Portland State University (PSU) produces the annual Population Estimates for Oregon and its counties and cities, as well as the estimates by age and sex for the state and its counties. The population is projected to grow faster from 2020 onwards within the McMinnville UGB than in Yamhill County.

Table ES- 1. Population Forecasts, 2017-2040

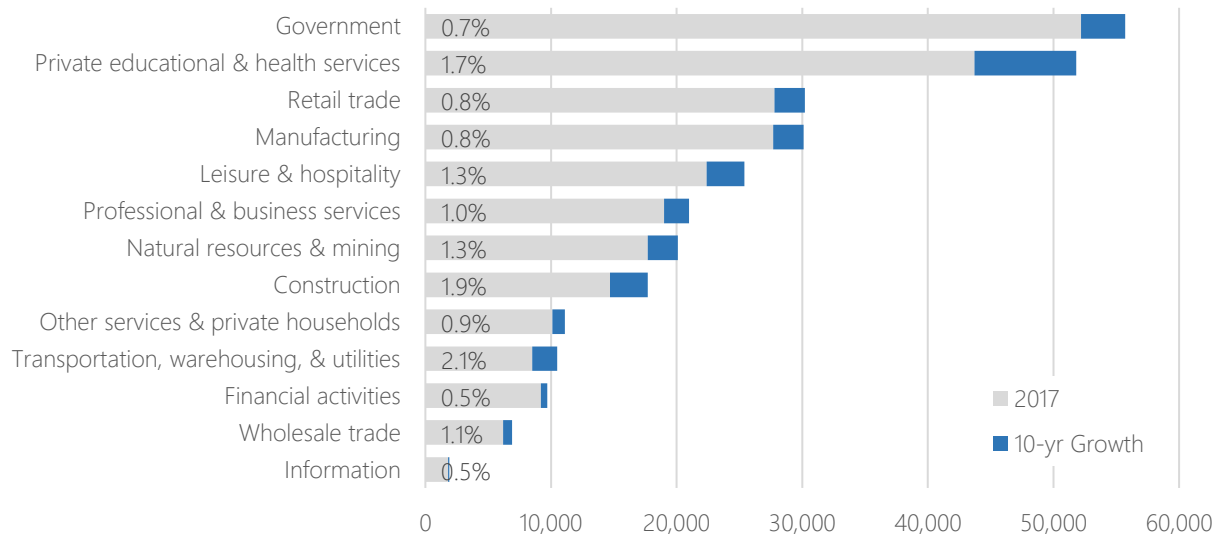
Area / Year	2017	2020	2025	2030	2035	2040
Yamhill County	106,555	111,101	119,339	127,404	135,096	142,311
Annual Growth Rate	N/A	1.40%	1.44%	1.32%	1.18%	1.05%
McMinnville UGB	34,293	35,709	38,437	41,255	44,122	46,956
Annual Growth Rate	N/A	1.36%	1.48%	1.43%	1.35%	1.25%

Source: Portland State University

The study area has a diversified employment base, reflecting the broad range of commercial and industrial businesses in the area. Key takeaways relating to regional employment forecasts include:

- More than one-quarter of all projected employment growth is expected to be in the educational and health services industries, with most in the health care field specifically.
- Industries that typically drive the majority of new office demand—namely Professional and Business Services, Financial Activities, and Information—are among the industries projected to see the slowest employment growth among all industries, and collectively account for eight percent of total projected employment growth.
- Manufacturing employment—the primary driver of industrial development—is projected to be responsible for eight percent of total employment growth.

Figure ES- 2. Projected New Employment Growth, Mid-Valley Region, 2017-2027



Source: Oregon Employment Department (QualityInfo.org).

Real Estate Market

Key takeaways relating to market conditions and real estate trends within the region, City, and Three Mile Lane study area specifically, are as follow.

- Residential prospects** are strong regionally and nationally, but market conditions are weaker in McMinnville. Significant growth in the Mid-Valley region has driven demand for household growth—for both multifamily and single-family. Growth projections for the region suggest demand will remain strong market-wide, although new development in McMinnville has clustered around the western and northern edges of the city. However, existing rents in the region are relatively low and may struggle to attract prominent multifamily developers in the region due to the continuously rising nature of construction costs. The single-family market is very tight, with strong absorption but very little inventory currently listed for sale—particularly in the sub-\$400,000 categories. Single-family homes, multiplexes, townhomes, cottage clusters, and low-rise “garden” apartments are all residential development types that would likely be feasible in the study area in the near-term. Higher-density developments may require additional incentives or other interventions.
- Retail prospects** are relatively strong for certain retail sectors, despite relatively weak market conditions (including rent, vacancy, absorption, etc.). The Three Mile Lane study area likely checks off many site selection criteria and market characteristics typically desired by prospective retailers. While there are few retailers currently in the area, desired physical characteristics, such as visibility, vacant developable land, and ease of access are all present. Further, McMinnville’s central location between the Oregon Coast, the Portland Metro, and Salem provides access to a wide variety of markets. Significant household growth and the burgeoning tourism industry will continue to improve retail prospects.
- Industrial users** are likely to find the Three Mile Lane area an attractive location given its separation from incompatible land users (like residential), ease of access, highway location, level terrain, and

proximity to the airport. While industrial development prospects at the national level are strong, especially warehouse and distribution—largely because of the rise of e-commerce—the Three Mile Lane corridor is not centrally located to large population centers and is therefore unlikely to capture much of this growing market. Instead, industrial growth is likely to be down to the growing agriculture and food and beverage production industry (including the wine industry). These latter users would be consistent with the existing industrial zoning while creating interesting places and improving walkable access to amenities.

- **Office prospects** are potentially strong but limited. Employment data shows few jobs and low historical growth for industry sectors that typically drive demand for new office space. Regionally, however, projections show significant employment growth in education, healthcare, and professional and business services—all of which drive the most demand for new office construction. If McMinnville is able to reposition its office market to capture a greater share of this regional growth, office prospects may expand. Indeed, two businesses recently relocated to the Three Mile Lane Area because of the lack of available office space downtown—reflecting the very low vacancy rate—but wished to remain in McMinnville because of the high quality of life. McMinnville’s quality of life not only has a positive impact on business retention, but there has also recently seen a significant uptick in small high-tech relocations from Silicon Valley that are struggling to find office space. Build-to-suit office opportunities may also arise and help build momentum in the local office market, especially with regard to healthcare and education where there are some existing major tenants and institutions.
- **Lodging** is likely to be a significant development type over the long-term, but the area may struggle to attract hotel developers due to its existing industrial character, lack of walkable amenities, and isolation from downtown. An assessment of the opportunities to capture demand associated with the burgeoning \$7 billion wine industry in the Willamette Valley and related tourism development requires further, more nuanced analysis.
- **Tourism** is a booming industry, particularly with regard to the wine industry, increasing market pressure for the new construction of compatible uses, such as experiential retail and restaurants, lodging, and craft industrial, as well as recreational amenities, such as trails and parks, that combined help to create an authentic, vibrant place.

Three Mile Lane in its entirety is located within an Opportunity Zone, a new tax program created by the 2017 Tax Cuts and Jobs Act designed to spur investment in distressed communities. Investors may defer tax on capital gains up to December 31, 2026, by making an appropriate investment through a qualified opportunity fund (QOF) in accordance with certain requirements. This will increase returns and should make investing in opportunity zones more appealing.

Demand and Forecasted Absorption

The following table provides a summary of market area demand for all applicable land uses. The table also includes an estimated development program for the Three Mile Lane study area, which is LCG’s projected “capture” of regional growth—based on historical trends, land supply, and anecdotal evidence based on the

two focus group discussion conducted to date.¹ The justification for both these numbers is included in the “Notes” column.

It is important to note that these numbers are not specific recommendations; rather, they simply provide an indication of the potential program mix based on market strength. Changes to the mix and specific numbers are anticipated with changes to the zoning, land supply, and public interventions, among other market disrupters.

Table ES- 3. Summary of Market Area Demand and Three Mile Lane Capture

Land Use	Market Area Demand	3ML Est. Program	Notes
Ownership Residential	2,555 units	NA	The market is strong for single-family, with high home values, household incomes, sales volumes, absorption, and construction activity. The quantity depends largely on the City’s vision for the area, applicable zoning, and buildable land.
Rental Residential	1,224 units	240 units	Despite solid national development prospects and strong market area demand due to high growth, low-rise rental apartments and multiplexes are likely the primary building types feasible in the study area because of relatively weak market characteristics.
Retail	539,200 sf	150,000 sf	The study area is well-positioned for new retail development, particularly large-format retail. Neighborhood-serving retail may be a mid- to long-term aspiration when additional residential construction occurs.
Office	144,500 sf	30,000 sf	The office market is relatively weak, and the absorption of significant speculative new development should not be expected. However, opportunities may arise because of McMinnville’s high quality of life, and the Three Mile Lane corridor’s proximity to the airport and institutional users, such as healthcare and education.
Industrial	793,000 sf	80,000 sf	The industrial market remains strong due to the growth of agriculture, food and beverage production, and manufacturing. Continued growth may generate demand in the study area, but development may negatively impact prospects for other land uses, such as lodging and multifamily.
Lodging	NA	NA	Lodging is a specialized development type, which may be feasible given McMinnville’s strong tourism industry. However, a weak office market may limit feasibility in the short-term.

Source: Leland Consulting Group

¹ Where applicable, LCG increased the projected growth rate to reflect higher spending due to tourism from the burgeoning wine industry. Spending generated from tourism would not otherwise get captured within LCG’s demand models as the majority of demand is typically generated by those that live and work within the primary market area.

Introduction

The Three Mile Lane Area Plan (3MLAP) project will develop an area plan for the Three Mile Lane corridor in McMinnville, updating the 1981 Three Mile Lane Overlay District (amended in 1994) and the 1996 Highway 18 Corridor Refinement Plan. The 3MLAP will integrate a wide range of land uses and a multi-modal transportation system that serves both local and state transportation needs and provides active connectivity within the plan area as well as to the City's downtown core. The project will consider how to maximize the opportunities for job creation, housing, and resiliency planning in the corridor by leveraging the land assets to their highest and best use for affordable housing, industrial development, tourism development, hospital expansion, airport expansion, and gateway improvements.

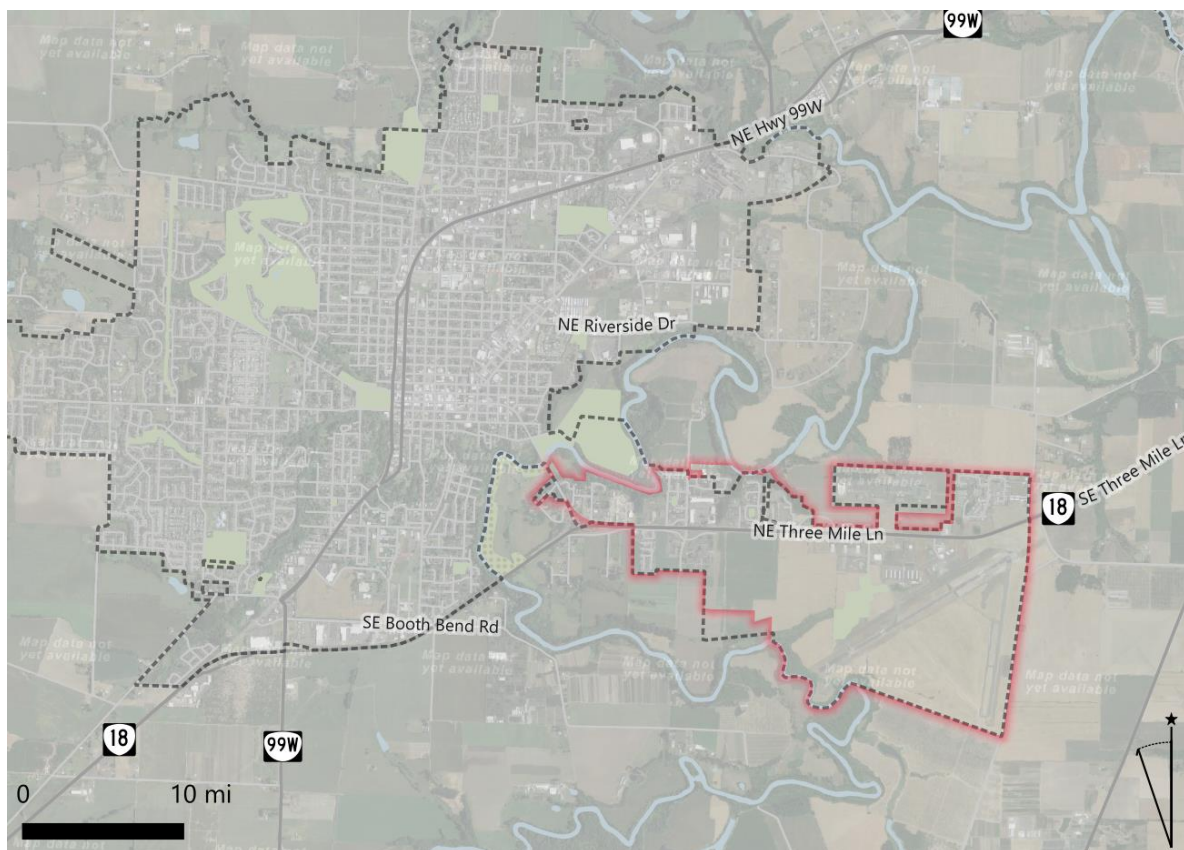
Task Overview

This Market Analysis includes existing and future market conditions for development in the Project Study Area based on current forecasts for population and employment growth; published forecasts for expected growth and development trends; contact with industry professionals; and information provided by participants project meetings and other public input.

Project Study Area

The project study area is located in the southeast arm of McMinnville, centered around State Highway 18/Three Mile Lane, as indicated below in Figure 1.

Figure 1. Three Mile Lane Study Area



Source: Google, TIGER, Leland Consulting Group

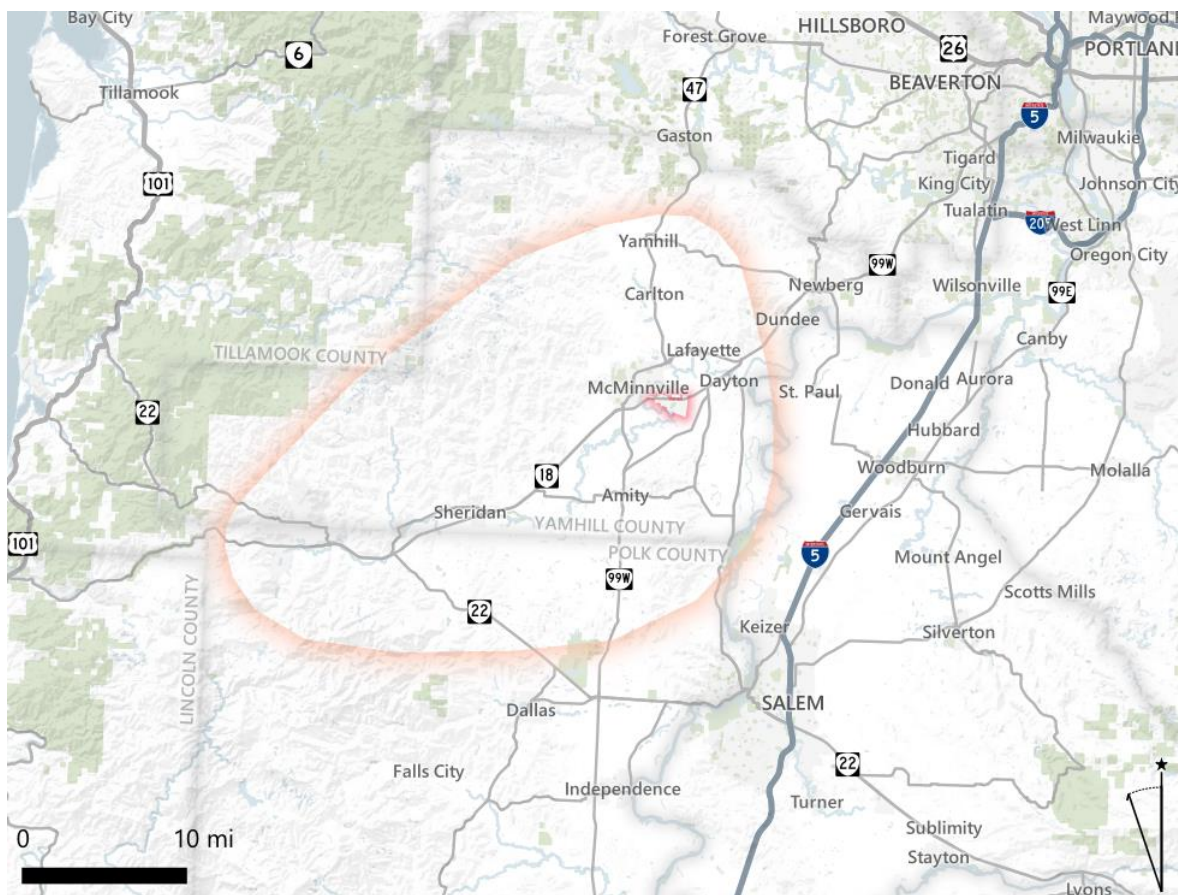
The Market Area

The market area, as defined in Figure 2, represents the area from which the most demand for residential, commercial, and industrial uses will originate, and where most of the competitive development is located. Residents and businesses located in this area are the primary groups to support retail on site, lease/utilize office space, and live in the study area. The market area is roughly bounded by the Willamette River to the east, Tillamook State Forest to the west, and Polk County to the south—although the market does extend into Polk County, there are few residents or jobs located in this area—and the City of Yamhill to the north.

The market area is defined based on several variables, including drive time, destinations, and commute patterns and other relationships to the City of McMinnville. As the most southwestern city of significance on the way to the coast, the market area extends further southwest than it does to the north and south, where McMinnville is unlikely to out-compete with Oregon’s major metropolitan regions—namely Portland and Salem. The pass-through traffic on Highway 18 from Portland to the coast is another market of importance to retailers and tourism-related developers, but not necessarily captured within this report. The retail leakage analysis, discussed in depth later in this report, would capture some of the retail spending, but impacts to hotels, wineries, and other important tourism-related organizations and development would not be cataloged.

McMinnville and other cities located on the western periphery are likely to capture the majority of demand in the Western Willamette Valley, while Newberg is closer to the Portland Metropolitan Area and more likely to capture demand for residents and businesses whose lives and livelihoods are oriented towards Portland.

Figure 2. Regional Overview and Market Area



Source: TIGER, Leland Consulting Group

National and Regional Context

Development Context and Market Trends

Development and Land Use Types

This section includes excerpts from the Urban Land Institute’s (ULI) Emerging Trends in Real Estate report for 2019, an annual publication that assesses the state of real estate markets both nationally and locally based on interviews and surveys with experts in development and finance. Both national and regional trends have an impact on future land uses in the study area: they set the stage for the types of investments that are desirable for real estate developers and investors.

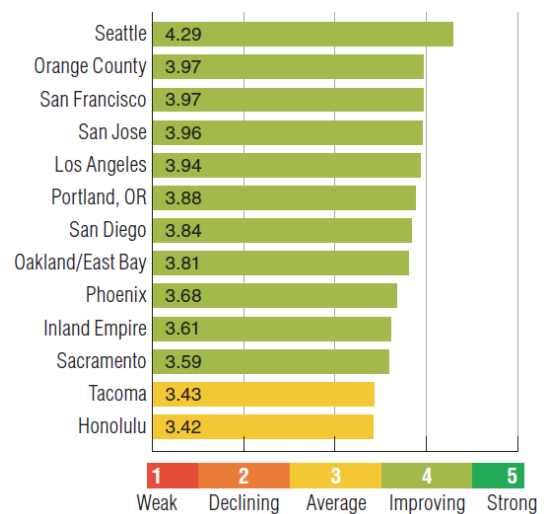
*Emerging Trends*² suggests that access to talent (i.e., well-educated workers) is what drives the economies of many of the Pacific Northwest markets.

The Portland metropolitan region³ is described by ULI as a "solid 18-hour city" whose strengths include strong economic growth due to increased wealth in the market, a high quality of life and attractive outdoor activities, and a diverse workforce that helps to supply trained labor to industries.

While the regional economy is not considered as strong as other Pacific Coast major metropolitan regions, it has experienced the benefit of being able to offer a more competitive cost structure to its more expensive neighbors along with a high quality of life for residents. This is a prime example of how quality of life can drive an economy and one that McMinnville can continue to leverage, especially given the affordability challenges facing the Portland metro.

Indeed, the main challenges in the Portland metropolitan area are housing affordability and critical infrastructure enhancements, where the median home value is \$338,000 and the median household income is \$68,100. McMinnville’s relationship to the Portland metropolitan region may be nuanced, but affordability appears to be a factor. According to 2015-2016 migration data from the IRS (which is based on the address on annual tax returns), Yamhill County attracted approximately 230 households from Multnomah County, with only 173 households migrating *from* Yamhill to Multnomah during this same period. In general, Yamhill’s migratory relationship with other Oregon counties is more prevalent than Multnomah: approximately 65 percent of incoming households to Yamhill County in 2015 to 2016 were from Oregon, compared to only 37 percent for Multnomah. Further, 69 percent of households *leaving* Yamhill migrated to other Oregon counties, compared to only 51 percent of Multnomah households.

Figure 3. Local Outlook: Pacific Northwest



Source: ULI

² [URL](#)

³ Since McMinnville is on the periphery of the Portland metropolitan area, Portland directly impacts McMinnville’s economy.

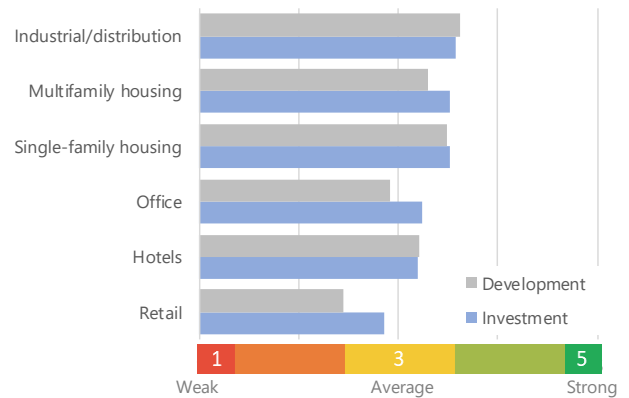
National Real Estate Development Prospects

Emerging Trends also provides guidance about the types of development that are likely to be most desirable in the coming years from a developer and investor perspective. While this is a national outlook, the guidance is relevant for most local markets, including McMinnville.

The following figure shows ULI’s high-level summary of national investment and development prospects for 2019. Several notable features are described below.

Industrial and distribution are favored development types, largely because of the acceleration of online retailing, and the need for distribution points for these goods. However, developers will seek to locate online distribution centers near the center of metropolitan areas where the density of residents and businesses is greatest, therefore the impact of this trend in McMinnville is likely to be modest. Single-family housing has picked back up significantly; for many years following the great recession the development of single-family housing was much slower. Multifamily housing is also seen as having fair to good development prospects. Hotel development is judged to be just above fair.

Figure 4. National Development Prospects, 2019



Source: ULI

LCG’s experience is that hotel development is a specialized form of development, which will continue to work in specific locations, often with an established base of major employers or a major tourism draw, as McMinnville has. Office development is less desirable,⁴ in part because the new generation of white-collar employees requires less space: many hard-wall offices have been eliminated in favor of open floor plans, more employees are working remotely, and paper filing and other “analog” space requirements have become digitized. A majority of new office development has also taken place in close proximity to central business subareas (e.g., downtown Portland), where many young professionals locate and where job growth has been fastest.

New retail development is seen by investors as the riskiest and least desirable type of development, primarily due to the rapid expansion of online retailers who are capturing market share from mall anchors and commodity retailers. Sears, Macy’s, Toys R Us, Sam’s Club, J.C. Penny, and Payless Shoes are among the chains that have completed major store closures. The retrenchment of these traditional retailers and years of high vacancies have made retail developers cautious. Nevertheless, there may be opportunities for retail growth in under-served markets or areas with significant population growth.

The Impact of Tourism on Development

There are several emerging trends in traveler behavior and consumer preferences that have a significant impact on tourism, and therefore should be considered in terms of potential investment decisions. While investments

⁴ However, two office-related businesses have recently moved to Three Mile Lane because they outgrew downtown locations. Office market characteristics provided later in this report shows a low vacancy rate in the office market of 1.4 percent, suggesting a significant lack of available office space.

are typically related to commercial estate, tourism can often also result in residential demand as visitors are drawn to a particular quality of life (for example, young, emerging professional looking to relocate or retirees looking for a place to retire). Some of these trends are described below.

- **Authenticity** – Travelers are increasingly seeking authenticity in the places they visit, where they can experience deeper and more personal connections. According to a travel trend poll of travel agents by American Express in 2014, more than one-third (34 percent) of respondents said customers are seeking to immerse themselves in unique and authentic aspects of their travel destinations.
- **Interactive/Experiential Tourism** – It is more likely that a visitor will be motivated to travel to a destination, extend their stay or return for a future visit if the attractions and assets allow for direct interaction. This has significant implications for the art/culture, entertainment/festival, culinary and other sectors of the McMinnville visitor offering.
- **Culinary/Food Tourism** – Authentic food experiences have become a popular motivator for travel, according to research conducted by TrekkSoft, an international tour operator software company. In a worldwide survey of nearly 150 tour operators, respondents described food markets, tasting sessions, cooking lessons and vineyard/farm visits as growing in popularity.
- **Health and Wellness** – Health-conscious consumers are now seeking to enhance their well-being through travel experiences. In 2017, Booking.com found that 40 percent of travelers are interested in a health and well-being travel experience, such as locally sourced menus, improved access to recreational activities such as yoga, and wellness- or fitness-oriented events.
- **Leveraging Waterfronts** – Both large- and mid-sized communities throughout the country have invested in their scenic waterfronts by planning and supporting the development of shopping districts, outdoor restaurants and river walks. Cities such as Grand Rapids (MI), Bend (OR), Pueblo (CO), Reno (NV) and many others have developed extensive plans and zoning adjustments to add riverside cafes, unique retail, gondolas, craft breweries and other assets that build on these invaluable natural assets.

The Impact of Airports on Development

The 650-acre McMinnville Municipal Airport is located within the Three Mile Lane Study Area on the south side of Highway 18. The facility can accommodate private jet aircraft, but there is no commercial airline that services McMinnville. Most of the aircraft housed at the airport are small planes owned by private individuals. There are also a few jets and a significant helicopter presence due to the helicopter flight school.

While there is not currently commercial air service operating out of the airport, it is important to acknowledge any impact it has on the area's prospects, including any related development opportunities. An assessment of national trends in general aviation and related development helps provide context for possible opportunities.

Nationally, many modern airports now generate most of their revenues from sources other than aviation. Airport authorities are no longer stale bureaucracies. They have quietly been morphing into what can best be called entrepreneurial landlords.

Depending on local circumstances, airports have seen the following types of development (in addition to the usual airport facilities like parking, etc.), either on their lands or directly adjacent to their lands (many of these are in high demand and, therefore, currently at a premium):

- Hotel developments
- Conference/convention centers
- High-end outlet malls
- Destination shopping centers
- Corporate head offices
- Mixed-use developments (shop, work, play, stay)
- Office buildings
- Post-secondary education facilities, specifically aerospace-related
- High-tech business parks
- Industrial developments (manufacturing, warehousing)
- Cargo facilities
- Casinos
- Entertainment destinations
- Recreational facilities
- Botanical gardens
- Butterfly gardens
- Residential developments
- Libraries
- International sports facilities
- Local amenities

Demographics

This section provides an overview of past, existing, and projected demographic conditions.

Household and Population Characteristics

In 2018, the project study area was home to just over 2,000 residents—approximately six percent of McMinnville’s total population and three percent of the market area. The market area—which is mostly located in Yamhill County—contains about three-quarters of the County’s population.

The study area’s population has grown at the fastest rate versus the city, county, and state, although total numerical growth has been relatively little. McMinnville, in general, has generally experienced significant population growth—particularly from 2000 to 2010.

Table 1. Population Counts

	Study Area	McMinnville	Market Area	Yamhill Co.	Oregon
2000 Total Population	1,536	27,198	59,834	84,992	3,421,399
2010 Total Population	1,856	32,187	69,597	99,193	3,831,074
2018 Total Population	2,086	34,366	75,125	104,675	4,185,014
00-10 Annual Growth Rate	1.9%	1.7%	1.5%	1.6%	1.14%
10-18 Annual Growth Rate	1.5%	0.8%	1.0%	0.8%	1.11%
00-18 Annual Growth Rate	1.7%	1.3%	1.3%	1.2%	1.13%

Source: ESRI and Leland Consulting Group

Selected household characteristics are provided in the following table. Generally, existing households in the Three Mile Lane study area are slightly smaller, have higher incomes, and are significantly older, more diverse, and less educated than McMinnville and the wider region. Further, home values are higher than the City and market area average, yet lower than the county and state, likely because despite there being relatively few homes in the study area, most were built post-2000.

Table 2. Select Demographic and Housing Characteristics, 2018

	Study Area	McMinnville	Market Area	Yamhill Co.	Oregon
Avg. Household Size	2.58	2.65	2.74	2.73	2.50
Median Home Value*	\$291,043	\$277,574	\$292,514	\$307,273	\$301,025
Median HH Income	\$55,460	\$53,456	\$57,553	\$61,863	\$57,902
Per Capita Income	\$27,729	\$26,783	\$27,420	\$28,571	\$31,775
Median Age	40.9	35.7	38.1	38.0	39.7
Non-white Pop	20.6%	17.8%	16.5%	14.6%	16.4%
Bachelor's +	19.0%	24.4%	22.2%	26.3%	33.4%

Source: ESRI and Leland Consulting Group

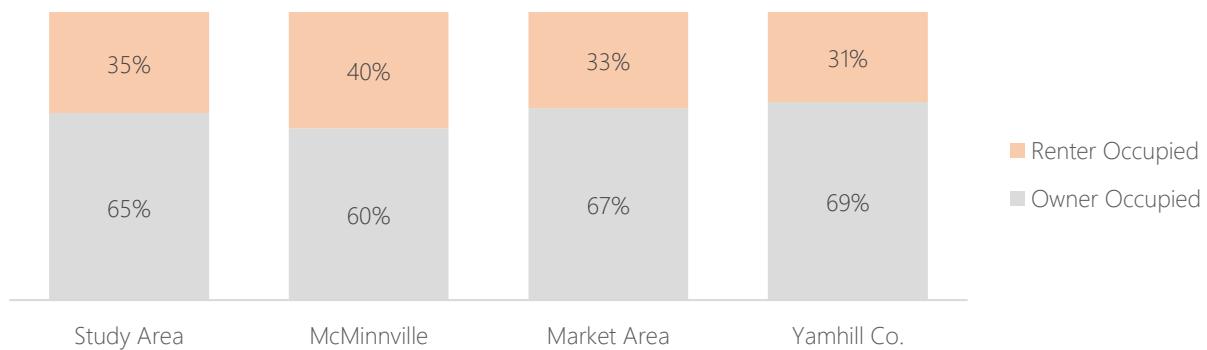
*Owner-occupied housing only

As shown in Figure 5, the study area has a greater proportion of renters compared to market area and county (where owner-occupied households are the norm), but less than the City of McMinnville. This is likely reflective of the higher proportion of older and higher-income households in the study area versus McMinnville.

The Pew Research Center indicates that certain demographic groups—such as young adults, nonwhites, and those with less educational attainment—have historically been more likely to rent than other groups, and rental rates have increased among these groups over the past decade. However, rental rates have also increased among some groups that have traditionally been less likely to rent, including whites and middle-aged adults.⁵

In fact, although renting is most common among young adults, nearly everyone rents at some point in their lives—whether by choice or by necessity. However, rental housing is particularly important for low-income and minority households, about half of whom are renters. As a result, supplying affordable units in a variety of structure types and neighborhoods is a critical national housing policy priority.^{6,7}

Figure 5. Tenure, 2018



Source: ESRI and Leland Consulting Group

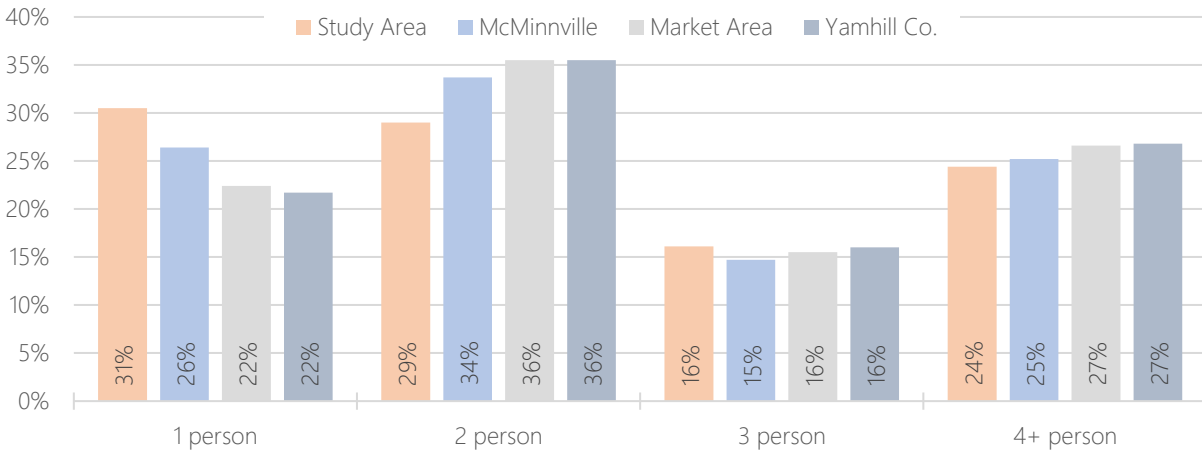
⁵ Pew Research Center, "More U.S. households are renting than at any point in 50 years," 2018, [URL](#)

⁶ From "Renter Demographics" by the Joint Center for Housing Studies of Harvard University, [URL](#)

⁷ At the time of writing, McMinnville was undertaking a Housing Needs Analysis (HNA), the preliminary results of which show housing affordability as a growing challenge in McMinnville.

Figure 6 shows the proportion of households by size for each comparison area. The study area currently has the greatest proportion of one-person households but is consistent with all comparison areas for households with three or more people. Generally, one- and two-person households are the most common household size.

Figure 6. Households by Size, 2010



Source: ESRI and Leland Consulting Group

Residential Forecasts

Population growth is a key indicator and driver of demand for both residential and commercial development, and therefore, population forecasts are critical in estimating future demand. The projected growth—or lack thereof—of the population, households, and employment help to inform future growth rates which are used in the demand analyses presented in this report.

The Population Research Center at Portland State University (PSU) produces annual population estimates for Oregon and its counties and cities, as well as estimates by age and sex for the state and its counties.

The population is projected to grow faster within the limits of the McMinnville UGB than in Yamhill County as a whole. As such, an increasing share of the county’s population is expected to reside in McMinnville over the next 40 years (32 percent in 2018 and 35 percent by 2067).

While McMinnville will have high actual population growth, other cities in Yamhill County have higher projected growth rates over the next two decades. These cities include Dundee (1.84 percent), Newberg (1.81 percent), Lafayette (1.7 percent), Carlton (1.6 percent), and Yamhill (1.2 percent).

Table 3. Population Forecasts, 2017-2040

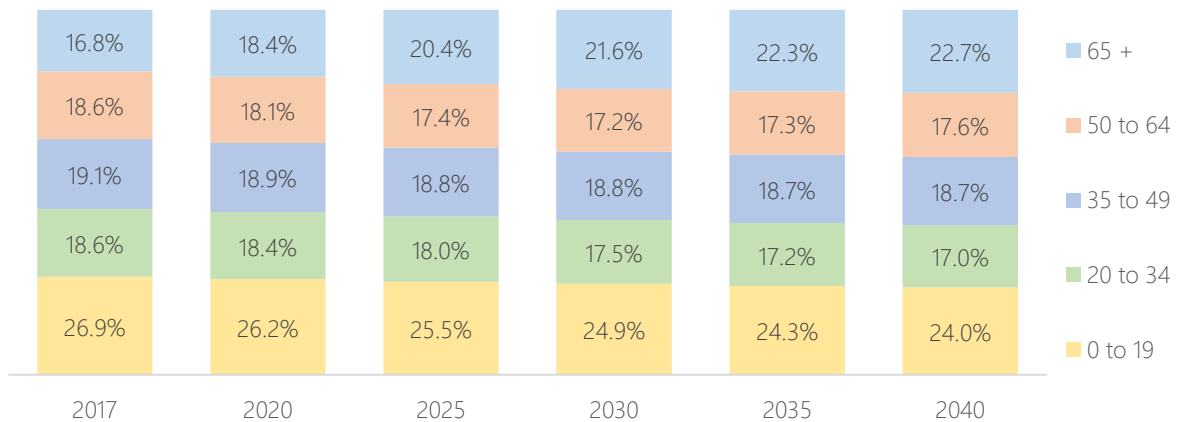
Area / Year	2017	2020	2025	2030	2035	2040
Yamhill County	106,555	111,101	119,339	127,404	135,096	142,311
Annual Growth Rate	N/A	1.40%	1.44%	1.32%	1.18%	1.05%
McMinnville UGB	34,293	35,709	38,437	41,255	44,122	46,956
Annual Growth Rate	N/A	1.36%	1.48%	1.43%	1.35%	1.25%

Source: Portland State University

The 65-and-over age group is projected to experience the most growth in the next two decades as the entire baby boomer generation enters retirement age. After 2030, the millennial presence is projected to significantly

increase the proportion of the population aged between 50 and 64. Access to essential services and a sufficient range of appropriate housing options will be critical in accommodating these aging demographics. These shifting demographics are likely to have a significant impact on residential development. For example, growth in the number of seniors will result in demand for senior housing (age-restricted apartments or assisted living facilities) and small and maintenance-free dwelling units. Growth in the Millennial generation will result in demand for affordable single-family, townhomes, and multifamily housing.

Figure 7. Population by Age, Yamhill County, 2018-2040



Source: Portland State University

Employment

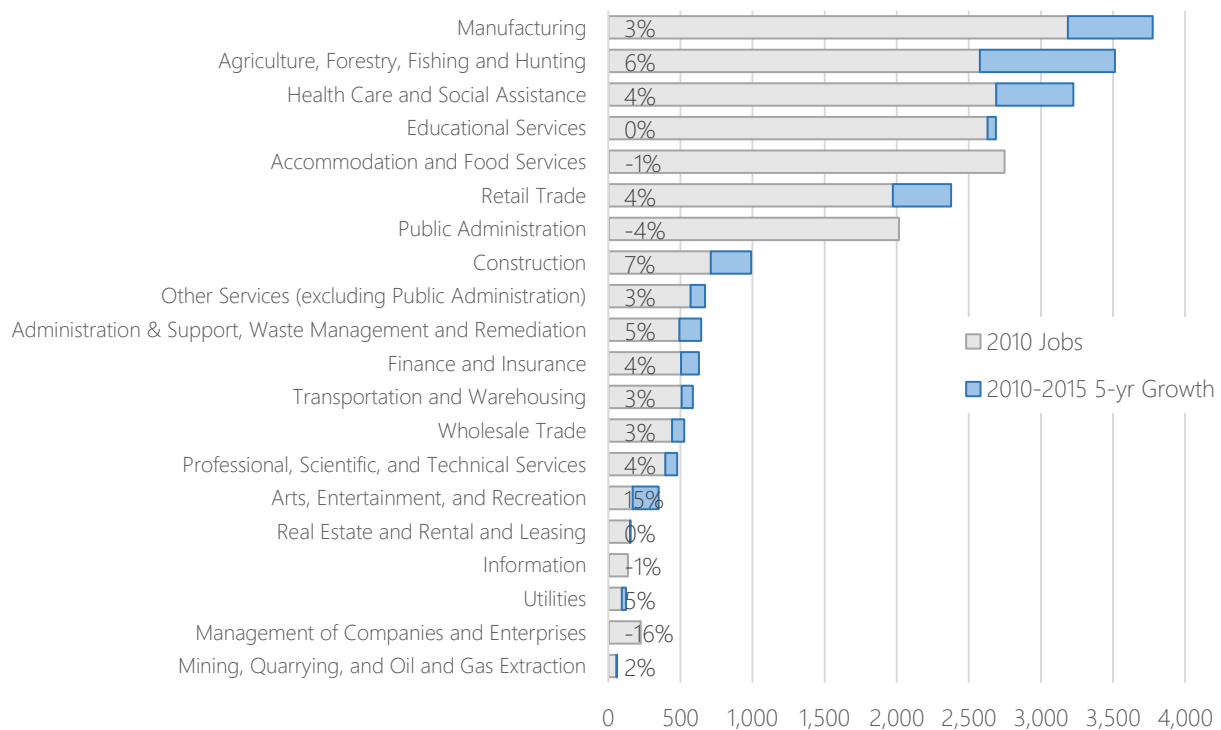
This section provides an overview of past, existing, and projected employment conditions.

Total job counts for 2010 and 2015 and annual employment growth are shown in Figure 8. Employment in the McMinnville market area predominantly consists of jobs in manufacturing, education, healthcare, accommodation and food services, and retail. These five industries were responsible for over 71 percent of all jobs in 2015. Approximately one-quarter of all jobs in 2015 were in the manufacturing industry. Of these top five industries, all but Educational Services experienced high annual growth of over two percent.

- The fastest growing industries between 2010 and 2015 were:
 - Arts and entertainment (15.5% annually). While this sector is relatively modest in size, its growth has been the highest among all other sectors, likely due to the increase in tourism in the area.
 - Construction (6.9% annually).
 - Agriculture, forestry, fishing, and hunting (6.4% annually). Not only in this the third-fastest growing sector in the market area, but it is also the second-largest in terms of total jobs. One of the inputs into this sector is the wine industry, in which McMinnville has continued to experience growth.
 - Administrative & support, waste management & remediation services (5.5% annually)
 - Utilities (5.4% annually)

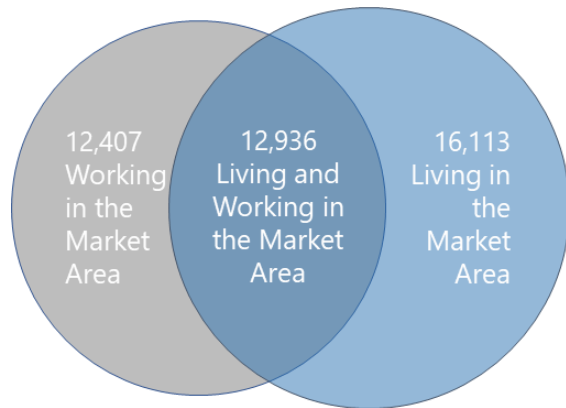
- Finance and insurance (4.5% annually). The majority of speculative office demand is typically generated by this sector and the following sector. This growth improves development prospects for new office development, but in terms of total jobs, these sectors remain relatively minor in the region.
- Professional, scientific and technical services (3.9% annually).
- The only industries to lose jobs in the five-year period between 2010 and 2015 were:
 - Management of companies and enterprises (-15.6% annually)
 - Public administration (-3.7% annually)
 - Information (-1.3% annually)
 - Accommodation and food services (-0.7% annually).

Figure 8. Employment Profile, McMinnville Market Area



Source: LEHD. Percentages shown above are compound annual growth rates for the past five years.

Figure 9. Commute Patterns, Inflow-Outflow, McMinnville Market Area, 2015

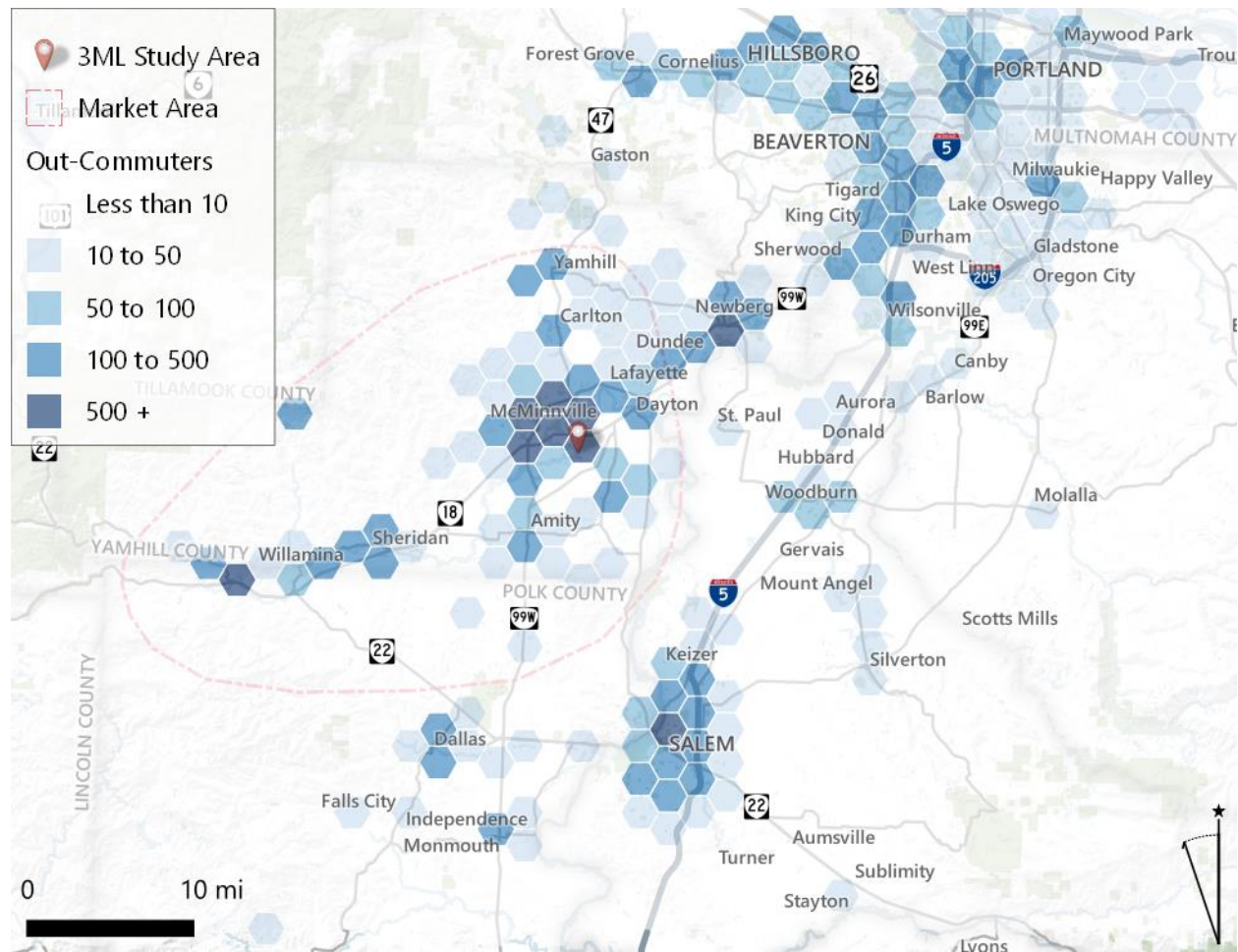


The number of people that both live and work in the McMinnville market area generally increased from 2005 to 2015, suggesting that McMinnville’s employment market has strengthened over the past decade. Approximately half of the people working in the market area as of 2015 also live there, up from 41 percent in 2005.

Figure 10 below shows where residents of the market area commuted to work in 2015. The highest concentration of employees living in the market area is within McMinnville. However, a significant number of market area residents

commute to Newberg and Salem, as well as further afield to various cities in the Portland metropolitan area. Few residents commute to the coast, although there are small concentrations of employment in cities and towns to the southwest of McMinnville—namely Sheridan and Grand Ronde.

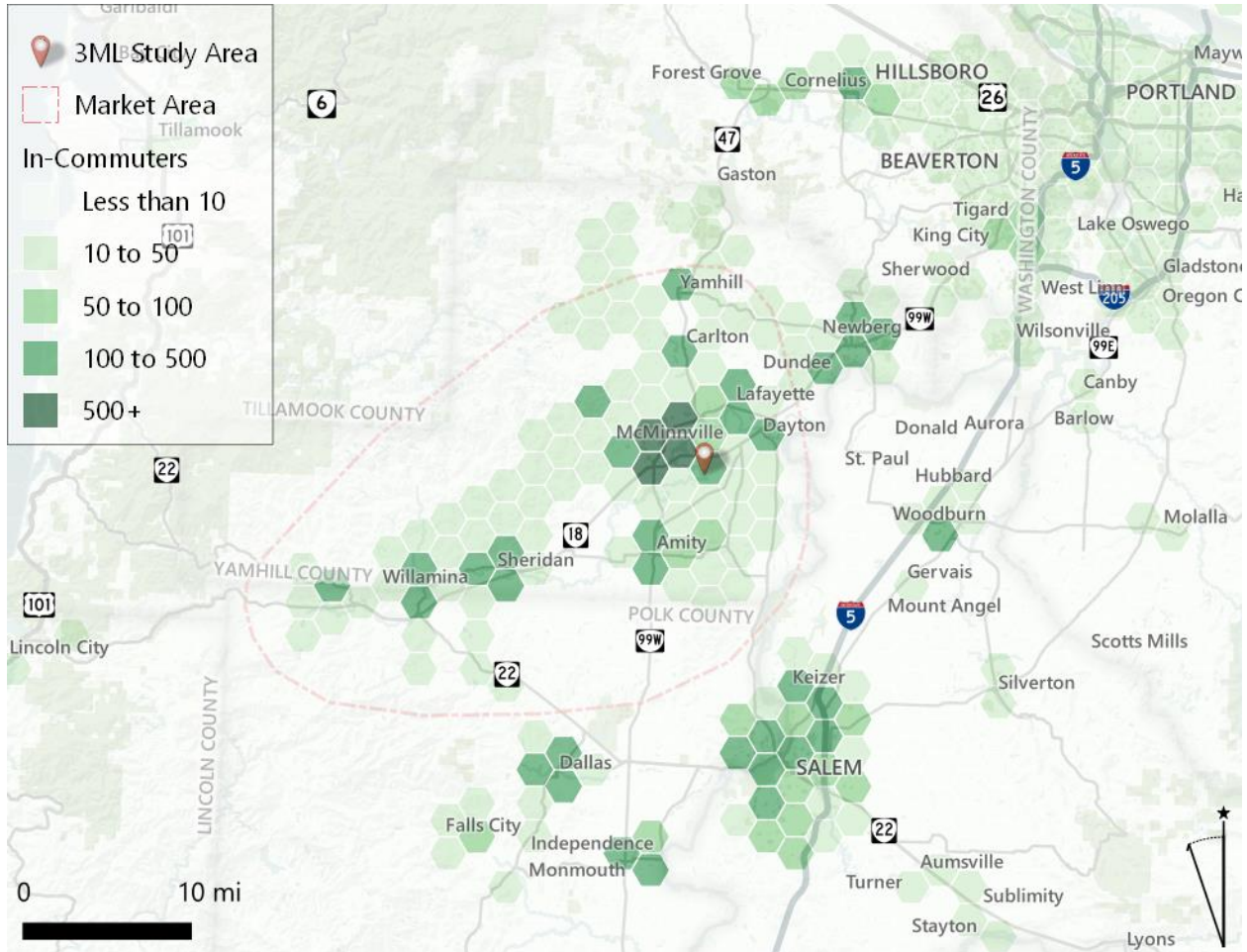
Figure 10. Where Market Area Residents Commute To, 2015



Source: LEHD OnTheMap and Leland Consulting

As the following map shows, there is a significantly greater concentration of employees that also live in the McMinnville area. Few employees working in McMinnville and the surrounding market area live in Salem and even fewer in areas of the Portland Metro.

Figure 11. Where Market Area Employees Commute From, 2015



Source: LEHD OnTheMap and Leland Consulting

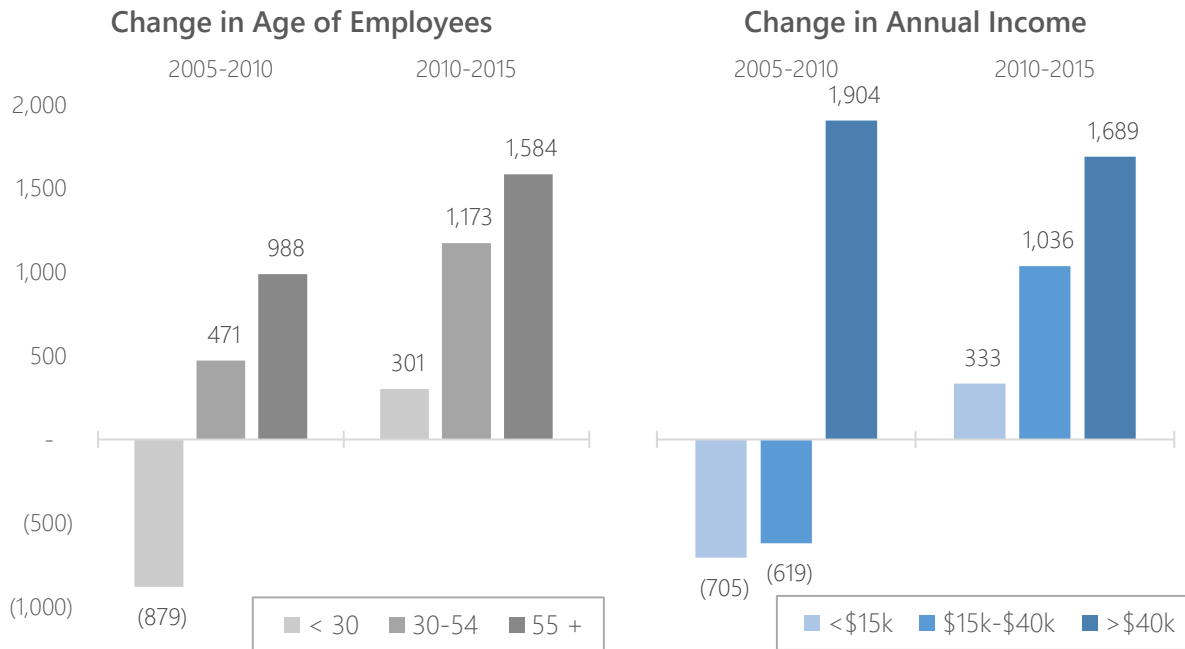
Figure 12 below shows the proportion of market area employees by both age and annual income in 2005, 2010, and 2015. Generally, employees in the market area were significantly older in 2015 than in 2005 but earned significantly more on an annual basis. In fact, employment grew by almost 2,600 jobs in the 55-and-over age category. During this same period, workers in the under-30 age category declined by almost 600.

Some of the key takeaways about McMinnville’s employment associated with both the aforementioned commute data and this trend data is summarized as follows.

- McMinnville as an aging community that is failing to attract or retain its younger workforce. Comparatively, the same data source shows a similar yet less significant trends for the City of Portland.
- People over the age of 55 are moving to McMinnville as they near retirement age, skewing the average employee age upwards. In contrast, almost half of all new employment growth in Portland between 2010 and 2015 was for employees aged between 30 and 54. Similarly, however, the metro

also showed a decline in workers younger than 30 between 2005 and 2010, and only modest growth between 2010 and 2015. Ultimately, this shows Oregon to be an attractive place for workers well into their career already rather than younger, entry-level workers.

Figure 12. Change in Number of Employees by Age and Annual Income, McMinnville, 2005-2015

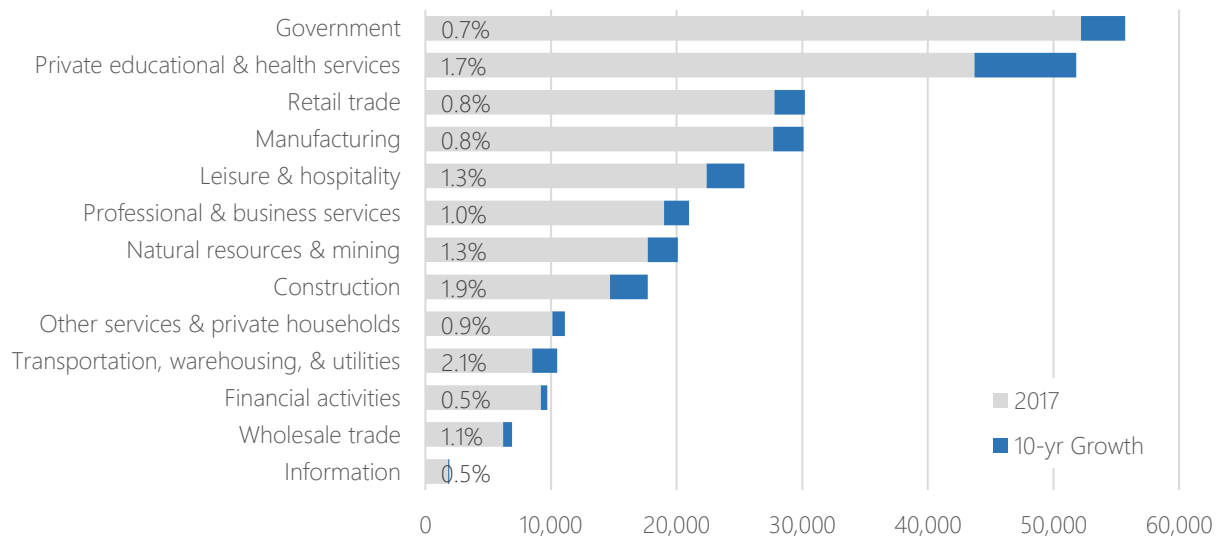


Source: LEHD

Employment Projections

For employment forecasts, we use the State Employment Department’s 10-year projections for each industry. Over half of all projected employment growth is expected to occur in the industries of Educational and Health Services, Government, Construction, and Leisure and Hospitality. The fastest growing industry is Transportation, Warehousing, and Utilities. New, specialized office demand may arise from significant growth in education and healthcare, while employment growth in leisure and hospitality is indicative of the region’s burgeoning tourism presence, particularly with regard to the wine industry.

Figure 13. Projected New Employment Growth, Mid-Valley Region*, 2017-2027



Source: Oregon Employment Department (QualityInfo.org)

*Includes the four-county region of Marion, Polk, Washington, and Yamhill

However, caution is required with these projections. Not only do they apply to a larger geographic area than the residential projections (a four-county region versus the McMinnville UGB), but the employment projections are given by industry, likely resulting in a significant margin of error. As such, it is likely to be just as instructive to consider historical trends (e.g. from the last five to 10 years) in projecting future employment in the market area. The demand estimates for new office and industrial development that are presented later in this report are based on an average of historical and future growth rates.

Real Estate Market

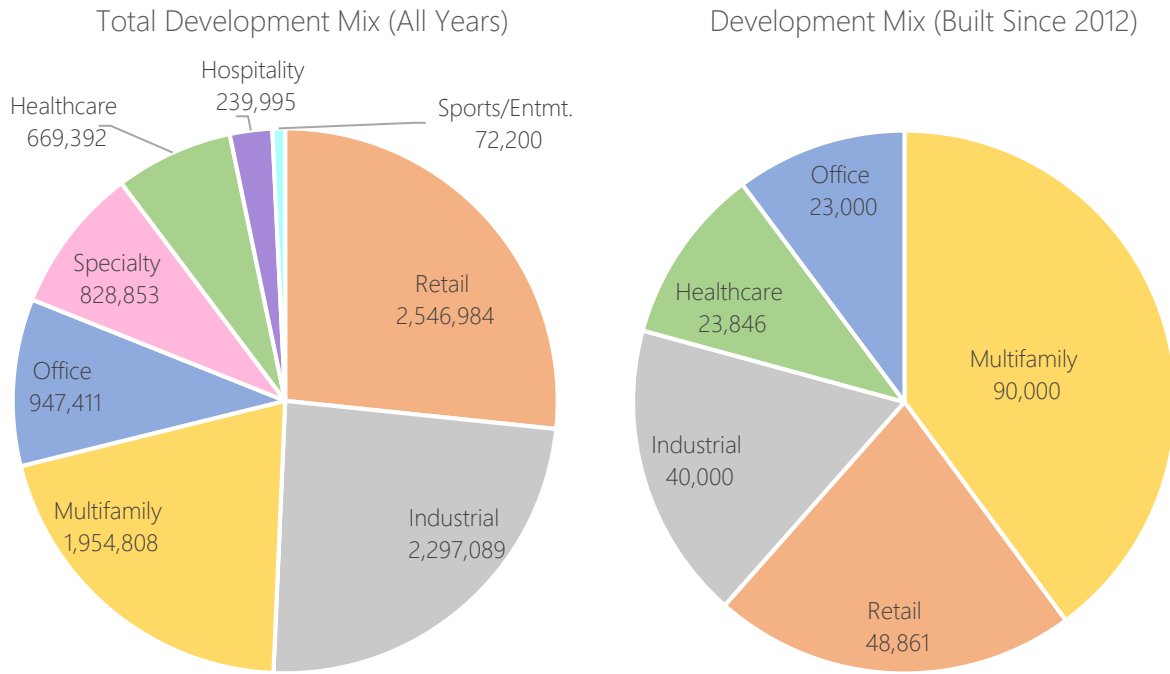
This section covers the residential market, which includes both single-family and multifamily housing; the retail market; and the market for “employment” space, which includes both industrial and office land uses. Market conditions—such as the development pipeline, building vacancies, rents, and other market trends—are critical to establishing the market’s strength and subsequent level of financial feasibility for new development.

However, more recent development in McMinnville has been mostly multifamily residential (predominately apartments), which is consistent with national trends and consumer preferences, despite weaker market conditions. With the growing demand among younger and older generations for apartments, tighter mortgage lending requirements, and many years of limited apartment production, there remains pent-up demand for apartments in most markets. Coupled with a changing commercial market in which office space use is declining every year and retailers are closing at an unprecedented rate in face of e-commerce, multifamily has generally become the dominant type of new development. This trend appears to be applicable to the McMinnville market area as well. With that said, construction costs and increasing land prices continue to increase feasibility barriers. If rents are not high enough to justify new construction to mitigate these barriers, then additional funding will be necessary to bridge the feasibility gap.

Figure 14 shows commercial and multifamily real estate development (excluding institutional and single-family residential) by total square footage within the market area. The chart on the left shows all development built

across all years. The land use mix is relatively evenly spread across many development types, with retail and industrial comprising over half of all development.

Figure 14. McMinnville Market Area Land Use Mix, Commercial and Multifamily Development (Square Feet)

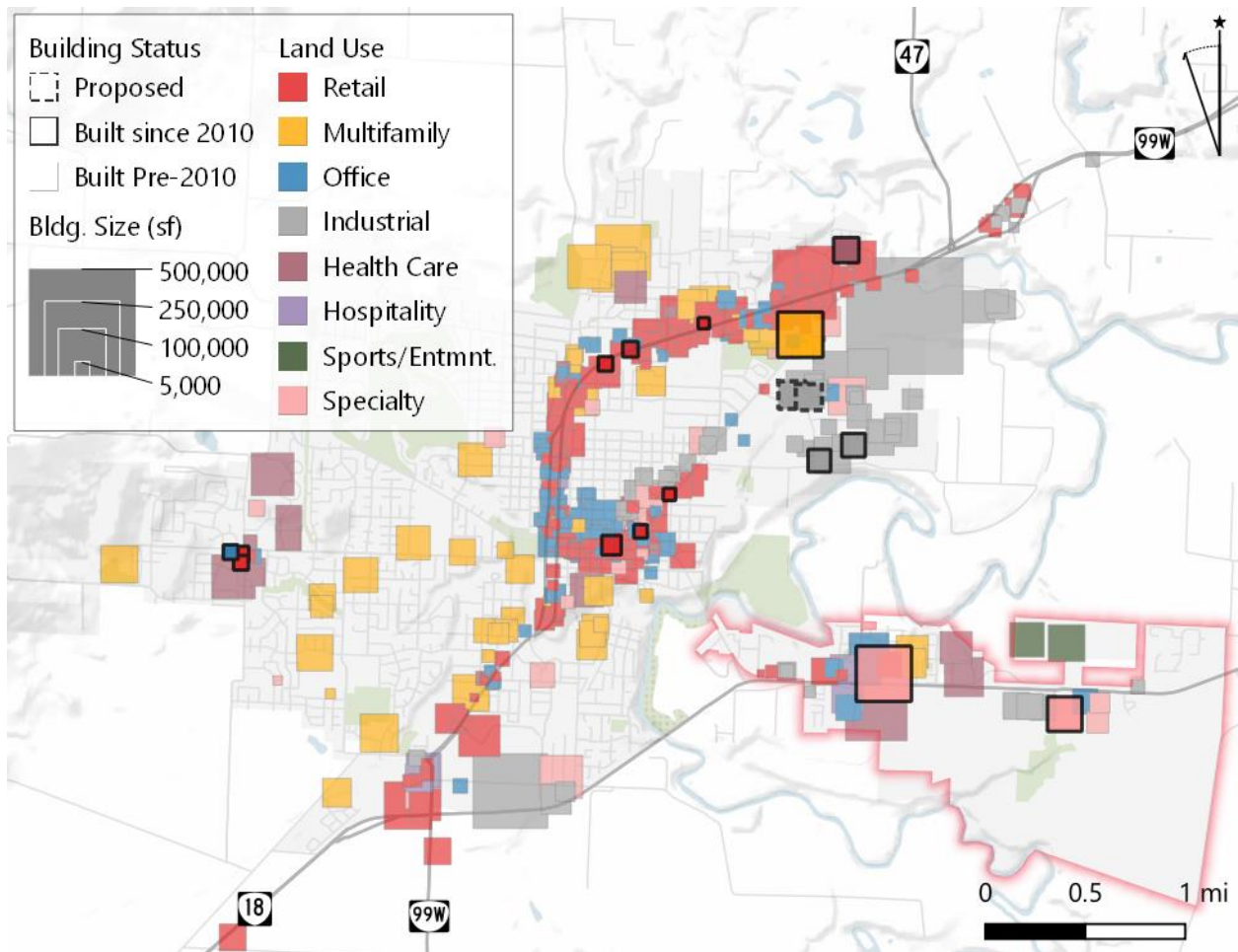


Source: Costar

Figure 15 shows the location and size (by total building square footage) for each land use. Squares with bold outlines indicate recent construction and buildings under construction, while squares with dashed or no outlines indicate proposed projects planned for 2019 or beyond. It is worth noting that some of these proposed projects have been in the pipeline for a long time, such as the proposed retail projects in the Three Mile Lane study area. This analysis—to a certain extent—will identify whether some of these projects are indeed feasible.

There has been relatively little new development in McMinnville, and most recent construction has occurred in the northern sections of the city, with some smaller retail projects along the Highway 99W corridor.

Figure 15. Development by Land Use* and Year Built, City of McMinnville



Source: Costar and Leland Consulting Group
 *Excludes institutional and single-family residential land uses

Residential Market

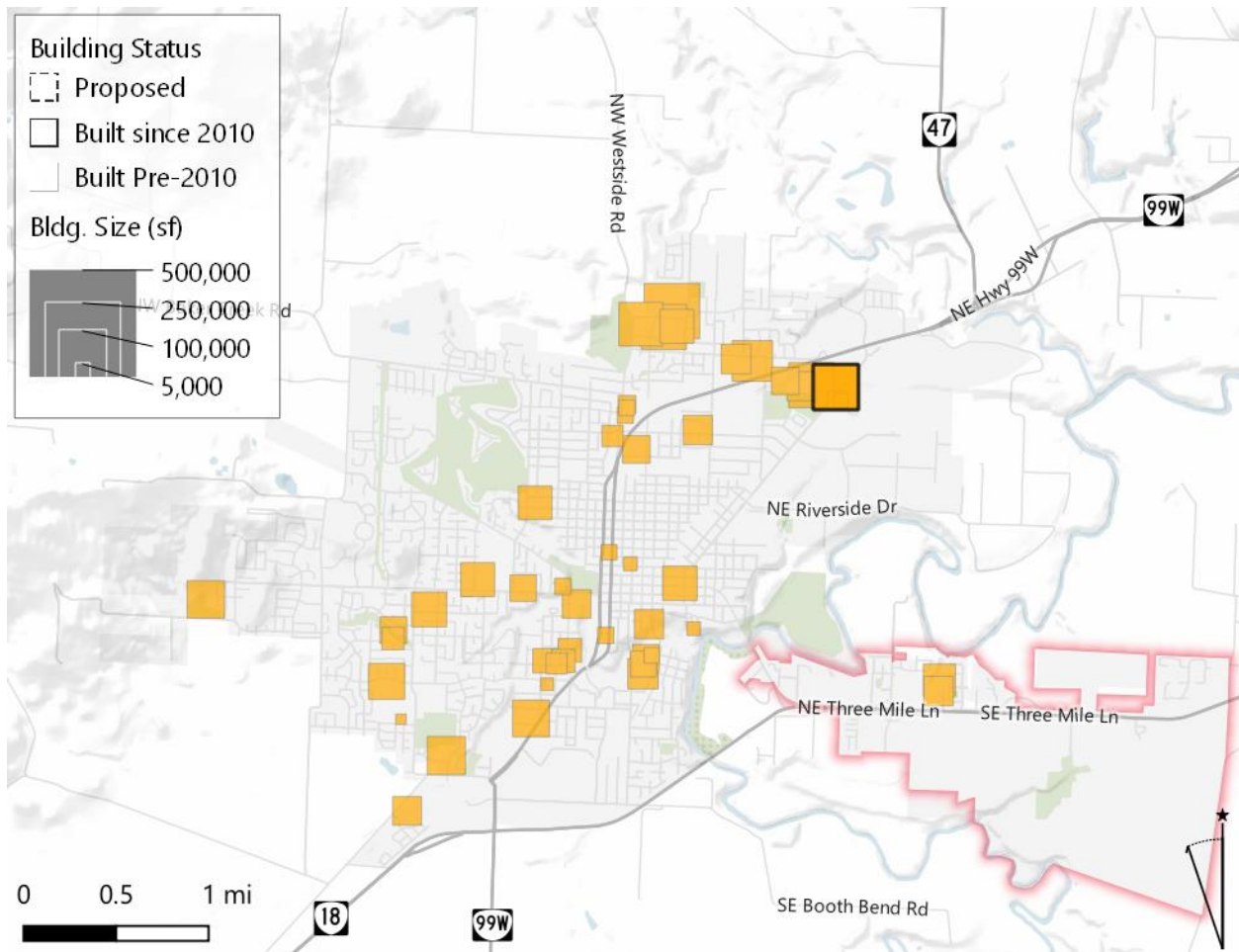
The residential market includes both single-family and multifamily development—both renter-occupied and owner-occupied.

Multifamily Rental Market Summary

Nationally, apartment demand and occupancy remain strong and demographics are favorable to the apartment sector. However, apartment growth tends to be most apparent closer to the center of large metropolitan areas.

The regional market is largely rural and features a sizable proportion of renters, underpinned by demand from students at several local colleges and universities. Deliveries have been limited in this cycle, though lease-up has been rapid in new projects. Generally, there have been tighter vacancies and higher rent growth than in the wider Portland metro region. The primary inventory is for “workforce housing,” and there are no high-end communities (designated by CoStar as 4 or 5 stars) in the submarket. Investment in Yamhill County is limited, with fewer than 10 properties typically trading each year between primarily local firms and investors.

Figure 16. Multifamily Residential Development



Source: Costar, Leland Consulting Group

Within McMinnville, 13 of the 37 apartment buildings with 20 or more units are non-market-rate⁸ (senior or affordable). Market-rate apartments rent—on average—from about \$1.00 to \$1.20 per square foot. The vacancy rate is very low, with the only vacancies near or above five percent in buildings older than 1980. Units in newer buildings typically achieve higher rents.

Only one apartment project has been completed within the market area since 2012—Lafayette Place Apartments. This project is pictured below along with a summary of its key attributes.

Lafayette Place Apartments. A 132-unit market-rate apartment project, completed in 2017, located in north McMinnville. The buildings are wood-frame, three-story “garden walk-ups”. At \$955 for a 1-bedroom apartment (\$1.32 per square foot) and \$1,196 for a 2-bedroom apartment (\$1.26 per square foot), the Lafayette Place Apartments are the highest renting multifamily



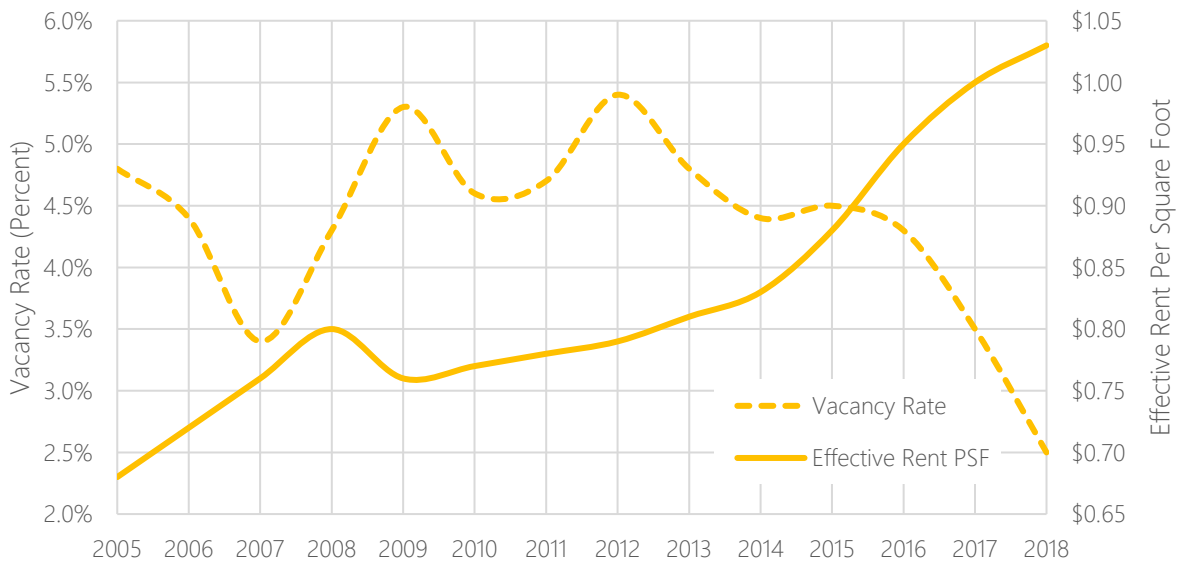
⁸ Market rate housing is an apartment that has no rent restrictions

property in the market area. Parking is 100 percent onsite surface lots.

Figure 17 below confirms that the multifamily market in the McMinnville market area is tight. Average rents have been climbing over the last decade, while vacancies have been very low and have rapidly declined since 2012, indicating demand for new multifamily construction.

In fact, this market strength and potential demand is underlined by the fact that vacancy rates in McMinnville’s multifamily housing market remained low and rent growth was largely positive during the recession—a period of time where most apartments in similar markets saw the exact opposite trends occurring.

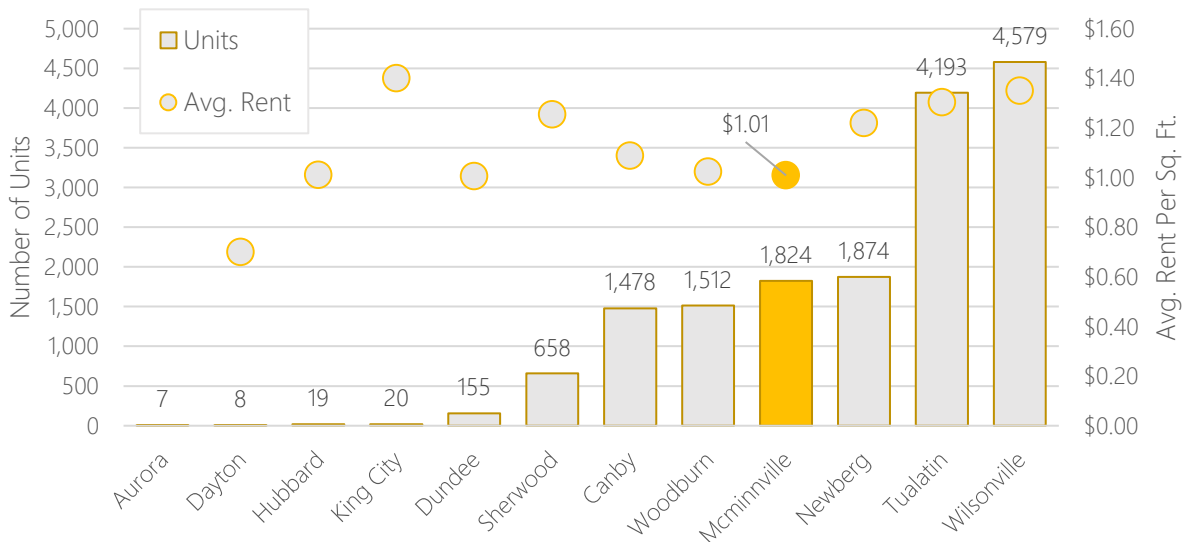
Figure 17. Market Area Multifamily Rent and Vacancy Trends, 2005-2018



Source: Costar, Leland Consulting Group

However, the average rent per square foot for multifamily apartments in McMinnville is lower than those in Newberg, Tualatin, and Wilsonville, which benefit from their proximity to the larger job centers in Portland and Washington County. Some of McMinnville’s newer or higher quality multifamily properties, however, have seen rents higher than the historical average. For market-rate properties only, the average rent increases to about \$1.11 per square foot.

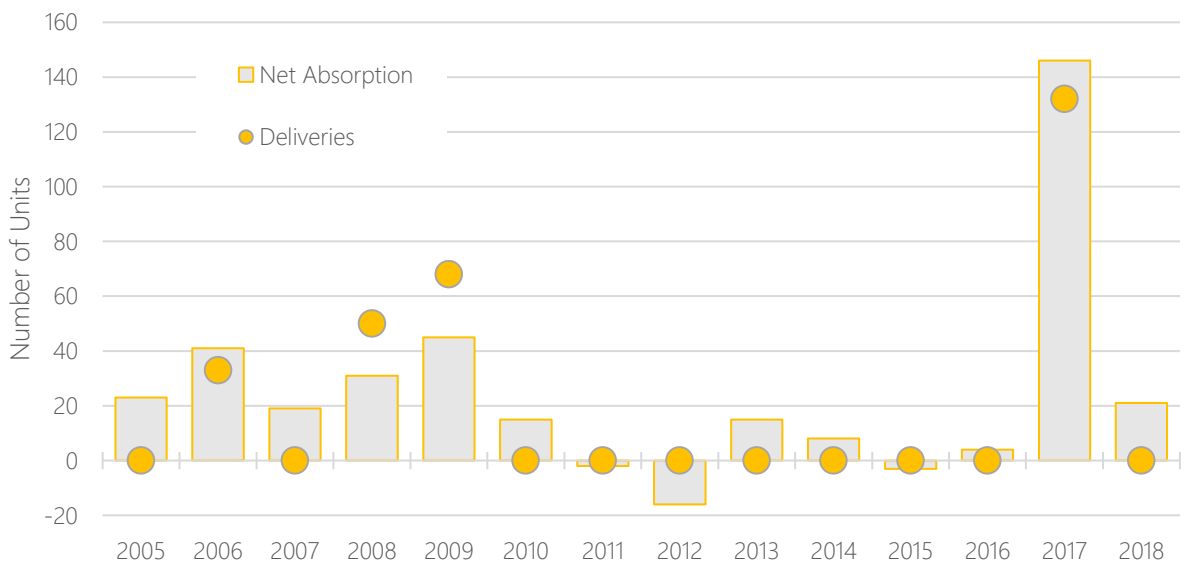
Figure 18. Regional Multifamily Residential Summary



Source: Costar, Leland Consulting Group

Vacancies decreased gradually and then significantly from 2012 through 2018, despite the completion of the 132-unit Lafayette Place Apartments in 2017, largely due to continued positive absorption. The instant absorption of the first new apartment project in a decade indicates strong demand for new rental housing.

Figure 19. Market Area Multifamily Net Absorption and Deliveries (units), 2005-2018

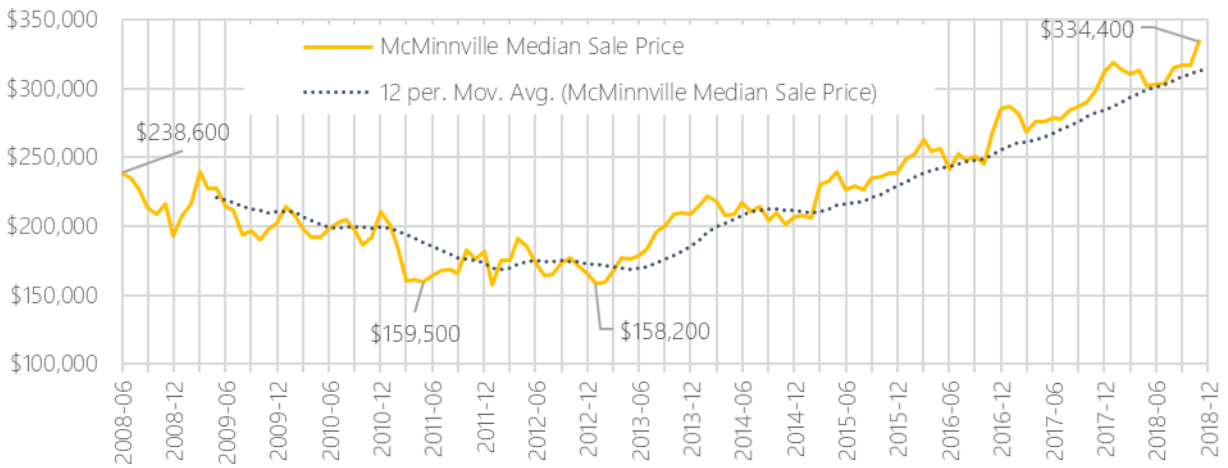


Source: Costar, Leland Consulting Group

Single Family Market Summary

Single-family home prices have been increasing rapidly since the 10-year low of \$158,000 in 2013 Q2. The pre-recession median price of \$239,000 was surpassed going into 2016. Per Figure 20, McMinnville's single-family market appears strong and hasn't experienced the same volatility in the market over the past 10 years as many other municipalities.

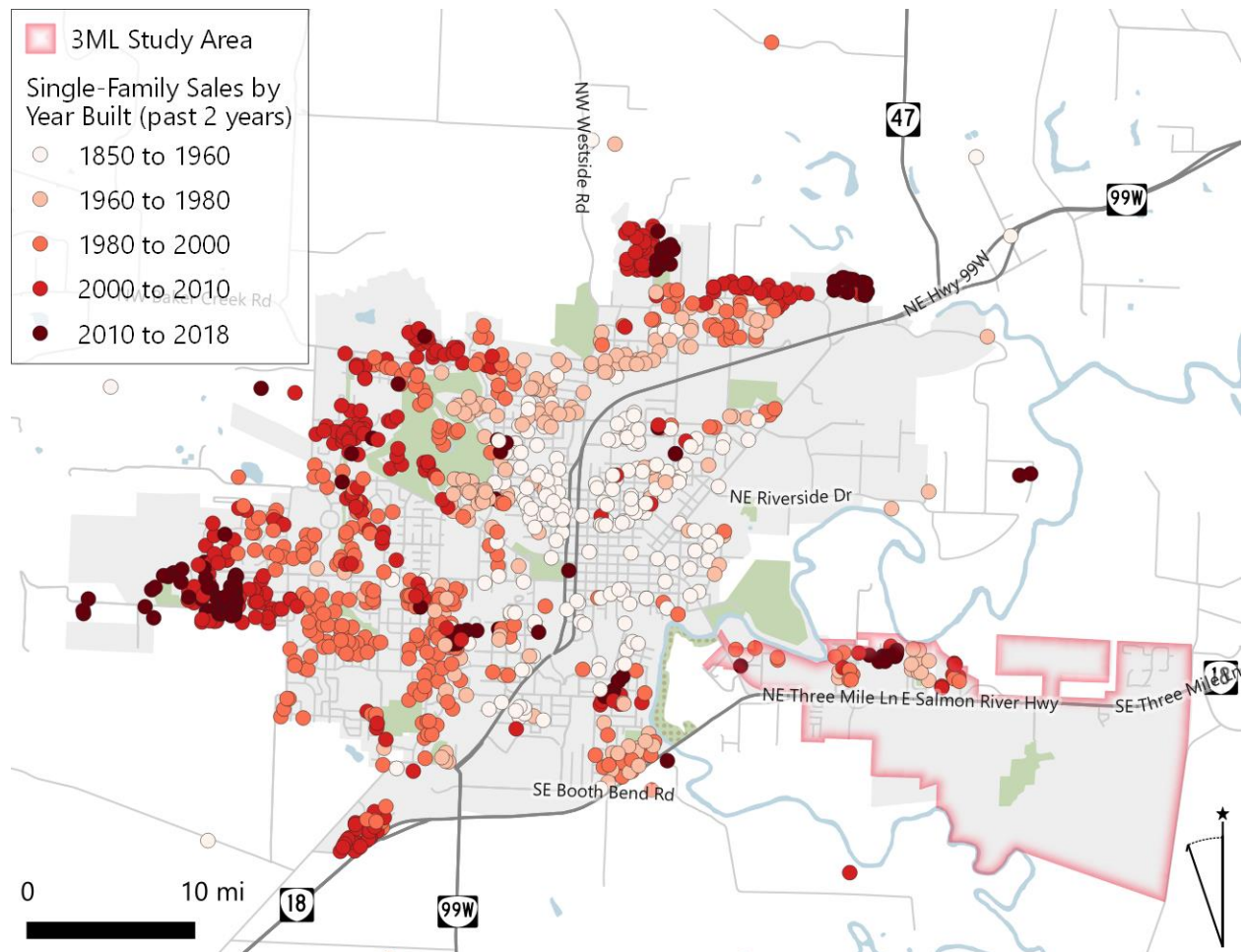
Figure 20. McMinnville Single-Family Median Home Sold Price (2008 to 2018)



Source: Zillow Real Estate Research

Figure 21 shows the location density of residential sales for the past two years. Sales have been driven by new single-family construction in subdivisions, mostly in the western and northern edges of the city. However, some new development has occurred in the Three Mile Lane project area.

Figure 21. Single-family Residential Sales, Past Two Years



Source: Redfin, Leland Consulting Group

Table 4 below shows data relating to single-family sales and absorption for the past 24 months, as well as current for-sale listings, and estimated months of inventory. Months of inventory are often referenced when determining whether it's a seller's market or a buyer's market: If there are zero to four months of inventory, meaning that all current listings can expect to be sold within 4 months, it is considered a seller's market because houses are selling very quickly.

Key findings and general takeaways include:

- Over the last 24 months, approximately 1,127 homes were sold (all new homes and resales), over 92 percent of which were single-family detached homes.
- There are no existing townhomes listed for sale.
- The single-family market is considered tight, with only three months of inventory currently listed for sale. The market for housing under \$400,000 is particularly tight, with very little inventory listed for sale and the highest rate of absorption across all home types and price ranges.

Table 4. Owner-occupied Housing Market Summary, McMinnville, 2018

	Sales in Last Two Years	Percent of Total	Absorption (Units Sold per Month)	Listings	Months of Inventory
Single-Family Homes					
Under \$200k	68	7%	3	0	0
\$200k to \$300k	373	36%	16	9	1
\$300k to \$400k	365	35%	15	31	2
\$400k to \$500k	141	14%	6	43	7
\$500k to \$600k	59	6%	2	12	5
\$600k +	38	4%	2	23	15
Subtotal	1,044		44	118	3
Attached Homes*					
Under \$200k	12	14%	1	0	0
\$200k to \$300k	58	70%	2	0	0
\$300k to \$400k	13	16%	1	0	0
\$400k +	0	0%	0	0	0
Subtotal	83		3	0	0
All Housing					
Under \$300,000	511	45%	21	9	0
Over \$300,000	616	55%	26	109	4
Total	1,127		47	118	3

Source: Redfin and Leland Consulting Group

*Attached includes condominiums and townhomes

The following table—which shows various data for sales over the past 24 months for all housing (all construction years) and new housing (built since 2010) by the number of bedrooms—provides further confirmation of the tight single-family market and relatively strong demand for middle-income, mid-sized, high-quality housing. Housing built since 2010 tends to cost about 22 percent more on average than the local single-family market. New housing—and homes with two and three bedrooms—spend the least time on the market (not including one-bedroom housing, which comprises only one percent of the market).

Table 5. Single-Family Sales Within the Last Two Years by Number of Bedrooms

Number of Bedrooms	Percent of Sales	Avg. Price	Avg. Price per Sq. Ft.	Avg. Size (sq. ft.)	Avg. DOM	Avg. Year Built
All Construction	100%	\$333,904	\$185	1,865	370	1985
1	1%	\$263,451	\$255	1061	188	1971
2	9%	\$254,814	\$205	1,276	374	1962
3	62%	\$315,474	\$188	1,710	368	1985
4	23%	\$393,456	\$173	2,303	375	1992
5	5%	\$424,828	\$156	2,772	382	1997
6	1%	\$498,520	\$151	3,344	351	1984
Built Since 2010	14%	\$408,298	\$203	2,029	313	2016
1	1%	\$275,000	\$393	700	133	2017
2	2%	\$328,000	\$201	1,648	288	2012
3	33%	\$379,286	\$199	1,902	283	2015
4	49%	\$408,915	\$186	2,202	375	2016
5	16%	\$442,392	\$171	2,590	366	2016

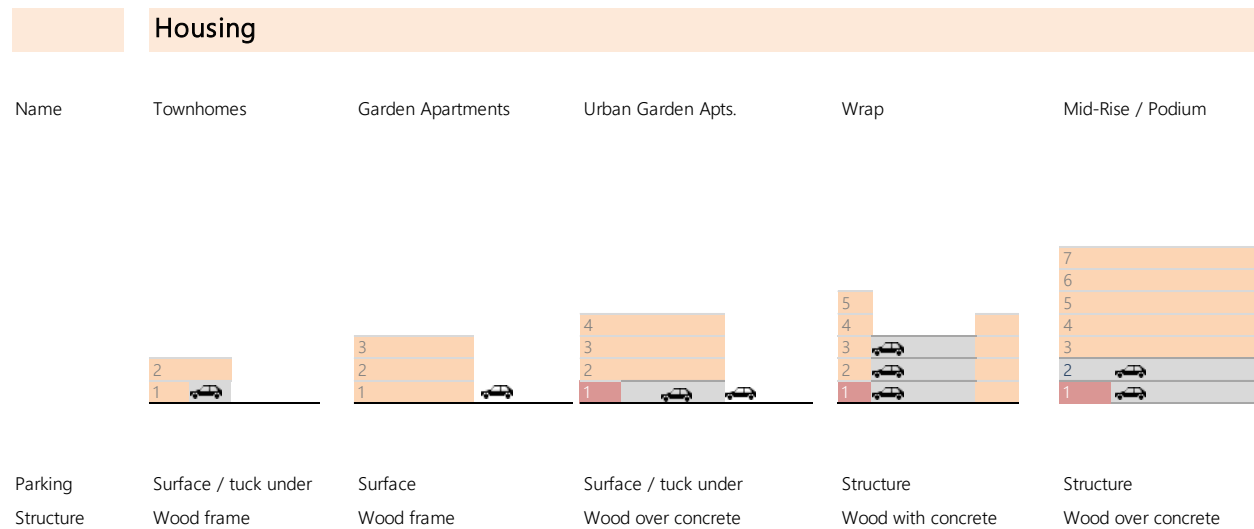
Source: Redfin, as of July 2018

Housing Development Prototypes

Most housing can be categorized within a set of “prototypes,” which are shown below (single-family residential is not included). The prototypes increase in scale and density moving from left to right. Parking is a key factor that affects housing density and financial feasibility. Typical types of parking are surface, tuck under, structured, and below-grade structured. Surface parking is the least expensive and below-grade structured parking is the most expensive. Structured parking can add tens of thousands of dollars of construction cost per housing unit, which often means that only hot housing markets with high rents can accommodate higher-density housing types with structured parking. Construction materials also change as housing density increases. Townhomes, low-rise (garden) apartments, and low-rise apartments with tuck-under parking (urban garden apartments) are typically entirely wood-frame buildings; while wrap and mid-rise/podium structures require concrete construction for parking areas; in addition, steel is sometimes used instead of wood for the apartment areas. The construction complexity and specialization required for these building types also increases costs.

Single-family, townhomes and low-rise apartments appear to be the most financially feasible housing development types in the near- and mid-term. Single-family homes will also be feasible. Urban garden apartments (which include tuck-under parking and sometimes ground-floor retail) may be feasible in the mid- and long-terms. Wrap and mid-rise projects are only likely to be feasible after significant “place-making” improvements have been made, and/or if the market changes. Affordable and/or mixed-income projects can sometimes achieve higher densities than market-rate projects since they have access to additional public funding sources. While the vacancy rate across multifamily apartments is practically zero and net absorption continues to increase, rents remain too low for market-driven high-density developments. However, the tight market may generate significant rent growth, subsequently improving the feasibility of higher density developments.

Figure 22. Housing Development Prototypes



Market Trends

The recession had a profound and lasting effect on the housing market, and while the recovery is now almost over, more people are renting than ever before. For many people, financial barriers such as rising student debts, access to credit, and large down payments have forced them to rent. For many others, the choice to rent is simply a choice. Indeed, it is well established that the two most populous generations—the Baby Boomers (ages 54 to 72) and the Millennials (ages 22 to 37)—are currently the primary drivers of demand for residential units in walkable, urban locations that offer flexibility and a range of amenities.

As Baby Boomers reach retirement age and see the last of their children leave home, they are increasingly attracted to smaller move-down or “lock-and-leave” housing which requires less maintenance and affords more flexibility. As such, age-restricted and senior multifamily housing has risen near the top of the list for best investment choices (per ULI’s “Emerging Trends in Real Estate 2018”).

For Millennials, the situation is more nuanced and difficult to forecast. The common rhetoric for many years was that Millennials desire urban living and will continue to reside in urban cities because of financial conditions and choice. However, while demand for urban rental apartments has remained high among Millennials, they are increasingly forming households and having children, looking at select suburbs and secondary markets because of the quality of life, lower cost, and space and yard availability. Indeed, 70 percent of Millennials expect to be homeowners by 2020, even though only 26 percent own today (per ULI’s “Gen Y and Housing”). With that said, generational trends associated with the next emerging generation—Gen Z (ages 21 and below)—are relatively unknown.

Other reports have recently documented important trends in housing. Findings include:

- Cost of housing, neighborhood safety; proximity to work; K-12 school quality; and community character, ambiance, and visual appeal were the top five critical community features for survey respondents.⁹

⁹ Urban Land Institute (ULI), Gen Y and Housing: What They Want and Where They Want it, 2015

- Urban setting; proximity to shopping, dining, and entertainment; walkability; and availability of mass transit are all also important—but not critical—features in a community.¹⁰
- The more walkable the community, the more satisfied residents are with their quality of life.¹¹
- Access to public transportation is much more important to those earning under \$50,000 per year, while walkability is also more important to those with lower incomes.¹²
- Sixty percent of residents would spend at least a little more for a house in a walkable community.¹³
- Four-in-ten people prefer a walkable community and a short commute. Millennials, in particular, are swayed by a shorter commute.¹⁴

Talk of generational shifts, however, sometimes misses the point. Ultimately, people are waiting longer to make significant life choices, such as buying a home or having children, and quality of place has emerged as a primary desire for almost all prospective residents across all demographic groups. Quality of place is simply the components that make any given place enjoyable to live, such as availability of and access to good schools, parks, quality healthcare, transit, shops, entertainment, and cultural amenities.

Residential Demand

As noted earlier, projected growth rates tend to vary significantly depending on the source and the geography in question. Therefore, it is important to carefully consider the “middle-of-the-road” option and note that actual demand is likely to change. With that said, PSU’s projections for the McMinnville Urban Growth Boundary align with projections for Yamhill County as well as the “baseline” growth rate, which applies the historical household growth rate from 2010 to 2018 in the market area to current households.

For the residential and retail demand forecasts, we assume that actual household growth will be approximately 1.3 percent. Based on this household growth rate, we project market area demand for an additional 3,800 units over the next 10 years within the market area, or about 380 units per year. We anticipate that the most demand for new *rental* units will be from households with incomes less than \$75,000, and the most demand for new owner-occupied housing to be from households earning between \$50,000 and \$150,000. We expect about 32 percent of future housing demand to be for renter-occupied units, resulting in about 1,200 rental units and 2,500 owned units.

¹⁰ Ibid.

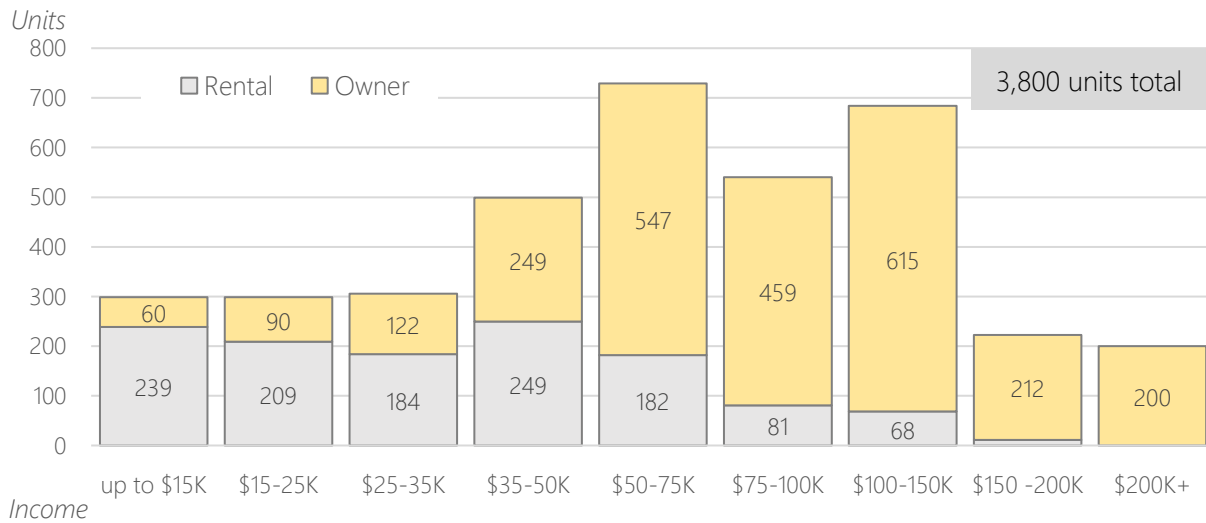
¹¹ National Association of Realtors (NAR), National Community and Transportation Preference Survey, 2018

¹² Ibid.

¹³ Ibid.

¹⁴ Ibid.

Figure 23. 10-year Market Area Unit Demand



Source: Leland Consulting Group

Table 6. Annual Income Range and Attainable/Affordable Monthly Rent and Housing Price

HH Income	\$15k	\$25k	\$35k	\$50k	\$75k	\$100k	\$150k	\$200k	\$200k+
Attainable Monthly Rent	\$375	\$625	\$875	\$1,250	\$1,875	\$2,500	\$2,500+	\$2,500+	\$2,500+
Attainable Home Price	\$45k	\$75k	\$105k	\$150k	\$225k	\$300k	\$450k	\$600k	\$600k+

Source: ESRI, Leland Consulting

While projected residential growth suggests demand for a total of 1,200 multifamily rental apartments, the past five years has only delivered a total of 132 multifamily apartment units, significantly lower than the necessary rate of development required to get to 1,200 within the next decade. Of course, townhomes and—to a lesser extent—single-family homes may also be renter-occupied, but multifamily apartments will be responsible for the majority of new renter-occupied units. With the trajectory of the past five years, the multifamily market will continue to be constrained, potentially increasing rents and attracting developers to the region. However, the City should explore ways in which to incentivize new housing development and bridge any potential feasibility gaps preventing new construction.

Table 7. Historical and Forecasted Multifamily Residential Trends, Market Area

	Past 5 Yrs.	Next 10 Years
Net MFR Absorption	175 units	275 units
MFR Deliveries	132 units	350 units

Source: Costar and Leland Consulting Group

Three Mile Lane Study Area Absorption

With such a tight single-family and multifamily market, as well as few major tracts of vacant tracts for greenfield development inside urban areas, we expect the project study area to capture a significant amount of new residential demand over the next 10 years.

While the vacancy rate is currently almost zero, development activity should theoretically increase, and we anticipate the multifamily market to subsequently stabilize near five percent vacancy (typically considered the point of market equilibrium for multifamily). For this reason, we anticipate deliveries to be higher in the Three Mile Lane project area than net absorption. This assumes that land supply and zoning is able to accommodate new multifamily development.

For single-family, we anticipate single-family development to build out to the extent allowed. Given the existing industrial zoning, there are few places which could accommodate such residential development. Much fewer single-family units could be accommodated simply due to the density of single-family development and land required relative to multifamily residential.

Retail Market

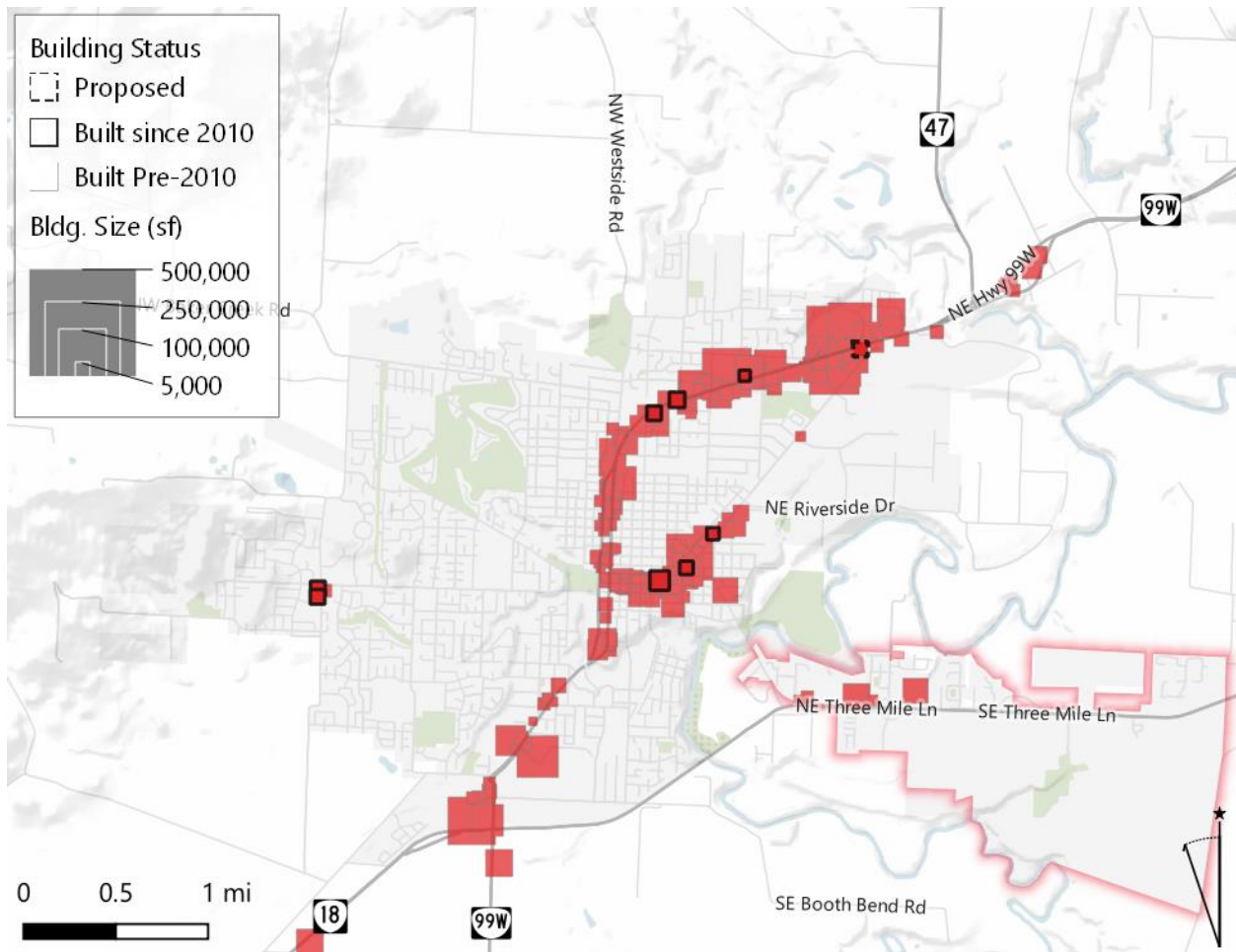
Market Summary

For retail, the analytic goal of defining a “market area” is generally to encompass likely customers whose spending power will fuel a significant majority of sales in future shops and eateries in the study area. Competitive supply (both existing and potential) will also, logically, tend to fall within that same market area. Neighborhood stores such as supermarkets tend to have much smaller market areas than big box stores, which in turn have smaller catchment areas than regional malls or other larger-scale projects.

CoStar reports that the McMinnville market area has 268 buildings totaling 2.5 million square feet of retail space. The market has a low vacancy rate of 1.4 percent. Rents vary widely by retail property type, condition, and configuration. Generally, asking rents for quality retail space range from around \$14 to \$18 per square foot, but a few quality, well-positioned retail spaces are achieving upwards of \$24 to \$30 per square foot triple-net, such as some pad sites along Highway 99W. No comps currently exist for brand new, first-generation retail space.

Figure 24 illustrates the relative size of retail development by total square footage. Retail development is largely concentrated along State Highway 99W. Generally, retail is small-scale—especially along Baker Street and near downtown—while larger neighborhood-serving retail—such as McMinnville Town Center, Lowe’s, Wal-Mart, WinCo Foods, and Bi-mart—is located in the northern and southern areas of the city.

Figure 24. Regional Retail Development



Source: Costar, Leland Consulting Group

Understanding the pattern of retail spending within a community is critical. By looking at estimated demand from existing households and current estimated sales, we can identify the relative strength or weakness of each retail category. Retail sectors in which household spending is not fully captured are called “leakage” categories, while retail categories in which sales are higher than estimated household demand generated by existing residents are called “surplus” categories.

A retail sales surplus indicates that a community pulls consumers and retail dollars in from outside the trade area, thereby serving as a regional market. Conversely, when local demand for a specific product is not being met within a trade area, consumers are going elsewhere to shop, creating retail leakage.

Table 8 shows the current annual retail leakage for various retail categories. Most retail categories show a sales leakage occurring, with Food and Beverage (grocery), Building Materials and Garden Equipment, Health and Personal Care, and Miscellaneous Retailers showing a surplus. This indicates that the McMinnville area is a weak retail market with a lot of spending potential leaving the area. General Merchandise shows the highest leakage, but these retailers—such as Walmart and Target—have large catchment areas and it’s very possible that McMinnville residents travel to larger metros, such as Salem and Portland to shop at these stores.

While leakage usually presents an immediate opportunity to increase new retail development activity and capture some of the demand leaving the area, this may be unlikely for many of the retail categories in the table and following chart below given McMinnville’s proximity to several regionally-significant retail centers. For example, both Bridgeport Village and the Woodburn Outlets—which provide an extensive range of low-cost, high-quality products—are about a 45-minute drive of McMinnville.

Table 8. Retail Leakage Analysis, McMinnville Market Area

	Est. HH Demand	Current Est. Sales	Current Leakage (\$)
Furniture and Home Furnishings	\$25,459,215	\$9,815,869	15,643,346
Electronics and Appliance	\$25,779,334	\$10,205,468	15,573,866
Building Material, Garden Equip	\$56,286,379	\$89,349,237	-33,062,858
Food and Beverage (grocery)	\$132,402,012	\$244,668,336	-112,266,324
Health and Personal Care	\$49,511,435	\$59,825,939	-10,314,504
Clothing and Accessories	\$39,384,538	\$5,785,467	33,599,071
Sporting Gds, Hobby, Book, Music	\$27,981,058	\$12,792,050	15,189,008
General Merchandise	\$138,540,476	\$41,383,114	97,157,362
Misc. Store Retailers	\$38,326,257	\$81,493,693	-43,167,436
Foodservice and Drinking Places	\$83,233,240	\$53,518,658	29,714,582
Other (including cinema, prof./med. office, consumer banks, etc.)	\$92,535,592	\$91,325,675	1,209,917

Source: ESRI

Figure 25. Market Area Retail Demand: Surplus/Leakage

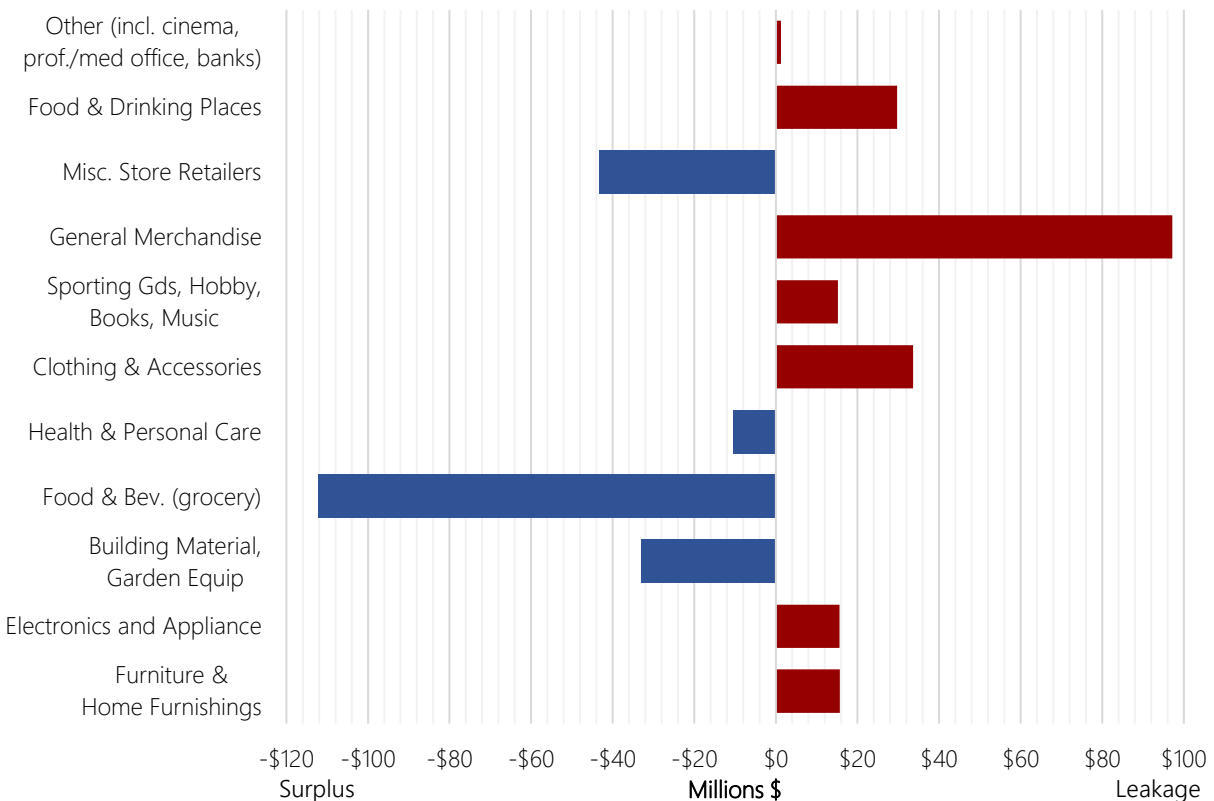
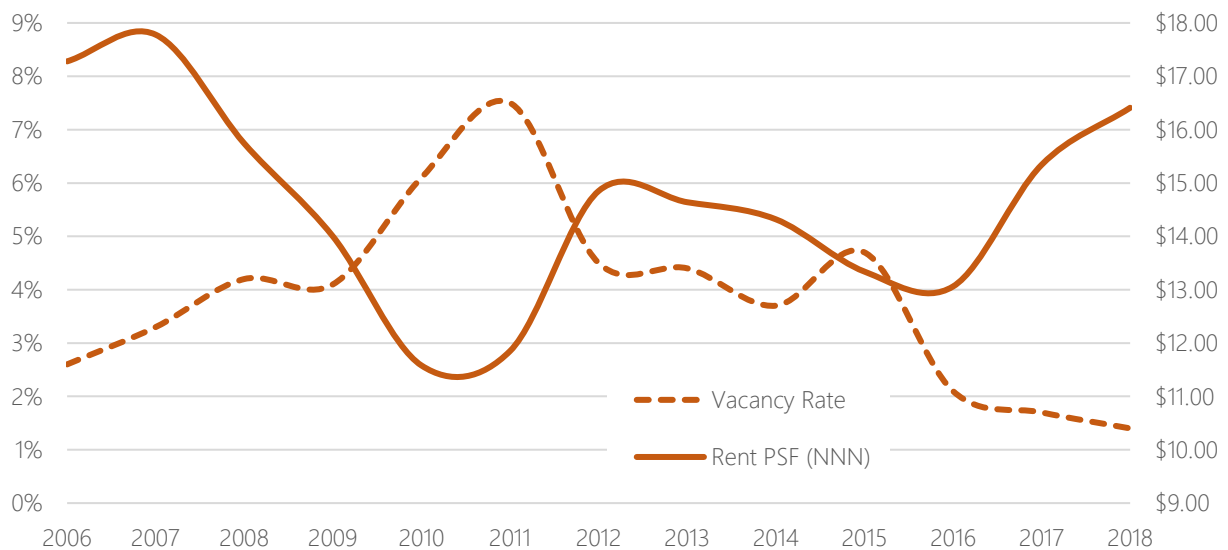


Figure 26 provides rent and vacancy trends for retail development in the McMinnville market area. Rents and vacancies tend to have an inverse relationship, and this has been the case with local retail. Rents were at their lowest rates and vacancy at its highest during the recession, and rents have yet to recover to the 12-year high of almost \$18 per square foot triple-net (NNN) in 2007, despite Costar data showing the vacancy rate at record lows.

While such low vacancies typically suggest demand for new retail development, this may be small-scale. The changing face of the retail sector is resulting in record closures of national retailers, and other large regional retail centers—such as the Woodburn outlet mall and Bridgeport Village—are far more competitive and already established.

Figure 26. Market Area Retail Rent and Vacancy Trends, 2006-2018



Source: Costar

Figure 27, which shows the net absorption and total retail deliveries by year for the past 12 years, demonstrates why the spike in the vacancy rate occurred in 2010 and 2011. Clearly, some major retail space was vacated during and immediately following the recession, but the market appeared to have bounced back in 2012 with a relatively strong year of positive absorption. In terms of deliveries, there have been few significant developments over the past decade.

Figure 27. Market Area Retail Net Absorption and Deliveries (sq. ft.), 2006-2018



Source: CoStar

Market Trends

The goods-based consumer retail industry is undergoing a seismic shift and transformation. Big name retailers are declaring bankruptcy and closing hundreds of stores as online purchases grow and American buying habits change. Last year saw a record number of store closings. This is having a trickle-down effect on communities, as some see their brick-and-mortar retail bases slowly eroding, with impacts felt in shopping centers and along traditional Main Streets.

Planners in some cities and counties are taking proactive approaches to the shifting retail landscape. They're commissioning studies of the marketplace and developing new strategies to maintain and foster better retail environments. Also, many retail-only zoning classifications are being modified to allow a variety of new uses in ground-floor, street-fronting spaces. The idea is to liven up the street with pedestrian activity without relying on retail, with new uses ranging from offices to fitness facilities.¹⁵



Table 9 summarizes the anticipated growth and decline of primary retail types. This information is based on research conducted by commercial real estate company Cushman & Wakefield and reflects changing preferences. Online shopping is having a significant impact on “commodity retail.” Retailers selling products that can easily be ordered and shipped from Amazon or others face a challenging environment and must have a competitive advantage against online competition—whether that is the convenience, experience, customer service, or something else. Commodity retailer categories include electronics, office supplies, and video stores.

By contrast, experiential consumerism is an emerging trend in which retailers offering a special experience, or offering services that cannot be procured online, have the potential to thrive. A prime example is dining—as one retail guru has said, “you can’t eat the internet;” and you certainly cannot dine with family and friends on the internet. Therefore, food and beverage establishments have become a larger and larger part of the retail

¹⁵ [URL](#)

experience, on both main streets and larger shopping centers. Another growing “retail” sector is healthcare. Small, neighborhood-scale providers are moving into both main street and retail center locations.

Table 9. Retail Trends: Growing and Declining Retail

Growing	Declining
	
<ul style="list-style-type: none"> • Retail that offers a special experience • Food! • “Fast Casual,” i.e. Little Big Burger • Food Halls, artisanal markets • Trucks to Bricks • Grocery: Ranging from discount, to organic, to small format, and ethnic • Medical users, incl. ZoomCare • Apparel: Fast fashion, off-price, active sportswear • Sporting clubs • Fitness/Health Clubs • Marijuana dispensaries • Auto repair • Convenience stores • Car dealerships • Home improvement and home furnishings 	<ul style="list-style-type: none"> • Commodity retail • Food: Casual dining, weaker fast food chains • Mid-priced apparel and shoes; children’s • Dollar Stores • Pet supplies • Electronics • Office Supplies • Bookstores • Toy Stores • Video stores • Bank Branches

Source: Cushman & Wakefield, Leland Consulting Group.

The Rise of E-commerce

Between 2001 and 2015, total online retail sales grew at a 21.8 percent annual growth rate and accounted for 22 percent of total retail sales growth. During the same period, brick-and-mortar stores grew at a rate of only 3.7 percent annually, decreasing their share of the total retail market from 98 percent to 89 percent. While still only

a small total market share, estimates indicate that up to 20 percent of total US sales will be attributed to e-commerce by 2019.

The rise of online retail has also had a major impact on the way retailers are doing business. As more people turn to the internet to do their shopping, traditional brick-and-mortar stores are altering their store formats and incorporating an online platform into their business concepts. Omnichannel retail strategies, where a retailer operates through both physical locations and online sales, have proven to be a necessity in today's market.

The list of top online retailers reinforces this point, as many also have a significant brick-and-mortar presence. Of the top 25 companies with the highest online retail sales in 2016, 18 were more traditional brick-and-mortar retailers. These include companies such as Walmart, Best Buy, Macy's Inc., Nordstrom Inc., Target Corp., Gap Inc., and Neiman Marcus.¹⁶ That said, Amazon remains king among online retailers, with almost six times the sales volume of the second-ranked retailer, Walmart.

Employment Market

The McMinnville market area has 97 office buildings with a total of 785,000 square feet of rentable space, comprising entirely of Class B and C buildings. Most are wood-framed buildings built between 1970 and 2000. Office vacancy stands at 3.2 percent according to CoStar; this is down from a 10-year high of 10.5 percent in 2011, indicating demand for new space.¹⁷ Gross office rents currently average around \$18.20 per square foot per year.

There are 85 industrial buildings with a total of 2.4 million square feet of rentable space, although almost one-quarter of this total is from the steel mill in the north of the city. Industrial vacancy stands at 0.4 percent according to Costar, down from a 10-year high of 15.8 percent in 2014. Industrial rents average around \$8.40 per square foot.

Market Summary

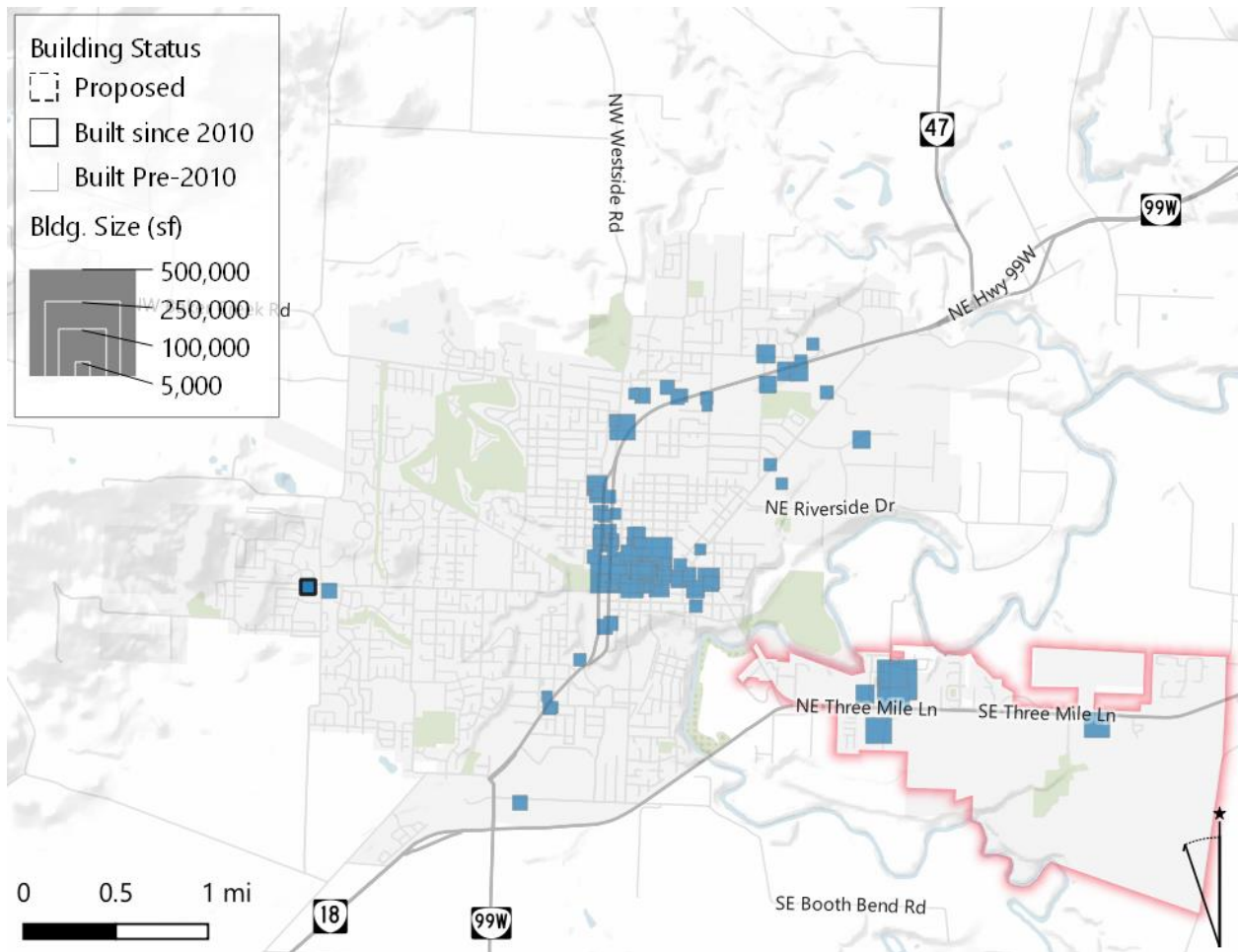
With an economy centered on agriculture, the Yamhill County office market is relatively quiet, and its tenants and investors are predominantly local. The vacancy rate is tight, due in part to moderate absorption but largely because of limited inventory and the lack of new construction. Rents experienced back-to-back years of growth in 2015 and 2016 but contracted in the past year. Over the cycle, the submarket has consistently posted minimal investment activity and nearly no new supply.

As shown in Figure 28, new office construction in the region has been limited to the Portland Metropolitan Area and other close-in cities.

¹⁶ www.wwd.com/business-news/financial/amazon-walmart-top-ecommerce-retailers-10383750/

¹⁷ Anecdotal evidence suggests an immediate need/demand for mid- and large-scale Class A office space, although the extent of which is likely limited, based on projected regional employment growth rates.

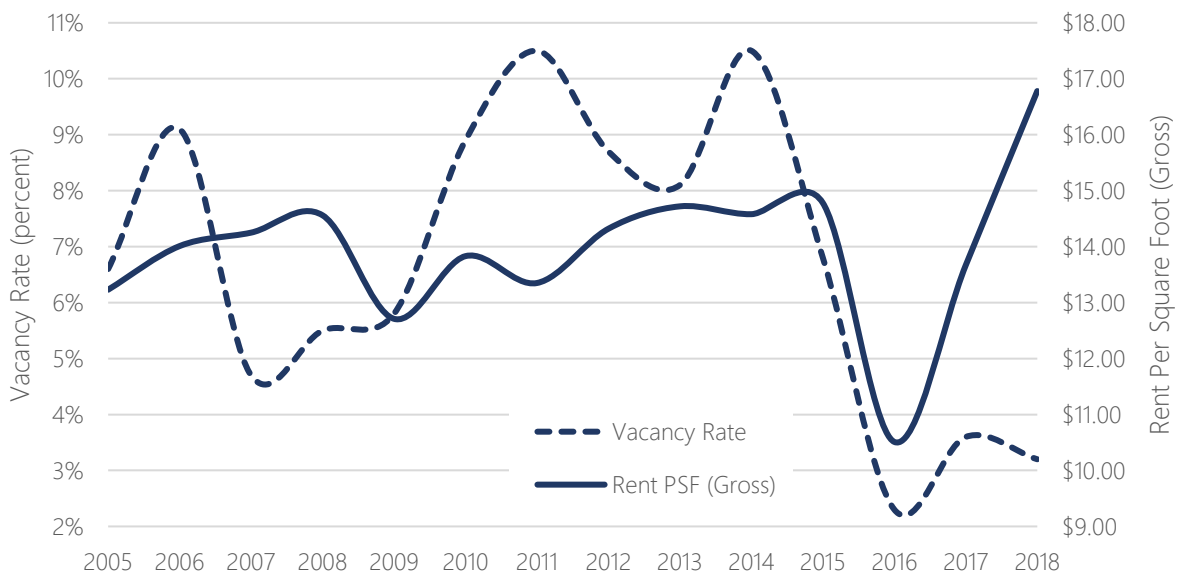
Figure 28. Regional Office Development



Source: Costar, Leland Consulting Group.

There has been little to no rent growth in the market area over the past decade, and vacancy rates have been erratic, declining significantly from 2014 and settling near three percent in 2018. However, the following chart shows the volatility of the office market.

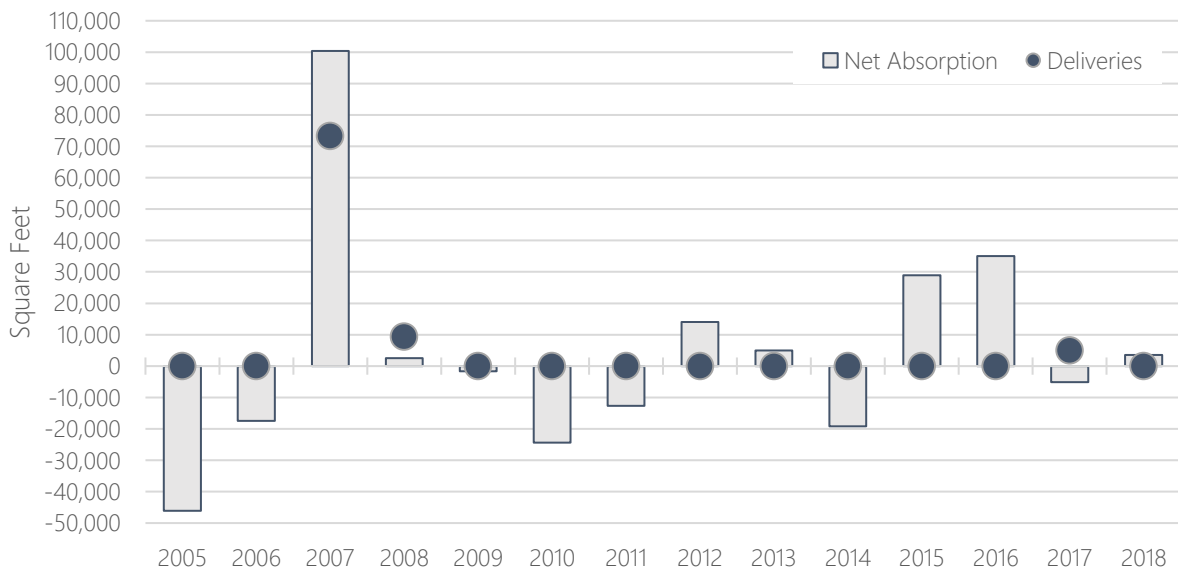
Figure 29. Market Area Office Rent and Vacancy Trends, 2005-2018



Source: Costar

Net absorption of office space has been largely positive, albeit minimal, and essentially no new office space has been constructed in the past decade. This is reflective of the fact that more competitive and significant employment clusters are located elsewhere in the region, largely throughout the Portland Metropolitan Area, such as Wilsonville. However, this may also partially due to the lack of appropriately zoned land for office.

Figure 30. Market Area Office Net Absorption and Deliveries (sq. ft.), 2005-2018



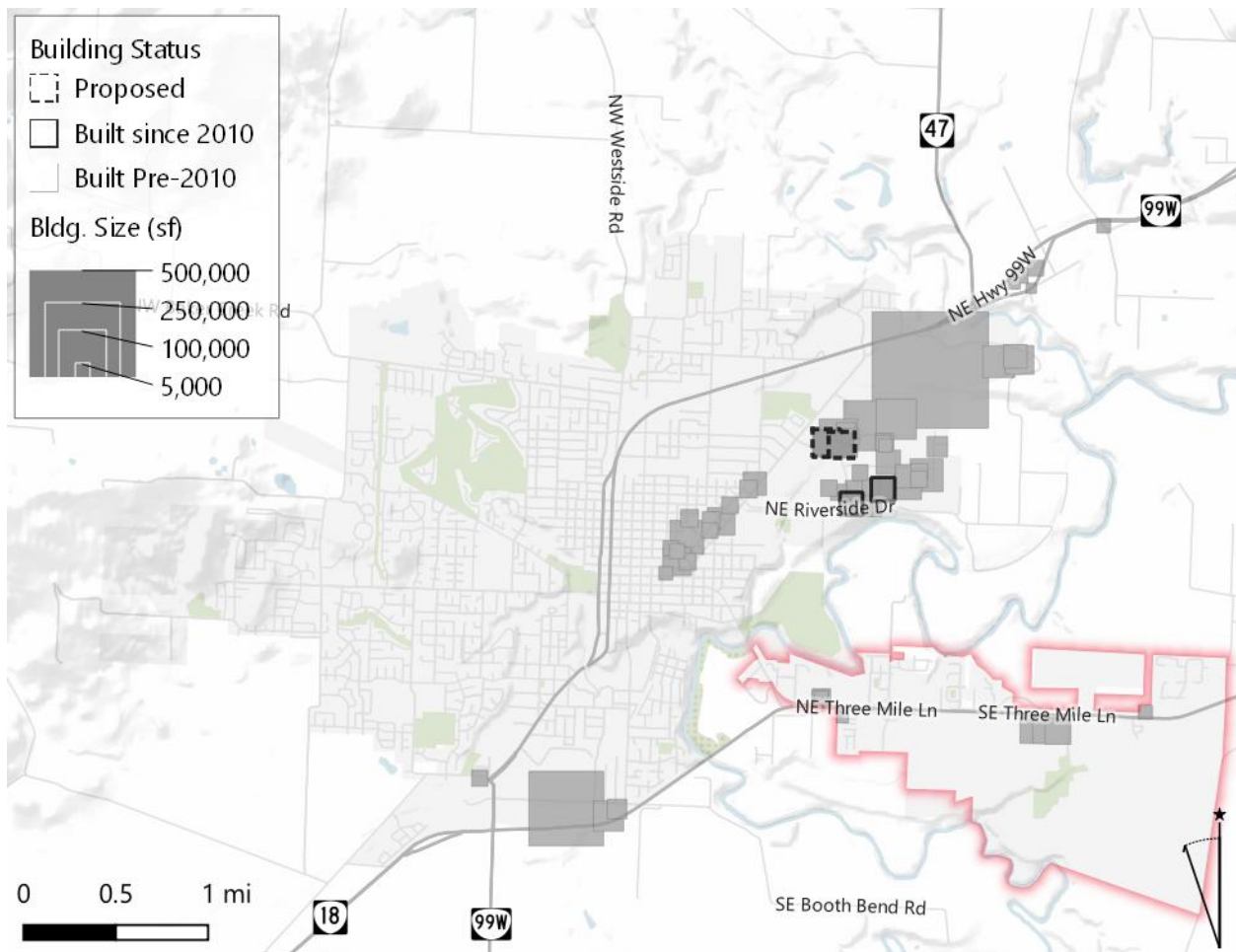
Source: Costar

For industrial, the market is marginally stronger than for office. However, like office, industrial development has also clustered elsewhere in the region in locations that are arguably better suited for continued expansion.¹⁸ Locations such as the Tualatin, Tigard, and Wilsonville benefit from close proximity to Interstate-5 and access to talent in Portland. These locations have rapidly built up their manufacturing industries, among others. While McMinnville has seen recent development, it is unlikely to compete with these other centers.

With that said, Three Mile Lane may have a locational advantage for industrial development due to its proximity and access to the airport. Nationally, many modern airports now generate most of their revenues from sources other than aviation. While small and lacking commercial service, the McMinnville airport may have positive impacts for a hotel (including conference spaces), office space, business parks, industrial development (particularly manufacturing and warehousing), cargo facilities, sports facilities, among others.

Extending the airport runway to accommodate larger aircraft may further improve development prospects and accelerate the rate of development. However, doing so is understood to be challenging as the only place to extend is to the northeast, which would require moving Highway 18.

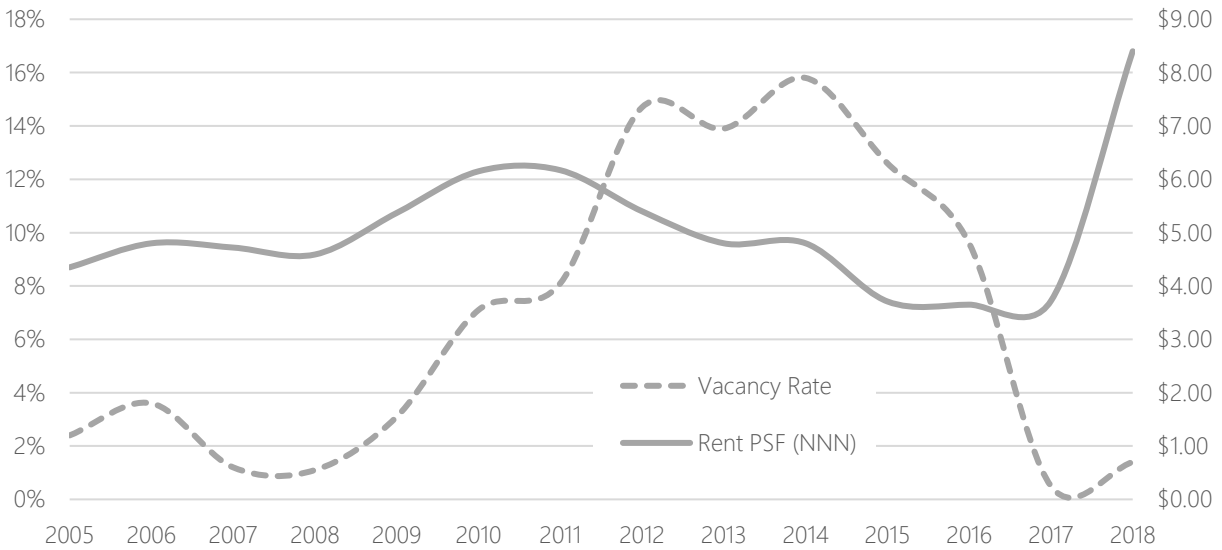
Figure 31. Regional Industrial/Flex Development



¹⁸ The data that populates the corresponding map often neglects to show owner-occupied buildings, such as the Jackson Family Wines building, built in 2017 in the Three Mile Lane corridor.

While the industrial vacancy rate is virtually zero, rents have only just climbed to pre-recession levels. A hike in vacancy rates between 2009 and 2014 resulted in negative rent growth. However, with the wine industry such a significant component of the Mid-Valley industrial market, there is a reason to believe that typical rent and vacancy characteristics may not truly represent the McMinnville market area’s industrial market.

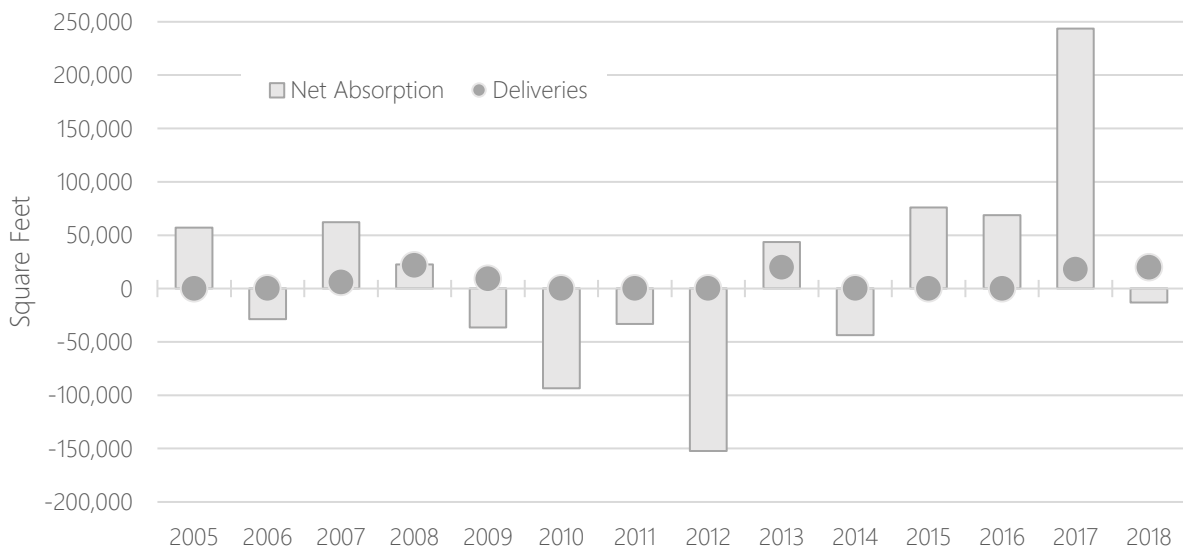
Figure 32. Market Area Industrial Rent and Vacancy Trends, 2009-2018



Source: Costar, Leland Consulting Group

Net absorption has been largely positive since several years of negative absorption between 2009 and 2012—likely as a result of the recession, with a huge surge in absorption in 2017 which has resulted in almost zero vacancies in the market area. There have been few industrial deliveries over the past decade.

Figure 33. Market Area Industrial Net Absorption and Deliveries (sq. ft.), 2005-2018



Source: Costar, Leland Consulting Group

Planned and Proposed Projects

Per Costar, there are only two proposed industrial buildings in the McMinnville area, both of which are planned for either office or industrial. Both buildings are located in McMinnville's industrial district (zoned General Industrial M-2) along a Portland Western Railroad rail spur.

Figure 34. Proposed Industrial Development, McMinnville



Source: Kidder Matthews

Market Trends

While people once followed the jobs, corporations and professional firms are now following people back to the city. These companies have increasingly seen prospective employees choosing to live, work, and play in more interesting—often urban—locations, and now they have realized that attracting these employees requires them to be in these places too. As such, the authenticity of a place has become a sought-after commodity. This is likely one of McMinnville's strongest assets. Companies and workers now look for the genuine, the idiosyncratic, the unique and, most importantly, the personality of a place that matches their own. In fact, a recent Newmark study identified a significant rent premium for office properties with transit access, dining operations, and open floor plans of around 50 percent higher than those with obsolescent characteristics.

For cities, this means that opportunity lies in attracting more investment and focusing on placemaking to make themselves the place where the best and brightest live, work, and shop. This might require updating office and industrial areas to reflect the way we now do business and work day-to-day. And, as the finance, utility, and even government sectors continue to consolidate, cities will need to backfill their buildings with new tenants to keep downtown an interesting and lively place.

Location Preferences

Across the United States, traditional office development is increasingly considered obsolete in today's shifting market. Since the Great Recession tenant preferences have shifted to central, walkable, amenity-rich locations as companies find it tougher to recruit the Millennial and emerging Gen Z workforce to sterile, single-use buildings and in auto-dependent neighborhoods. These locations have typically been in inner-city areas, but more recently office investors have been refocusing their attention to suburban communities that increasingly offer a better value for investors than urban products, mainly in areas where developers are creating live-work-play environments. The migration of millennials to the suburbs should ease investor concerns about demand for suburban office space.

Workplace Trends

General trends impacting the office workspace include a steady decline in the number of square feet per employee, the increase in standardized workspaces and non-dedicated (shared) office space with more

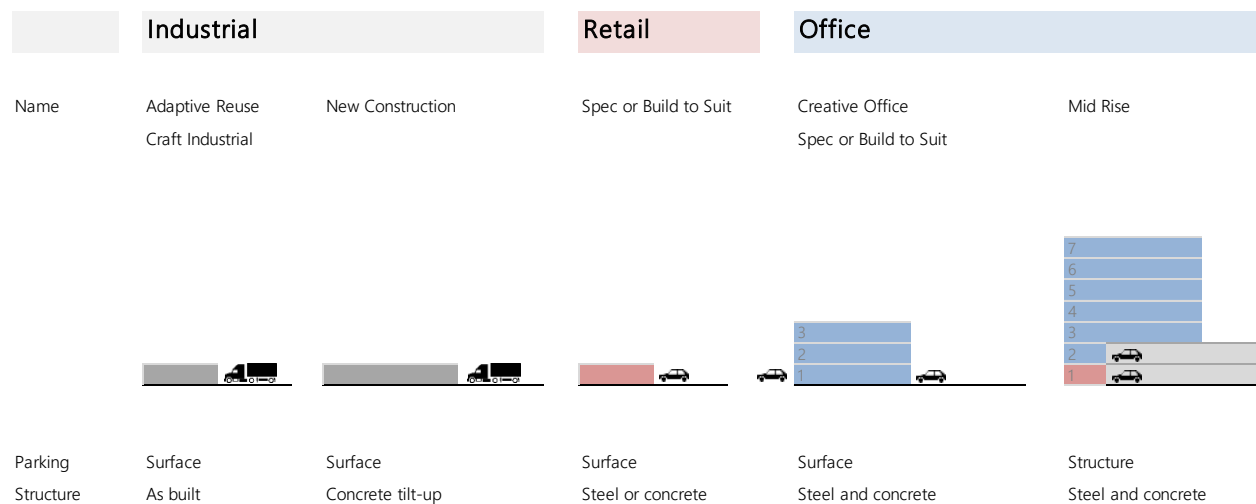
amenities, more tolerance for telecommuting and collaborative workspaces, and a greater emphasis on higher space utilization, innovation, and productivity. Within the private sector, Class A office space continues to be the primary driver of new office demand, yet “creative” office environments—the repositioning of established office space (typically Class B) to open, modern workspaces—are becoming ever more popular. Real estate investors are wondering whether the office sector is next in line for a painful shakeup, as tenants continue to use office space more efficiently.

The impact of tenants’ push for greater space efficiency has created winners and losers within the office market. Fitting more employees into less space has enabled office tenants to sign smaller leases or afford higher-end space. This is a particularly compelling tradeoff in the current market, as tenants are increasingly relying on amenity-rich office environments to help recruit the highly skilled workers who are now in short supply.

Commercial Development Prototypes

Commercial development prototypes are shown below. Once again, parking is a major driver of building form. Only one commercial development prototype—mid-rise office—includes structured parking; this building type is unlikely to be feasible due to the high cost of structured parking.

Figure 35. Commercial Development Prototypes

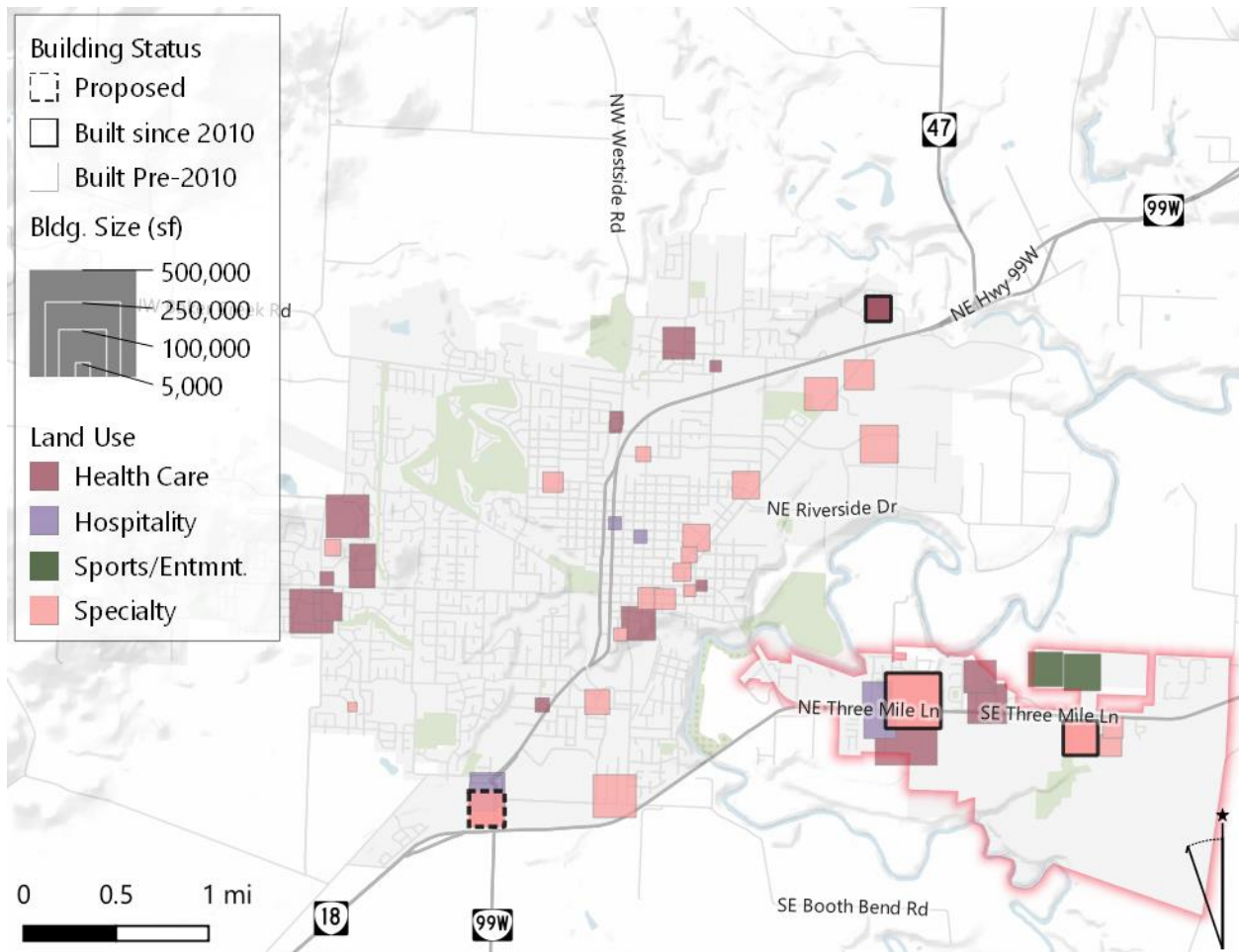


Lodging, Hospitality, Specialty, and Recreation

Development Summary

Since 2010, there have been only a handful of new properties built in these categories, including one health care facility (skilled nursing facility/assisted living), and two specialty properties (Chemeketa Community College and an airplane hangar).

Figure 36. Regional “Other” Development



Source: Costar, Leland Consulting Group

Tourism

The tourism region of the Willamette Valley includes Benton, Linn, Marion, Polk, Yamhill and portions of Clackamas and Lane counties. The region stretches from the crest of the coast range to the crest of the Cascade Range. The Willamette Valley offers more than 500 wineries in 150 miles, historic towns and cities, craft breweries, farm stands, and hiking, paddling, and cycling.

The region continues to be a big draw for locals and tourists alike, with tourism rates in Oregon rising 54 percent in the last three years¹⁹ (as of December 2018). In 2018, the Willamette Valley was the second-most visited destination in Oregon for overnight tourists, attracting almost 20 million visitors (Portland was first with 26.4 million, and the Oregon Coast was third with 18 million)²⁰. New wine country restaurants and boutiques have made the area even more appealing.

¹⁹ <http://www.wweek.com/culture/2018/10/09/two-oregon-natives-are-opening-a-bougie-new-hotel-in-downtown-mcminnville/>

²⁰ <http://industry.traveloregon.com/content/uploads/2018/05/Dean-Runyan-FINAL-2018.pdf>

The wine industry has brought new economic activity and tourism, and industry growth, bringing more jobs, increased tourism, and international recognition, and growing support of arts and culture opportunities.

The arts and culture environment in Yamhill County is a growing field of increasing vitality. Artist studios and monthly wine walks increasingly attract visitors from outside the region. Events such as the two annual international wine conferences at Linfield College and monthly art and wine walks provide critical exposure both for area artists and for local vineyards. Key institutions – such as Chehalem Cultural Center, George Fox University and Linfield College – play significant roles in providing robust art and cultural offerings to their communities. The vibrancy of the environment varies across the county, and the accessibility of arts and cultural opportunities may not be equitable across different populations.

High quality of life and robust arts and culture offerings are often considered the most attractive aspects of Yamhill County for residents or businesses considering the location. They are also tourism draws. Other attractors include the region’s natural beauty, small-town feel, good schools, and quality higher education institutions. The area’s proximity to Portland while remaining rural and independent is also a positive attribute.

The following table provides high-level tourism data for the Willamette Valley.

Table 10. Willamette Valley, Direct Travel Impacts, 2012-2018

	2012	2018	Change
Direct Employment	18,830	21,890	16%
Employee Earnings (\$M)	\$385	\$522	36%
Visitor Spending (\$M)	\$1,423	\$1,629	14%
Taxes (State/Local) (\$M)	\$59	\$79	34%

Source: Dean Runyan, *Oregon Travel Impacts, May 2018*

Per the Oregon 2015 Regional Visitor Report for the Willamette Valley Region,²¹ approximately seven percent of all overnight trips in 2015 were for business, 53 percent were to visit friends or relatives, and 40 percent were considered “marketable” (i.e. leisure). Of these marketable trips, most people were visiting for the outdoors, a special event, or touring—and mostly during the spring and summer months. In terms of spending, 30 percent of the \$706 million spent in the region was on lodging, and 27% was on restaurant food and beverage.

The Willamette Valley attracts visitors that are typically older, higher-income, and often childless or retired individuals and couples. The average age of overnight visitors to the Willamette Valley was 49 in 2015, older than the state average of 46. A significantly greater proportion of visitors aged 45 and over visit the Willamette Valley (61 percent of all visitors versus 49 percent).

Lodging & Hospitality

Near Term Hotel Development Prospects.

The primary demand driver for hotel development include:

- Tourism and tourist destinations,

²¹ <http://industry.traveloregon.com/content/uploads/2016/11/Oregon-Willamette-Valley-Region-2015-Visitor-Final-Report.pdf>

- Entertainment activities,
- Business activity (number of jobs and businesses),
- Business conferences and conventions, and
- Travel patterns (visibility).

McMinnville’s Three Mile Lane arguably possesses three of the five drivers listed above, which is a positive sign for future lodging and hospitality development. Despite this, in the near term (zero to five years), hotel development in Three Mile Lane will be difficult for the following reasons:

- **Distance from downtown amenities.** Visitors to the hotel would probably drive, not walk, to the restaurants, wine-tasting, boutiques, retail, and other amenities in downtown. There are no commercial amenities at the Three Mile Lane today and therefore a hotel at the Three Mile Lane would need to create its own sense of place and stand on its own. This would require a significantly higher level of investment, potentially in place making amenities, restaurants, meeting facilities, etc.
- **The current setting is somewhat industrial.** This is not a highly desirable hotel setting. Uncertainty about what will happen to the Evergreen properties and the surrounding area will also make hotel developers more reluctant to invest.
- **Land constraints** impact the ability of the market to support the development of moderate-cost hotels, which are needed to support the burgeoning tourism industry.

Long Term Hotel Development Prospects.

In the long term, this could be an excellent site for a hotel. Numerous amenities would improve prospects for hotel development, including:

- Additional parks, open spaces, and festival venues.
- Restaurants and retail.
- Wine tasting and wine-related uses.
- Other residential and commercial development.

The more that a hotel developer needs to create these amenities “from scratch,” the more difficult the economics will be.

Many of the new hotels recently built in the region are unique and interesting, with amenities oriented to local tourism draws—such as the wine industry. Some of these new hotels are profiled below.



The Allison, Newberg, Oregon. The Allison is an 85-room, 5-star resort hotel in Newberg, Oregon which opened in 2010. Room rates average between \$435 and \$475 per night.

Located in the Willamette Valley in 35 acres of grounds, this luxury spa resort is within 10 miles of dozens of wineries and 2 miles from Chehalem Glenn Golf Course. Amenities include an upscale restaurant and wine cellar, a spa offering wellness treatments, an indoor pool and hot tub, and yoga classes.



Atticus Hotel, McMinnville, Oregon. Atticus is a new 36-room luxury boutique hotel in downtown McMinnville, at the corner of N.E. 4th St. and N.E. Ford St. The property—which takes the place of a vacant parking lot—is a 22,640 square-foot, four-story building, and was developed by the Odd Fellows Building (OFB) LLC. It is leased in its entirety by Live McMinnville LLC., which will operate the Atticus Hotel.

Eighteen wineries and tasting rooms are located within walking distance along the town’s quaint and historic downtown stretch. The Atticus offers a variety of studio and one-bedroom suites from \$300 per night, as well as a 2-bedroom 2.5-bath penthouse. The hotel features amenities including a conference room, exercise facility, business center, private dining space, and a restaurant and bar. Guests can expect a full accoutrement of services, including valet parking, in-room dining, 24-hour concierge, and group sales coordination.



The Hotel at Independence Landing, Independence, Oregon. A boutique hotel is expected to open in Independence, Oregon in May 2019. The developer, Tokola Properties, was selected by the City of Independence after they bought the waterfront property in 2015 and sent out a request for qualifications for developers to outline their vision for the site.

The Independence hotel, featuring "warm and contemporary" architecture that compliments the historic downtown area, will have 75 rooms.

Embarcadero Hospitality Group will manage the hotel. Seasonal rates for rooms will range from around \$125 on winter weekdays up to \$300 or more for certain suites during summer weekends, developers said.

Recreation & Open Space

Infrastructure—the physical facilities and systems that support economic activity—is a key driver of real estate investment and development. Historically, real estate was influenced by the quality and location of roads, bridges, and other forms of auto-oriented infrastructure. The Interstate Highway System, for example, was a critical factor in the growth of suburban America.

More recently, transit-oriented development has become a common term in the lexicon of real estate and transportation officials. Transit-oriented development is characterized by compact, mixed-use, residential, and commercial development that is clustered around a transit stop or a rail station. Today, bike trails, bike lanes, bike-share systems, and other forms of active transportation infrastructure are helping spur a new generation of "trail-oriented development." This trend reflects the desire of people around the world to live in places where driving an automobile is just one of a number of safe, convenient, and affordable transportation options. The Urban Land Institute’s America in 2015 report found that, in the United States, over half of all people (52 percent) and 63 percent of millennials would like to live in a place where they do not need to use a car very often; half of U.S. residents believe their communities need more bike lanes.

Active transportation was, until recently, an overlooked mode of travel. However, in recent years, investments in infrastructure that accommodates those who walk and ride bicycles have begun to reshape communities.

Shared themes among active transportation projects include the following:

Active transportation infrastructure can catalyze real estate development. Trails, bike lanes, and bicycle-sharing systems can improve pedestrian and bicyclist access to employment centers, recreational destinations, and public transit facilities, thereby enhancing the attractiveness of developments along active transportation corridors. In some cases, former industrial districts and towns outside urban cores have benefited from active transportation infrastructure due to improved walking and cycling connectivity.

Investments in trails, bike lanes, and bicycle-sharing systems have high levels of return on investment. Regions and cities have found that relatively small investments in active transportation can have outsized economic returns due to improved health and environmental outcomes and reduced negative externalities, such as automobile traffic congestion and poor air quality.

Bike-friendly cities and towns are also finding that bicycle facilities boost the tourism economy and encourage extended stays and return visits. Tourism is one of the world's largest industries. The U.S. Travel Association explains that U.S. residents spend over \$800 billion a year on travel and recreation away from home.

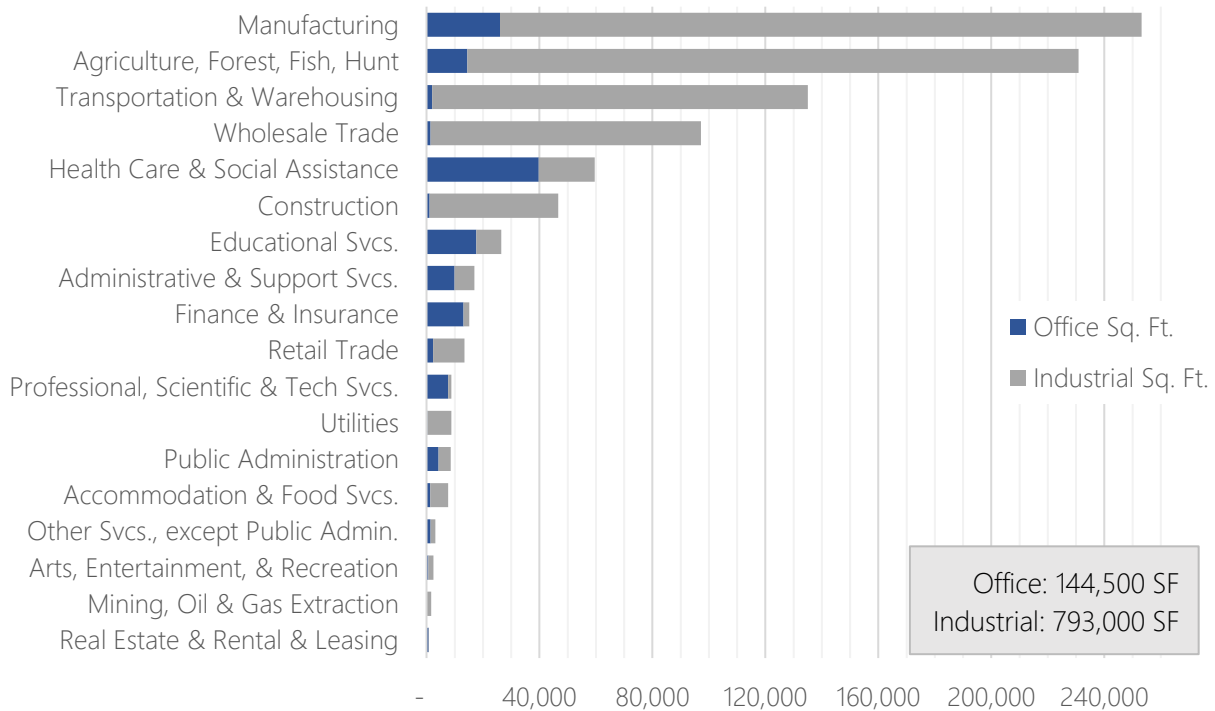
Demand for Commercial/Employment Development

This section provides an estimate of future 10-year market demand for residential development, office and industrial development, and retail development.

Office and Industrial Demand

Based on the respective strength of the office and industrial markets, most employment-based demand for new development is likely to be in the industrial sector, specifically manufacturing and agriculture (tied to the wine industry). With that said, this is largely dependent on McMinnville's ability to compete with other cities in the region where industrial development has been more prevalent. Figure 37 shows LCG's office and industrial development forecast for the market area, based on job growth forecasts made by the U.S. Census.

Figure 37. 10-Year Office and Industrial Demand



Source: Leland Consulting Group

For office, employment growth in the industries of healthcare and social assistance and educational services can be expected to drive most of the demand for new office development.

However, the Census’ employment forecast likely overstates demand for industrial and office space. The following table shows historical employment growth rates along with historical office and industrial deliveries documented over the past decade. These historical trends are useful in suggesting office and industrial construction for the next decade in the market area.

Because little new office space has been built (despite the addition of several thousand new employees), it is possible that there will be little to no demand for office space in the next decade; however, the limited development may be due to a limited supply of appropriately zoned land. Likewise, the total demand for new industrial space may be lower than would be projected using employment forecasts.

Three Mile Lane may be a prime location for **light or craft industrial** which could align with the City’s vision for the area and provide secondary tourism benefits if new development includes experiential or retail components. This is discussed further in the following “Retail Absorption” section. Larger or heavy industrial users are likely to be attracted to existing business and industrial parks, such as that in the north of the City.

Table 11. Historical and Forecasted Office and Industrial Trends, Market Area

	Past 5 Years	Next 10 Years
Net Office Absorption	48,102	70,000
Office Deliveries	5,000	75,000
Net Industrial Absorption	82,500	175,000
Industrial Deliveries	58,000	200,000

Source: Leland Consulting Group

Three Mile Lane Office Absorption

While employment is projected to continue to grow in the market area, the industries projected to experience the most growth and dominate future employment are not traditionally significant office users. This is also true of the past five years, during which time very little new office space was built, suggesting a limited office market outside of healthcare.

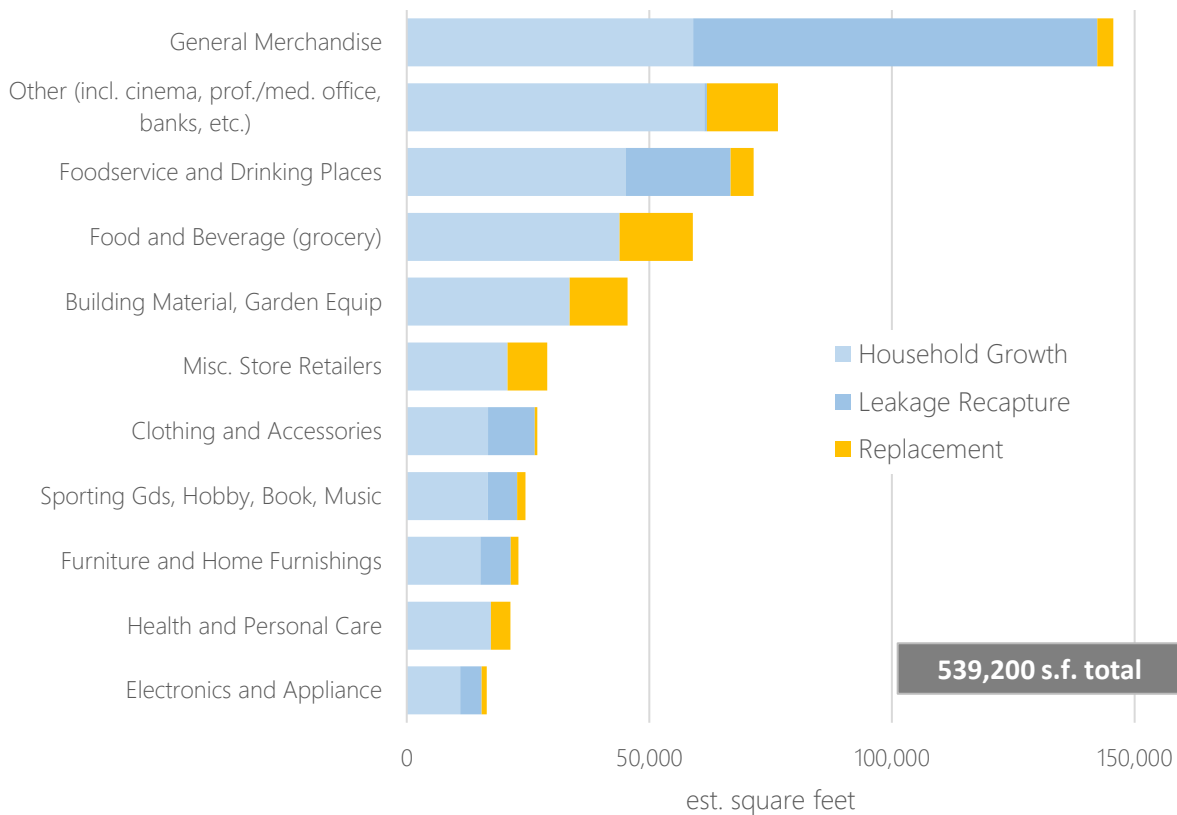
As office rents are too low to justify the high costs of new, high-quality speculative office development, new construction is only likely if large office users can be attracted to the area, or if one or more tenants are looking for a special site and campus environment, particularly near existing health care facilities. McMinnville’s high quality of life, business incentives, and proximity to the Portland metro region may indeed be sufficient in attracting these larger companies, but this is almost impossible to forecast. Additionally, target users could include existing companies looking to expand.

Speculative office development is therefore likely to be minimal or nonexistent in the Three Mile Lane area in the near- and mid-term. On the other hand, recent trends for owner-occupied (often called build-to-suit) buildings in the Three Mile Lane corridor are positive indicators for both the office and industrial markets. The recent presence of two large companies—Jackson Family Wines (industrial/flex) and The Springs Living (office/flex)—in the corridor prove that a market exists for new space, reinforced by the very low vacancy rate in both markets. However, as build-to-suit opportunities are typically less driven by traditional market forces—because they are often to fill specific niches in the market and rent growth is less important—new build-to-suit opportunities are more challenging to forecast than speculative office.

Retail Demand

Using the household growth projections and leakage analysis described earlier, we forecast demand for approximately 529,000 square feet of additional retail development within the market area over the next decade. The general merchandise, “other” (cinema, medical and professional office, etc.), and foodservice and drinking places (restaurants and bars) retail categories are responsible for about half of total demand. Grocery demand would likely support one or two additional stores.

Figure 38. 10-year Market Area Retail Demand by Source



Source: Leland Consulting Group

The following table shows total retail absorption and development for the past five years, and forecasted development based on the same historical trends. Note that these forecasted numbers are significantly lower than those presented above. This is merely to highlight that there may be pent-up demand well into the future if the development trends of the past continue. Increasing the rate of development may, therefore, require significant public interventions.

Table 12. Historical and Forecasted Retail Trends, Market Area

	Past 5 Yrs.	Next 10 Years
Net Retail Absorption	117,900	200,000
Retail Deliveries	40,300	150,000

Source: Costar, Leland Consulting Group

Three Mile Lane Retail Absorption

The Three Mile Lane project area is relatively well-positioned for retail development due to high visibility, ease of access, high traffic counts along Highway 18, and there are few alternative urban areas between McMinnville and the coast, providing opportunities to capture spending from those visiting the Oregon coast.

Additionally, as one of the few locations in the market area with large, contiguous, vacant tracts of land within city limits, Three Mile Lane should be able to capture a significant portion of market area demand over the next 10 years.

However, significant challenges remain, including:

- Existing retail in the project area is virtually non-existent;
- Many retailers—particularly bars, restaurants, and other small-format stores—are likely to prefer a downtown location, where there is existing activity, authentic and interesting buildings, and less risk; and
- There are many other large, successful retail centers within a reasonable drive-time with which any major retail development would compete.

As such, retailers in Three Mile Lane are likely to be auto-oriented, with convenience and general merchandise retail potentially feasible in the short-term. Significant household growth in the area—as projected—is likely to generate demand for further dining and grocery options over the longer term, but not in the near-term as current retail spending data indicates a major surplus of grocery stores in the region.

The tourism and wine industry, especially, is burgeoning, increasing opportunities for development that would leverage the wave of visitors to the area during the warmer months. Specifically, this may take the form of experiential or “destination” retail and commercial uses. Commercial tenants in this category include restaurants, wine-tasting and wine sales, unique Willamette Valley food growers and vendors, other food and beverage vendors (coffee, ice cream, bakeries), and outdoor recreation suppliers. Secondary commercial tenants can fill space alongside these “anchor” tenants. Indeed, a larger building with production, warehousing or light manufacturing in the back and a front-facing retailer—such as a tasting room or craft store—would fit the existing industrial, auto-oriented character of the Three Mile Lane study area while increasing activity in the corridor.

Conclusion

This market analysis assessed the market conditions for residential, commercial, office, and industrial development, and subsequently identified opportunities for the Three Mile Lane corridor based on existing land assets.

Projected residential and employment growth over the next 20 years will drive demand for new residential, commercial, and industrial development. Potential development in the Three Mile Lane corridor is likely to be driven by these market forces, as well as more nuanced needs for housing and retail in particular. Existing market conditions indicate that development will likely remain low-density and surface parked, at least until rents increase and development feasibility of higher-density building types improves. For residential uses this may translate in the near-term to townhomes and apartments up to four stories, as well as single-family and multiplexes. Based on projected demand, retail development is likely to be surface parked, low-rise, and community-serving (potential grocery store, restaurants, etc.), and as part of mixed-use residential and/or office developments over a longer time period.

The growing tourism industry, airport activity, and existing needs for meeting space should drive demand for hotel. However, with speculative office demand relatively low in comparison to housing and retail, hotel prospects are reliant on existing employment and tourism.

With few large flat land tracts left in the area and moderate to high employment growth projected in the industries of manufacturing, agriculture, transportation and warehousing, and wholesale trade, there is strong industrial demand. However, a housing-focused vision for the area is likely to be incompatible with significant

industrial development. Less impactful industrial—light or “craft,” particularly if retail or experiential components are included—would be compatible with adjacent land uses and help generate a live-work-play environment.

In short, opportunities for new development are prevalent given the prevalence of large, greenfield sites in the study area. As such, it is positioned to capture a significant share of regional demand for retail and commercial development, as well as housing, industrial, and other mixed uses.



Land Use and Transportation Facility Options and Evaluation McMinnville Three Mile Lane Area Plan

DATE August 5, 2019

TO Heather Richards and Jamie Fleckenstein, City of McMinnville

FROM Darci Rudzinski and Andrew Parish, Angelo Planning Group
Ken Pirie, Walker Macy
Chris Zahas and Sam Brookham, LCG
Andy Mortensen, DEA

CC Michael Duncan, ODOT

INTRODUCTION

Purpose

The goal of the McMinnville Three Mile Lane Area Plan planning project is to create a long-range, 20-year+ plan guiding future growth in the eastern-most area of the City. This memorandum introduces and evaluates three land use concepts for the McMinnville Three Mile Lane area. These land use concepts are the result of several rounds of public outreach, meetings of the project's advisory committees, and discussions between City staff and the consultant team. They are informed by a series of technical memoranda that are available on the project website, www.threemilelane.com. The concepts provide three distinct approaches for the buildout of new land uses, local street networks, and amenities.

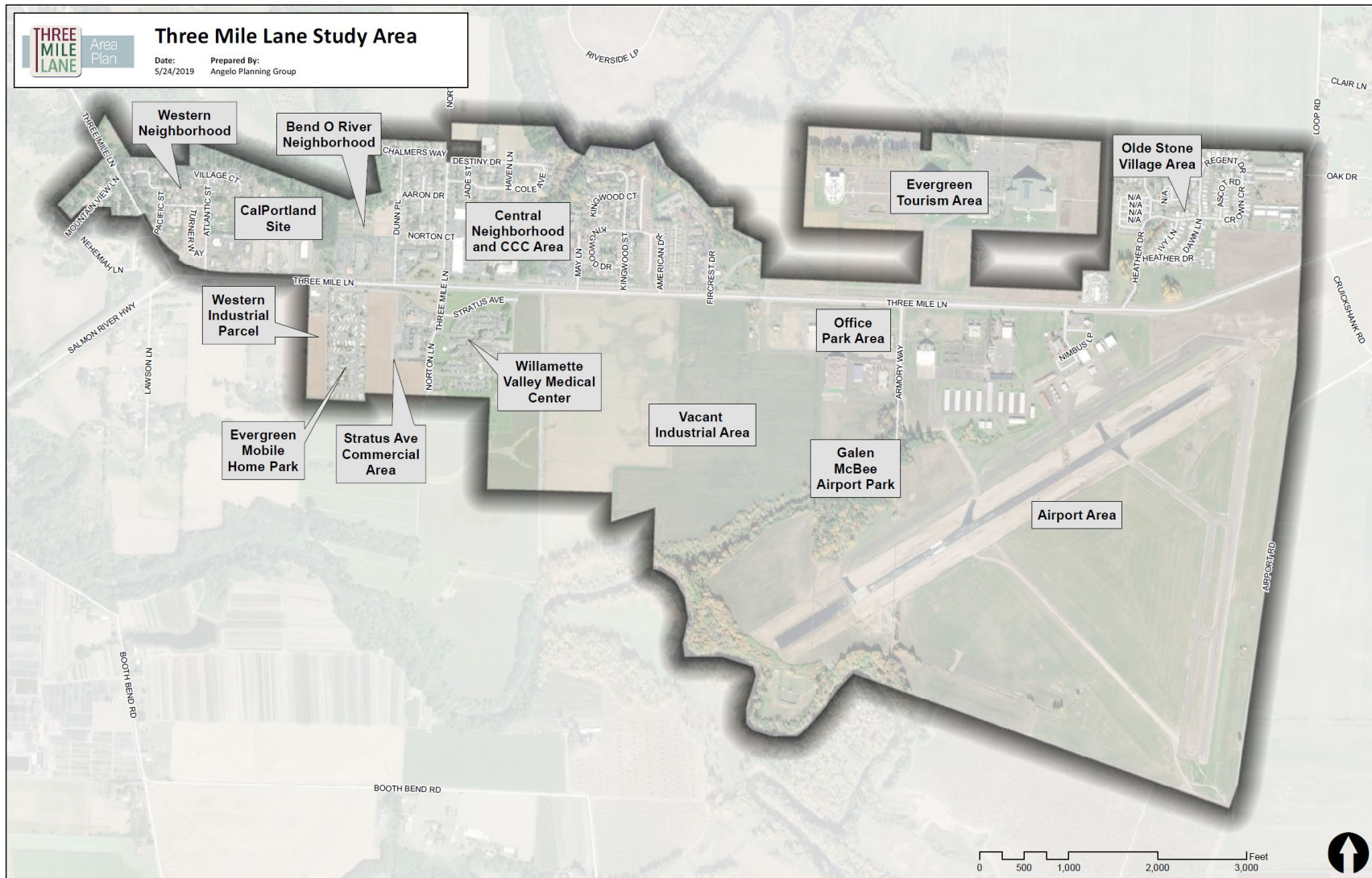
The purpose of this evaluation is to identify benefits and drawbacks of these alternatives, rather than to simply pick the highest-scoring concept. After review from the project advisory committees and broader public, it is likely that the best-performing attributes from all three concepts will make their way into a hybrid, preferred land use option.

Exploring alternatives for the future design of Three Mile Lane (OR 18) is also part of this evaluation effort. The Facility Design Options section of this report describes two design options for OR 18. Both facility design options are expected to service and support any of the three land use concepts, including connectivity with the local street networks contained within each concept.

Project Area and Existing Conditions

The Three Mile Lane area is shown in Figure 1. The study area includes a wide range of land uses. South of Three Mile Lane, the study area is dominated by the McMinnville Municipal Airport, the Willamette Valley Medical Center, and vacant industrially-zoned land. A few commercial and manufactured home uses are also identified to the west. North of Three Mile Lane, the uses are more mixed, with fewer large parcels except for the Evergreen Aviation & Space Museum complex. The north side includes single-family and multi-family uses, mobile homes, and commercial, industrial, and vacant uses.

Figure 1. Three Mile Lane Study Area



The City of McMinnville owns a significant portion of the study area—mostly around the airport, but also the two vacant properties at the east end of Three Mile Lane, as well as the public parks. The two large vacant sites to the west of the airport are privately owned. Chemeketa Community College owns the commercial center in which its campus sits. The Falls at McMinnville LLC owns the Wings & Waves Waterpark and The Falls Event Center sites, but the Evergreen Aviation & Space Museum site is owned by Affordable Mid Coast Housing LLC. The museum itself is a nonprofit, and leases out the buildings. Other major landowners include Olde Stone Village, Baker Rock Resources West LLC (CalPortland site), and Habitat for Humanity, which owns the Aspire Subdivision in the Western Neighborhood Subarea.

Existing conditions are discussed in greater detail in the Existing Conditions Booklet and Technical Memorandum #1.

Project Goals and Evaluation Criteria

An aspirational vision statement, community goals and objectives, and potential criteria to evaluate land use and transportation options for the Three Mile Lane area were developed early in the project.¹ They were created in order to articulate the Three Mile Lane Area Plan’s desired outcomes and help in the evaluation of options for the area. These materials were discussed in project advisory committee meetings and the subject of an online survey and a public open house.²

A revised set of evaluation criteria tied to the goals and objectives was used to evaluate the options in this report, as detailed in Appendix A. The evaluation criteria used to test the three land use concepts are derived from the project’s goals and objectives; the project goals are described below.

GOAL 1: Support and enhance the district's economic vitality and marketability

This plan aims to support development of significant industrial and commercial parcels within the study area, enhance existing business by diversifying goods and services available in the area, and increase tourism. Alternatives will be evaluated qualitatively for how well they address the area's development/redevelopment potential.

¹ See Memorandum #4 Evaluation Criteria.

² See Memorandum #5 for an overview of project public involvement to date and feedback received on content in Memorandum #4.

GOAL 2: Provide opportunities for a complementary mix of land uses, consistent with the vision of a diverse and vibrant district.

The study area contains several existing residential neighborhoods, including assisted-living and manufactured home residences, as well as major employers and tourism destinations. This plan aims to provide a mix of land uses that support one another to create a unique part of the city. McMinnville has recently adopted a set of “Great Neighborhood Principles” that have been used to evaluate land use concepts for the Three Mile Lane area.

GOAL 3: Enhance multi-modal connections throughout the district

This plan aims to create a complete, multimodal transportation network that serves the north and south sides of Three Mile Lane within the district, and that connects the business community, the hospital, residential neighborhoods and tourism amenities to each other and to the city center. Alternatives will be evaluated through criteria measuring transportation safety and performance for all modes of travel: pedestrian, bicycle, transit, freight, and personal vehicles.

McMinnville’s Great Neighborhood Principles

- 1. Natural Feature Preservation.** Great neighborhoods are sensitive to the natural conditions and features of the land.
- 2. Scenic Views.** Great neighborhoods preserve scenic views in areas that everyone can access.
- 3. Parks and Open Spaces.** Great Neighborhoods have open and recreational spaces to walk, play, gather, and commune as a neighborhood.
- 4. Pedestrian Friendly.** Great Neighborhoods are pedestrian people for people of all ages and abilities.
- 5. Bike Friendly.** Great Neighborhoods are bike friendly for people of all ages and abilities.
- 6. Connected Streets.** Great Neighborhoods have interconnected streets that provide safe travel route options, increased connectivity between places and destinations, and easy pedestrian and bike use.
- 7. Accessibility.** Great Neighborhoods are designed to be accessible and allow for ease of use for people of all ages and abilities.
- 8. Human Scale Design.** Great neighborhoods have buildings and spaces that are designed to be comfortable at a human scale and that foster human interaction with the built environment.
- 9. Mix of Activities.** Great Neighborhoods provide easy and convenient access to many of the destinations, activities, and local services that residents use on a daily basis.
- 10. Urban-Rural Interface.** Great Neighborhoods complement adjacent rural areas and transition between urban and rural uses.
- 11. Housing for Diverse Incomes and Generations.** Great Neighborhoods provide housing opportunities for people and families with a wide range of incomes, and for people and families in all stages of life.
- 12. Housing Variety.** Great Neighborhoods have a variety of building forms and architectural variety to avoid monoculture design.
- 13. Unique and Integrated Design Elements.** Great Neighborhoods have unique features, designs, and focal points to create a neighborhood character and identity.

GOAL 4: Create an aesthetically pleasing gateway to the City of McMinnville

The study area is a primary gateway to the City of McMinnville. Alternatives will be evaluated qualitatively for how well they provide an identity for the district, reflect McMinnville’s intrinsic character, and highlight the landscape features of the district. Because the land use concepts are fairly high-level, urban design considerations explore aesthetic elements that could be applied in the area. Later stages of this project will also present options for an actual gateway feature or monument to further highlight the entry to the City.

Alternatives Creation and Evaluation Process

The creation of the land use concepts and the criteria by which they are evaluated are the result of a public process that has included:

- Participation of the Three Mile Lane Area Plan’s Advisory Committees, which consist of technical and agency members as well as landowners, members of the public, and others.
- A series of stakeholder interviews and hands-on workshops with property owners to discuss options for large vacant parcels within the study area.
- Creation of project goals and objectives, and an online survey to evaluate them.
- Market analysis and case studies prepared by the project’s consultant team, focusing on large vacant parcels in the study area.
- An open house held on April 10, 2019 at Chemeketa Community College to provide information to the public on existing conditions and gather feedback regarding the project’s goals and objectives.

Additional detail about this process is provided below.

Market Analysis

Early in the project, a market analysis was conducted to assess regional conditions for residential, commercial, office, and industrial development and to identify specific development opportunities within the Three Mile Lane corridor by leveraging the land assets to their highest and best use. The market analysis identified significant household and employment growth in the region over the next 20 years, which will drive demand for new housing, commercial, and industrial construction. The area is positioned to capture a significant share of this regional demand given the presence of large greenfield sites within the area—a situation which is relatively rare in the broader region.

The market analysis highlighted the most feasible development typologies based on rents and development trends. Generally, these typologies share similar characteristics, such as surface parking and a low-rise scale. Higher density development—such as mid-rise buildings—may face feasibility challenges and are not expected to be developed in the Three Mile Lane area during the planning horizon.

- **Residential demand** is strong for both single-family and multifamily housing, with rising home values, household incomes, sales volumes, absorption, and construction activity throughout McMinnville. The quantity of what would be built in the study area depends largely on the City’s vision for the area, applicable zoning, infrastructure capacity (and the ability for new development to pay for new infrastructure), and buildable land. Townhomes,

apartments up to four stories, single-family homes, and multiplexes are all residential development types that would likely be feasible in the study area.

- **Retail demand** is also strong, particularly for general merchandise—which is typically large-format retail—and neighborhood-serving retailers that will support existing and future households and tourism. The changing market for retail development due to e-commerce may present both challenges and opportunities for novel development in the area.
- **Lodging demand** exists due to the burgeoning tourism industry, potential airport activity, and existing needs for meeting space, although the limited office market means the bulk of lodging demand will fall during the summer months when tourism activity is highest.
- Market conditions reflect strong **industrial demand** due to the growth of agriculture, food and beverage production, and manufacturing, with potential pent-up demand because of the lack of appropriate—particularly large—industrial sites. The Three Mile Lane area is poised to accommodate large industrial users, but heavy industrial may negatively impact prospects for other land uses such as lodging and multifamily. However, the area could also capture a proportion of regional demand by focusing on “craft” or light industrial users, which may or may not include retail components.
- The **office market** is potentially strong but limited. Opportunities may arise because of McMinnville’s high quality of life and the corridor’s proximity to the airport and institutional users such as healthcare and education.

Case Study

In order to refine the feasibility of the market study findings on a real-world site, a redevelopment analysis for three largely vacant properties in the Three Mile Lane study area totaling approximately 180 acres was conducted. Referred to as a “case study,” this analysis involved an evaluation of site conditions for these properties and the surrounding area, an assessment of opportunities and constraints, the development of three building programs based on the market analysis, conceptual graphics of each program alternative, and an economic analysis that assesses the impact of each alternative on jobs, assessed property value, and other key indicators.³

Each case study scenario represents a different exploration of how the market-driven land uses could be arrayed across the sites in ways that support the community’s values and the goals, objectives, and criteria developed through the planning process. A property owner workshop was held to review findings and background information collected to date—including the market analysis—and included a broader discussion of visions, criteria, and principles.

The three case study scenarios illustrated distinct opportunities for large vacant parcels in the south side of the Three Mile Lane area to develop with new uses and new public infrastructure. They show that a wide range of opportunities is possible, allowing property owners and developers to react to changing market conditions. The concepts would significantly add jobs and tax base to McMinnville, ranging from 1,100 to 5,800 jobs and \$128 to \$386 million in added taxable value. Given the strong growth occurring throughout the region and McMinnville’s constrained land

³ The Case Study Report is available on the project website, www.threemilelane.com.

supply, this is a unique opportunity for McMinnville to capture economic growth while simultaneously providing needed community services, housing, and jobs.

Based on this information and input, and building from the case study land use alternatives, the consultant team created three land use concepts for the wider Three Mile Lane study area. The Concepts described in this report are intended to explore and evaluate different use mixes, urban design options, and transportation improvements across the entire study area.

LAND USE CONCEPTS

Three land use concepts were developed to illustrate how the goals and objectives for the Three Mile Lane area could be achieved. They have their origins in the development scenarios created for the case study focused on large, vacant parcels south of OR 18. The major elements of the case study scenarios logically have implications for the viability of land uses and transportation networks throughout the study area, and the land use concepts for the wider area were crafted to compliment the outcomes envisioned through the case study process.

Elements common to all three of the land use concepts, followed by a description of significant differences, are described in this section.

Common Elements

There are notable elements common to all three concepts. These include several transportation improvements and other items as discussed below.

- **Urban Growth Boundary (UGB).** No change is assumed to the City of McMinnville UGB, which surrounds the study area. For the purposes of this planning study, the agricultural uses and rural residential uses outside of the UGB are assumed to remain, while land within the UGB is assumed to eventually develop with urban uses and at urban densities.
- **Developable Land.** There is roughly 400 acres of developable land in each option⁴. Most of the existing employment land uses are expected to remain and the fundamental structure of built-out neighborhoods north of Three Mile Lane are not expected to change within the planning horizon. Constant in all three concepts is the assumption that there is some opportunity for higher density residential south of the highway, in the southwest corner of the study area.
- **Three Mile Lane (OR 18).** This evaluation looks at the long-term transportation needs of people traveling within and through the study area. The second half of this report contains a specific evaluation of two facility design options for Three Mile Lane, each of which would support the three land use concepts.
- **Local Transportation Network.** Needed transportation connections on the City's arterial and collector network are common between the alternatives, including:
 - Connecting Cumulus Avenue to SW Norton Lane through or adjacent to the Chemeketa Community College campus.

⁴ This figure does not include potential developable area near the McMinnville Municipal Airport.

- Collector and conceptual local street connections through new developments south of Three Mile Lane.
- An improved Three Mile Lane bridge with better bicycle and pedestrian facilities.
- New and improved bicycle and pedestrian connections throughout the study area.
- **Urban Design.** As part of this process, the City is considering updating the Three Mile Lane overlay to include design requirements that ensure new development has a cohesive, context-sensitive and sustainable aesthetic. These requirements may address tree planting/landscape design, pedestrian- and bike-friendly site design, views, protection of natural resources, and off-street parking, including others. This memorandum describes some of the elements expected to be incorporated into the Three Mile Lane Area Plan, but they are not distinguishing factors between the concepts presented.
- **Airport.** Airport-related uses are expected to be permitted according to existing City code requirements. The area adjacent to the airport is expected to continue to develop as an airport-oriented commercial and industrial center in all options, reflecting the economic value and potential of this infrastructure. The vacant property on the north side of Three Mile Lane at the eastern edge of the study area is within the Airport Approach zone and will remain undeveloped.
- **Natural Areas.** The northern and southern edges of the study area feature the riparian corridor and floodplain for the South Yamhill River, which provides a natural transition to current and future development, adding a sense of place and potential recreational access. In all concepts these natural features are intended to be preserved and enhanced for the enjoyment and benefit of all.
- **Gateways.** Each alternative proposes different locations for the consistent idea of new gateway elements or treatments, whose design will be determined at a later date. Conceptually, these elements could include large-scale welcome signage, vertical art pieces or sculptural elements or significant landscape designs or patterns.
- **Vehicle Trip Generation.** Each of the alternatives represent a change in land use that increases the number of future trips using and crossing OR 18. A Trip Generation Evaluation was performed to identify the level and location of new trip generators within the study area, comparing and contrasting the three land use concepts. The results of the assessment are summarized for each land use concept and detailed in Appendix A.
- **Facility Design Options.** Two options for the design of Three Mile Lane are discussed later in this memorandum, which have implications for multimodal connectivity through and across the highway. These options are separate from the three land use concepts.

Land Use Concept 1 – Industrial Campus

This concept is most similar to existing zoning south of Three Mile Lane. It allows for a large industrial user, potentially engaged in manufacturing or warehousing, in close proximity to retail services, Three Mile Lane, and other supportive or ancillary uses to the primary industrial employment use. Large flat ‘greenfield’ parcels may be very attractive to industrial users seeking space for large buildings and associated parking and loading.

Due to the emphasis on industrial development, Concept 1 is likely to result in the largest overall building square footage of the options. However, the overall economic impact of the plan area is contingent on the types of industrial uses that ultimately locate in the area. Low-intensity uses such as warehousing would generate fewer jobs, lower tax revenue, and less opportunity for high-quality amenities than high-intensity uses such as manufacturing and flex space.

Gateways. This concept includes specific gateway features for westbound traffic on Three Mile Lane associated with a future interchange at Cumulus Avenue, and at the western edge of the study area for eastbound traffic on 18.

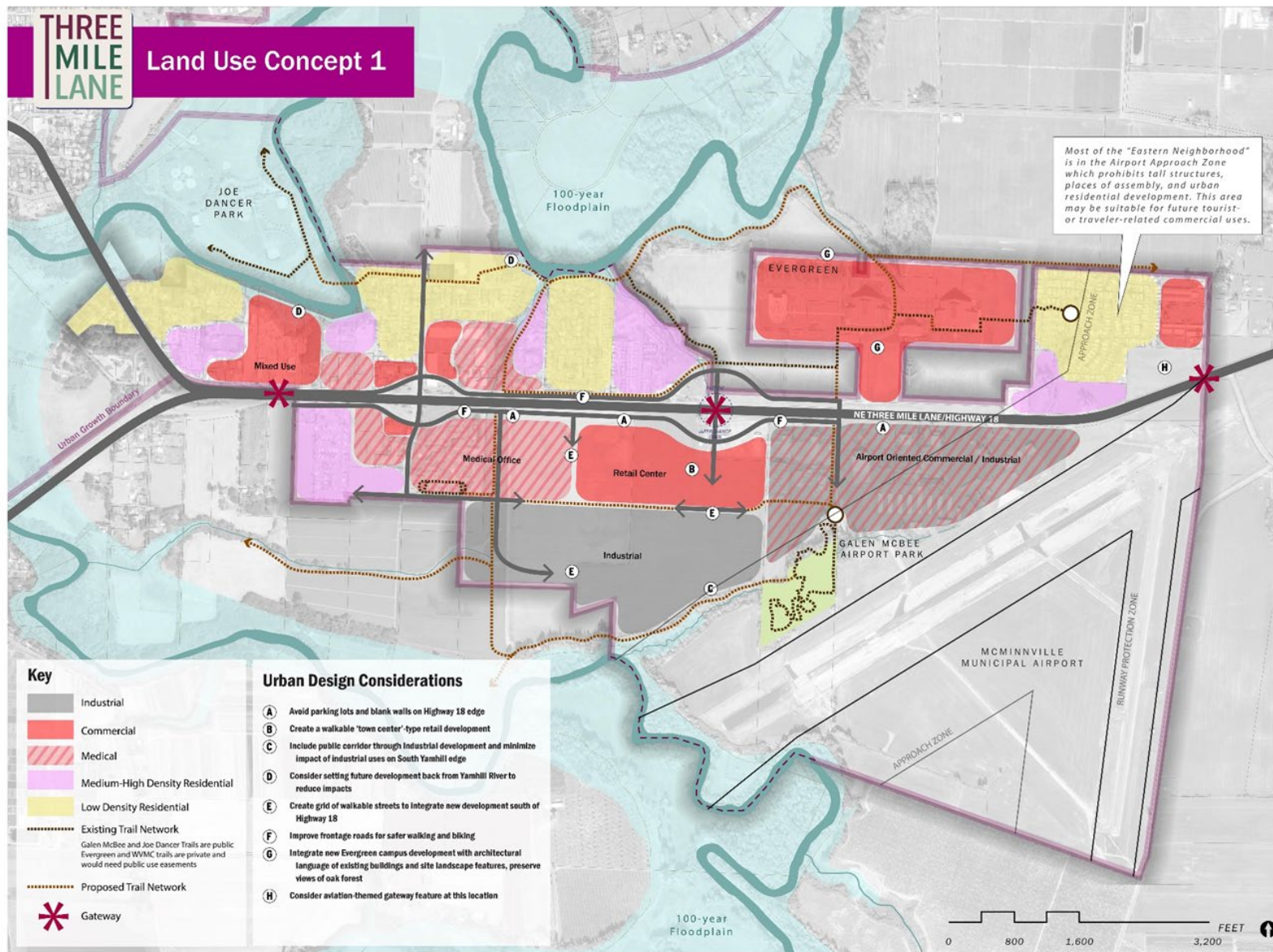
Parks and Trails. A new trail is proposed along the north side of the South Yamhill River, connecting to Galen McBee Airport Park. New connections to McBee Airport Park will be provided primarily via roadways and sidewalks as properties south of Three Mile Lane develop. North of OR 18 new trails are proposed along two drainages that extend north to the South Yamhill River, connecting with a riverfront trail that links to a loop around the Evergreen Campus. A new bridge is proposed over the South Yamhill River at the west end of NE Chalmers Way, connecting to Joe Dancer Park and downtown McMinnville beyond.

Evergreen Tourism Site. No changes to the site from existing conditions are assumed for Concept 1, other than the establishment of a more formalized trail loop network.

Willamette Valley Medical Center Area. This concept envisions a cluster of new medical office space near Norton Lane on both sides of Three Mile Lane, building off the central attractor of the Medical Center. This could include space for expansion of the Medical Center.

Cal-Portland Site. In this concept, the Cal Portland site is changed from its current industrial designation to a mixed-use designation, allowing for a mix of commercial and residential development. On the north side of this parcel, protection of the South Yamhill river edge, potentially with public access, is a key urban design goal.

Figure 2. Land Use Concept 1



Retail “Town Center.” This concept includes a significant retail center south of Three Mile Lane at Cumulus Avenue. This could take the form of a large-format retail anchor that would take advantage of traffic on OR 18 with additional smaller retail uses. While serving as a regional retail attractor, it would also function as an important local amenity, providing convenient access to shopping and services for adjacent office and residential development. Considerations for how this center is designed, and how it relates to existing commercial centers such as the Third Street/Downtown District, will need to be examined in further detail at a later phase of the process.⁵ Depending upon its design and other factors, a new retail center could provide services for residents and employees in the Three Mile Lane area without directly competing with existing businesses in McMinnville’s downtown. The core of the center should be walkable if possible, with extensive pedestrian connections through associated parking lots to ensure safe circulation. Parking lots should be designed in a way that does not forgo future redevelopment with more mixed uses, reflecting the uncertain future of retail development.

Eastern Neighborhood. In this concept, a mix of new housing in the R-4 designation and commercial development is added in the eastern portion of the study area, including a Crossroads Commercial development at the corner of SE Loop Road and OR 18, designed to recognize its position at the eastern gateway to McMinnville, with significant landscape, gateway signage and context-appropriate buildings.⁶

CCC Campus. Potential for infill commercial uses to replace existing inward-facing buildings, in new buildings or renovated retail structures that have more of an active street presence on the visible Norton Lane frontage.

Vehicle Trip Generation. The greatest number of new vehicle trips in Option 1 are generated by planned commercial and multi-story medical office developments on the south side of OR 18, between the Willamette Valley Medical Center and Cumulus Avenue. New commercial lands at the eastern end of the study area and along Cumulus Avenue (Baker Rock site) will also generate significant vehicle trips. Industrial land at the southern edge of the study area is not expected to generate significant vehicle traffic.

⁵ Early design considerations have been provided. Design standards should be applied to this development to ensure that the architectural language is consistent with and respectful of regional agricultural and historic forms and scale. The entire retail center should include shade trees and lush landscape, which is consistent with other high-quality retail centers. The design of the edges of the center should also be carefully considered, so that travelers on Three Mile Lane are not viewing the loading docks and blank walls of an internally-focused center.

⁶ Potential conflicts related to new residential uses in close proximity to the Airport will need to be considered.

Land Use Concept 2 – Corporate Campus

The most significant feature of this concept is a sizable commercially-zoned “corporate campus” and a mix of office/industrial uses south of Three Mile Lane, which would add a significant amount of new office space. The balance between housing, commercial, and office) development in Land Use Concept 2 makes this scenario less dependent on one particular land use type. In this scenario, much of the job and development growth is driven by the corporate campus, so finding a good user for this space is key.

Gateways. This concept includes three gateway features; at the eastern edge of the Evergreen Campus, , and at the future interchanges of SW Cumulus and SW Norton Lane.

Evergreen Tourism Site. The Evergreen Tourism Site is envisioned to include a new hotel, retail, and event space in this concept, as infill development on undeveloped land within the current boundaries of the campus.

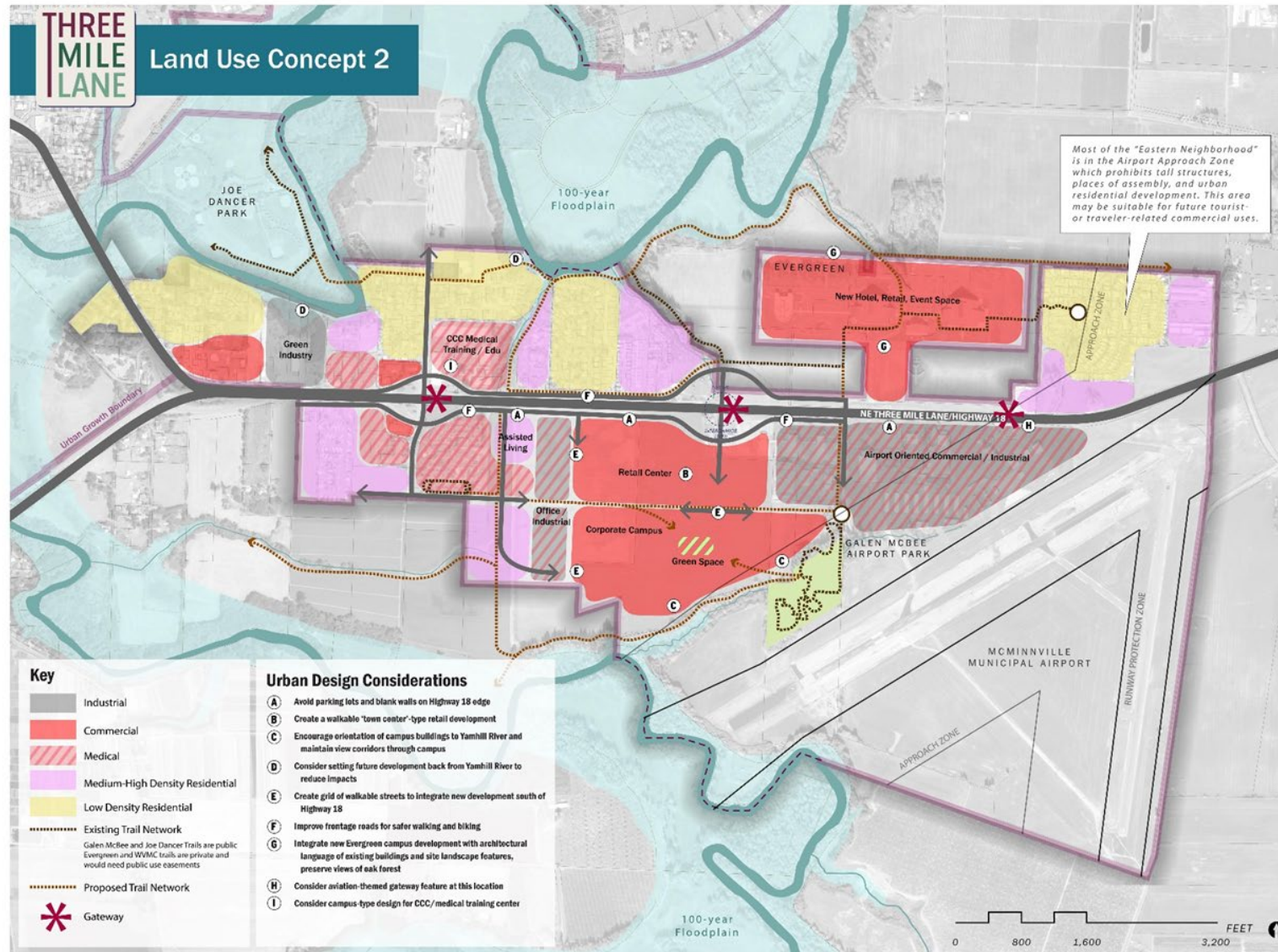
Parks and Trails. A new trail is proposed along the north side of the South Yamhill River, connecting to Galen McBee Airport Park. New connections to McBee Airport Park will be provided primarily via roadways and sidewalks as properties south of Three Mile Lane develop. North of 18 new trails are proposed along two drainages that extend north to the South Yamhill River, connecting with a riverfront trail that links to a loop around the Evergreen Campus. A new bridge is proposed over the South Yamhill River at the west end of NE Chalmers Way, connecting to Joe Dancer Park and downtown McMinnville beyond. This concept includes a new park as a central gathering space for the corporate campus area, connected to Galen McBee Airport Park via a trail system.

Willamette Valley Medical Center Area. This concept includes new medical office space near Norton Lane on both sides of Three Mile Lane. This concept also includes additional R-4 land for assisted living facilities near the Willamette Valley Medical Center—these two uses are complementary and can benefit from co-location. Chemeketa Community College’s focus on health and medical-related education is strengthened with complementary uses, including potential out-patient clinics that include training for students.

Retail “Town Center.” This concept includes a significant retail center south of Three Mile Lane at Cumulus Avenue. This could take the form of a large-format retail anchor that would take advantage of traffic on OR 18 with additional smaller retail uses. Considerations for how this center is designed, and how it relates to existing commercial centers such as the Third Street/Downtown District, will need to be examined in further detail at a later phase of the process.⁷ Depending upon its design and other factors, a new retail center could provide services for residents and employees in the Three Mile Lane area without directly competing with existing businesses in McMinnville’s downtown. The core of the center should be walkable if possible, with extensive pedestrian connections through associated parking lots to ensure safe circulation. Parking lots should be designed in a way that does not forgo future redevelopment with more mixed uses, reflecting the uncertain future of retail development.

⁷ Design considerations are similar to those of Land Use Concept 1.

Figure 3. Land Use Concept 2



Corporate Campus. A roughly 90-acre corporate campus is proposed in the southern portion of the study area, which could take advantage of highway access and the nearby municipal airport. The scale of this parcel could make it attractive to a growing tech company that seeks to attract employees to a more affordable community with great natural amenities as well as access to an airport with corporate jet capacity. This campus would be a walkable hub of activity for many employees and could drive demand for additional business services in the surrounding retail and industrial areas. As part of this campus, a new public park is proposed with trail connections to the Galen McBee Airport Park and the campus could be oriented south to the river, to mountain views and the scenic backdrop of agricultural lands beyond. A ‘layer’ of office/industrial use to the west of this corporate campus could be a complementary use for smaller office development that seeks to be close to the larger company campus.

Cal-Portland Site. In this concept, the Cal Portland site remains in an industrial zoning designation but transitions to a greener industry that is a better neighbor to residential uses with a green edge to the South Yamhill River to the north.

Eastern Neighborhood. In this concept, a mix of new housing in the R-4 designation is added in the eastern portion of the study area.⁸

Vehicle Trip Generation. The total new vehicle trip generation is slightly larger in Option 2 than it is in Option 1, though more of the traffic is generated by commercial lands, located near (north and south of OR 18) and focused on Cumulus Avenue. Residential land at the eastern end of the study area will also generate new vehicle trips.

⁸ Potential conflicts related to new residential uses in close proximity to the Airport will need to be considered.

Land Use Concept 3 – South Yamhill Neighborhood

The most significant feature of Concept 3 is the inclusion of residential land in the southern portion of the study area. Along with a greater number of housing units comes a greater need for amenities such as parks, trails, and services to serve the population. Concept 3 provides the most diverse mix of uses in all parts of the study area. The City's Housing Needs Analysis (HNA) emphasized housing affordability as a challenge in the city. Providing a range of housing types and densities, as envisioned in this option's South Yamhill Neighborhood, is one way of addressing this need.

Gateways. Four potential gateway locations are included in this concept; at the eastern entrance to the study area and city, at the SW Cumulus and SW Norton overpasses and at the western end of the study area, where Three Mile Lane splits north from OR 18.

Parks and Trails. This concept includes an expanded Airport Park to serve residences throughout the study area, with new trail connections west to new residential development. Sports fields and active play space are envisioned. A new trail is proposed along the north side of the South Yamhill River, connecting to Galen McBee Airport Park. North of 18 new trails are proposed along two drainages that extend north to the South Yamhill River, connecting with a riverfront trail that links to a loop around the Evergreen Campus. A new bridge is proposed over the South Yamhill River at the west end of NE Chalmers Way, connecting to Joe Dancer Park and downtown McMinnville beyond.

New connections to Galen McBee Airport Park will be provided via roadways and sidewalks as properties south of Three Mile Lane develop, as well as a "greenway" trail through the south of the Three Mile Lane area.

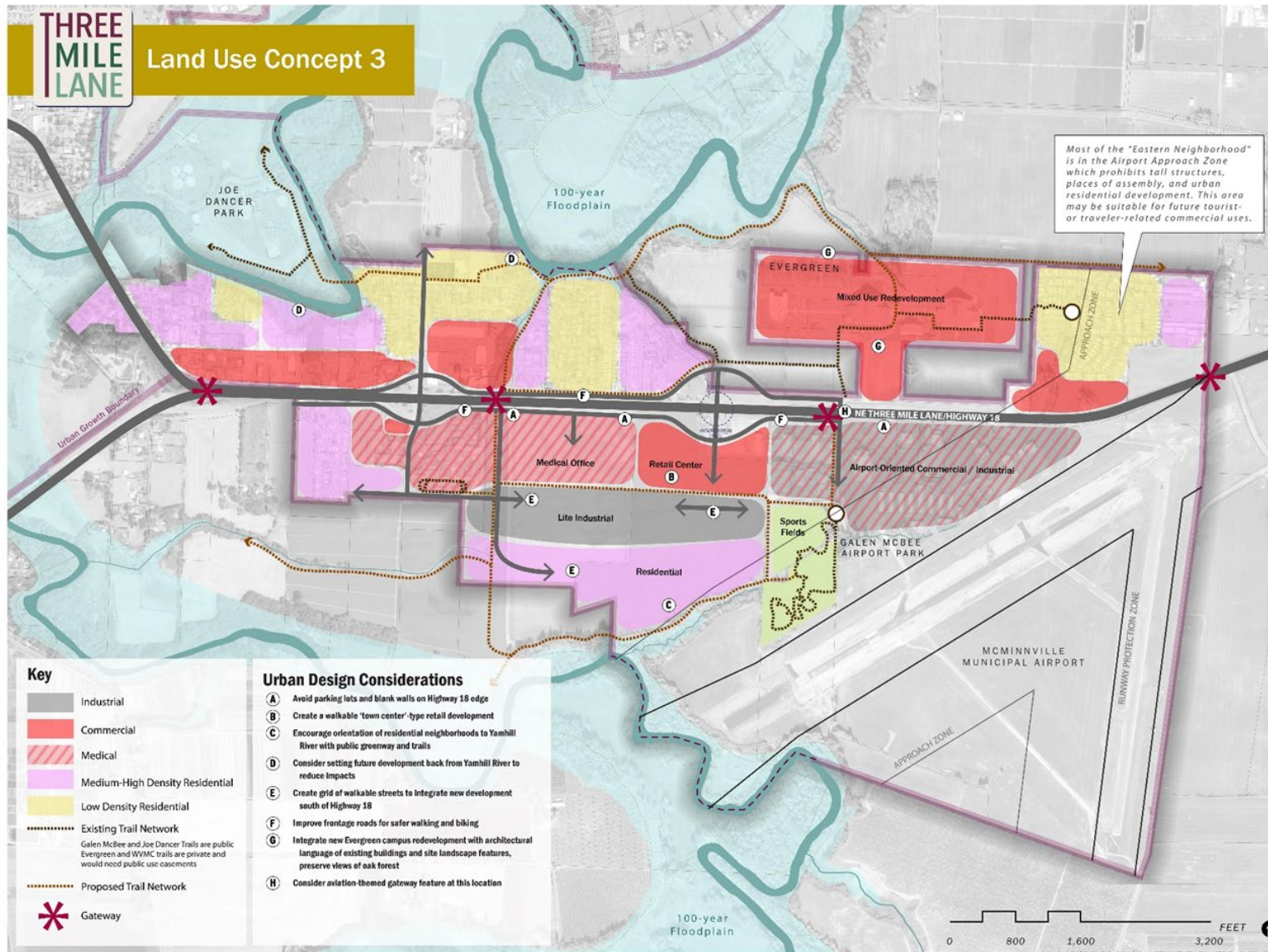
Willamette Valley Medical Center Area. This concept roughly doubles the area for medical office space and potentially new hospital facilities near the Willamette Valley Medical Center south of Three Mile Lane.

Evergreen Tourism Site. A mixed-use redevelopment of the Evergreen Tourism Site is envisioned in this scenario, including a mix of residential uses (likely multifamily or townhomes), office uses, and retail. This differs from Concept 2 in the sense that redevelopment is envisioned to be uses that are less determined by the actual Evergreen destination.

Cal-Portland Site. In this concept the Cal Portland site is redeveloped with commercial frontage on Cumulus Ave and residential uses to the north along the Yamhill River, matching the overall pattern of the rest of the neighborhood north of Three Mile Lane.

Retail "Town Center." This concept includes a somewhat smaller (~28 acre) retail center south of Three Mile Lane at Cumulus Avenue, but retail center design considerations similar to Concepts 1 and 2 should be applied where possible.

Figure 4. Land Use Concept 3



Light Industrial Area. This concept includes a light industrial area south of Three Mile Lane that could include warehousing, food and beverage-related industry, light manufacturing, or other uses. It could take advantage of nearby medical offices, the airport, and highway access. A grid of walkable streets through this area is important for overall connectivity south of the highway. The southern edge of this area will abut a new residential neighborhood (see below) so the southern edge should include buffer landscape and uses that minimize noise, traffic and night-time activity. As an employment base, there should also be walking and biking links to the residential uses.

New South Yamhill Neighborhood. This concept includes a 55-acre new neighborhood at the southern end of the study area, capitalizing on access to the river, nearby employment, and amenities. With the potential for several hundred homes, it would likely include a mix of attached and detached housing types such as single-family homes, townhomes, and apartments at a range of price points. Parts of the neighborhood could include elements that honor the agricultural heritage of McMinnville, with ‘agrihood’ features including community gardens or barns serving as central community space. The new neighborhood could include a grid of low-speed, walkable and bikeable streets, with homes served by rear alleyways to foster a more cohesive, walkable streetscape. While the neighborhood will be adjacent to an expanded McBee Airport Park, there could be additional smaller pocket parks dispersed through the neighborhood, including some that serve as overlooks or trailheads adjacent to the South Yamhill River.

Eastern Neighborhood. In this concept, the southern edge of the eastern neighborhood is developed with commercial uses.⁹

Vehicle Trip Generation. Concept 3 focuses more on retail-related lands within the Evergreen Aviation site, and eastern end of the study area (north of OR 18) and along Cumulus Avenue west of Norton Lane. New trip generation by medical office use near Willamette Valley Medical Center is the largest under Concept 3. Residential lands at the southern edge of the study near the airport will also generate a sizeable number of new vehicle trips. Concept 3 presents a higher total new vehicle trip generation than Concepts 1 or 2.




⁹ Potential conflicts related to new residential uses in close proximity to the Airport will need to be considered.

EVALUATION OF LAND USE CONCEPTS




The three land use concepts described in this memorandum represent high-level concepts for potential future land use, transportation, and design elements in the Three Mile Lane area. The goals for the area, included earlier in this memorandum, and specific objectives associated with each, are met in each of the land use concepts to a greater or lesser degree. To help assess how alternatives meets community goals and objectives, evaluation criteria were suggested earlier in the planning process.¹⁰ These are included in Appendix A, as well as a preliminary assessment of how the alternatives address each criterion.




The Concept Evaluation table included in this section mines from this larger comparison exercise and focuses on criteria that can help evaluate the merits of each of the land use concepts as compared to each other. The table includes specific objectives related to individual project goals and indicates how the land use concept performs, relative to the other concepts. The table is not exhaustive but is intended to include criteria that present notable differences in the concepts in order to help the project’s advisory committees and broader community evaluate the three options.




Table 1: Concept Evaluation

Evaluation Criteria	Land Use Concept 1	Land Use Concept 2	Land Use Concept 3
 + (positive, better meets criterion)  0 (neutral, no significant change)  - (negative, under-performs)			
<i>GOAL 1: Support and enhance the district's economic vitality and marketability</i>			
Amount and Type of Employment Land	A greater amount of industrial land	Large amount of commercial land south of Three Mile Lane	A smaller amount of commercial land on the south side of Three Mile Lane.
Opportunities for Additional Goods and Services in the Area	Mixed use area in NW, new retail center may provide goods and services.	Retail center, Evergreen Site provide goods and services	Evergreen site, commercial in NW, and smaller retail center provide goods and services
Relationship with and Impacts To the McMinnville Municipal Airport	Potential large industrial user of airport	Potential commercial campus user of airport	No single dominating user of airport – but an increased use compared to today due to greater activity

¹⁰ See Memorandum 4.

Evaluation Criteria	Land Use Concept 1	Land Use Concept 2	Land Use Concept 3
 + (positive, better meets criterion)  0 (neutral, no significant change)  - (negative, under-performs)			
Compatibility of uses adjacent to airport	Moderate amount of residential use near airport	Significant amount of medium-density residential in NE portion of study area (near end of runway)	Significant amount of new residential in southern portion of the study area, potential conflict.
Support for existing and new tourism opportunities	Preserves aviation complex. No significant increase of tourism capacity elsewhere	Significant commercial opportunities throughout district, and tourism-focused development of Evergreen site	Smallest amount of land for commercial of the three, but preserves aviation complex for continued tourism growth
<i>GOAL 2: Provide opportunities for a complementary mix of land uses, consistent with the vision of a diverse and vibrant district.</i>			
McMinnville Great Neighborhood Principles	New residential uses are limited primarily to infill development in this option.	This option includes smaller amounts of new residential uses focusing on assisted living. These pockets may be less able to utilize the great neighborhood principles purely due to their size and specialized purpose.	This option includes a large new residential neighborhood, which should be designed with McMinnville’s Great Neighborhood Principles in mind.
Residential uses, mix, and location	~1,400 new units, primarily in mixed use and multi-level mid-rise areas	~1,900 new units, located primarily in the far eastern and southern portions of the study area.	~2,500 new units, located primarily in the southern portions of the study area.
Transit-supportive land uses	Major new job and retail centers and high-density housing can help support transit.	Major new retail, corporate campus, and tourism areas, as well as high-density housing, can help support transit.	New residential neighborhood, Evergreen redevelopment, and medical office areas can help support transit.

Evaluation Criteria	Land Use Concept 1	Land Use Concept 2	Land Use Concept 3
 + (positive, better meets criterion)  0 (neutral, no significant change)  - (negative, under-performs)			
GOAL 3: Enhance multi-modal connections throughout the district			
Impacts to OR 18 as a key intercity/freight route.	<i>Specific impacts to OR 18 will be evaluated as part of more detailed analysis for the preferred land use alternative.</i>		
Vehicular connectivity through land use types (street density)	<i>Each of the alternatives can accommodate vehicular connectivity on the local street system through the study area. See DESCRIPTION OF LAND USE OPTIONS in this memorandum.</i>		
Bicycle/pedestrian connections to key locations outside of the study area	<i>Each of the alternatives accommodate enhanced bicycle and pedestrian through the study area. See DESCRIPTION OF LAND USE OPTIONS in this memorandum.</i>		
GOAL 4: Create an aesthetically pleasing gateway to the City of McMinnville			
Gateway features	One gateway feature located in interchange area, where it is likely to be auto-oriented in nature. Two others have the potential to be oriented toward other modes.	Two gateway features are located within interchange areas, which are more likely to be auto-oriented in nature. One other has the potential to be oriented toward other modes, but it is located at the edge of the study area away from much of the likely pedestrian/bicycle activity.	All gateway features are located outside of interchange areas, making them more likely to have human-scale design and orientation.

Evaluation Criteria	Land Use Concept 1	Land Use Concept 2	Land Use Concept 3
 + (positive, better meets criterion)  0 (neutral, no significant change)  - (negative, under-performs)	<p>All concepts have the potential for design requirements to be implemented through an overlay zone, however industrial structures tend to have lower values and special industrial needs that can conflict with these requirements.</p>	<p>Due to a lesser amount of industrial land in this concept, it may be able to better implement specific building design requirements.</p>	<p>Similar to Concept 1, industrial areas may be less able to incorporate some design requirements; however the new residential neighborhood may make these requirements even more important and be able to improve the aesthetics of the area generally through good neighborhood design.</p>
<p>Landscaping and Street Trees</p>	<p>Similar to the above topic, industrial land is less likely to provide high-quality street trees and other landscaping elements than other use types.</p>	<p>The corporate campus, retail center, and other uses are very compatible with high-quality landscaping.</p>	<p>New residential areas are envisioned to have a high quality network of street trees and other landscaping. The light industrial area may also be required to provide quality landscaping.</p>

FACILITY DESIGN OPTIONS

The consultant team developed two alternative facility designs for the section of Highway 18 within the study area to support the land use concepts. The study evaluation for OR 18 defines two distinctive facility design options:

- **Facility Option 1 - Interchanges** - focuses local access through two major interchanges, and one roundabout
- **Facility Option 2 - Roundabouts** - provides access through one interchange and three roundabouts

Both facility design options are expected to service and support the three land use options, including connectivity with the local street networks contained within each land use option (see Description of Land Use Concepts). The typical cross-sections of OR 18 described under each facility design option meet Oregon Highway Design Manual guidance for median, travel, and shoulder lane widths. Under both facility design options, notable design features or issues that may require further consideration are also described.

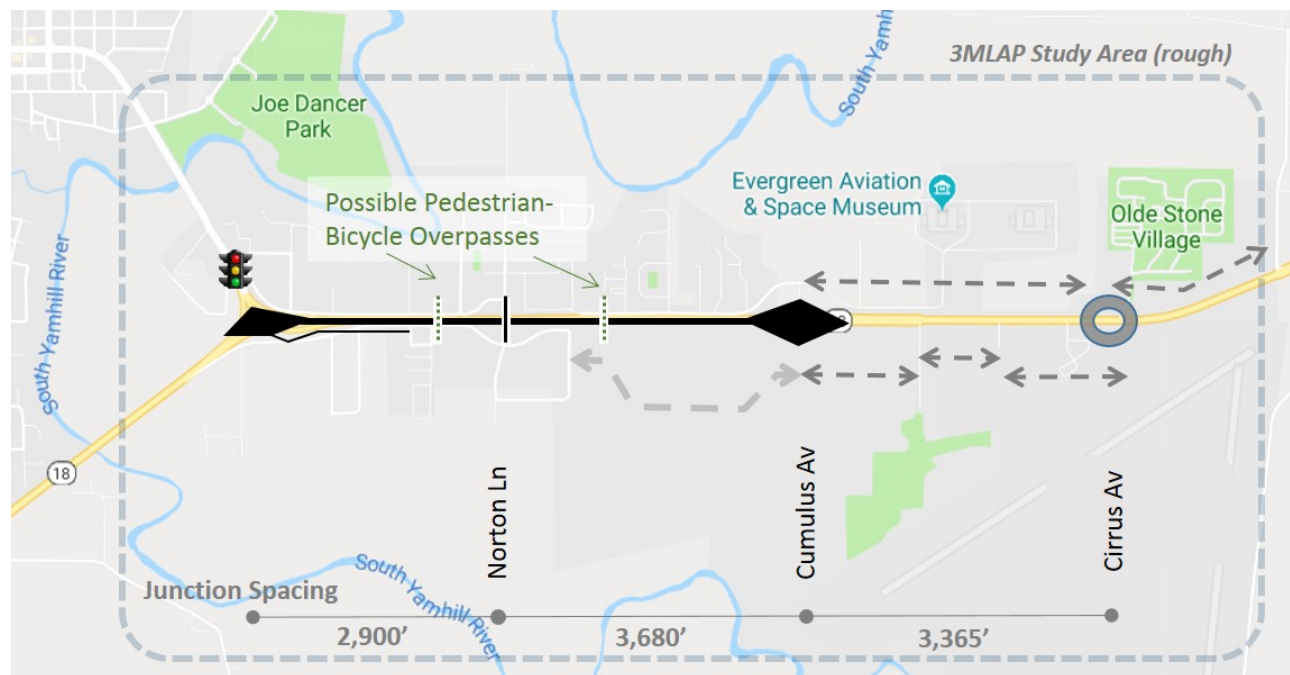
Facility Option 1 - Interchanges

Option 1 generally assumes that major interchanges on OR 18 are the primary junction design intended to balance local area access, circulation, and regional highway through-movement mobility. The interchanges and roundabout in Option 1 are connected by a series of parallel frontage streets. The Option 1 interchange location and spacing is similar to the 1996 Corridor Refinement Plan.

Long-Term Capacity Enhancements

Option 1 assumes that at some time in the future, more significant capacity improvements will be needed to provide local land access in the study area and maintain OR 18 mobility targets. Figure 5 illustrates this long-range interchange facility design option and depicts a series of interim intersection enhancements that could be constructed in advance of major interchange development. Option 1 also includes possible pedestrian-bicycle overpasses of OR 18 (east or west of Norton Lane) to better link study area neighborhoods.

Figure 5. OR 18 Interchange Facility Design Option 1 – Sketch Map



As shown, the interchange facility design option includes the following features:

- Replacement of the OR 18/Three Mile Lane interchange, including a new connection from Stratus Avenue¹¹, providing a more direct, local street (vehicle, bicycle and pedestrian) connection from the south study area to downtown McMinnville.
- Lowering the grade of OR 18 to better facilitate north-south street connectivity.
- New Norton Lane bridge over OR 18 (replacing the existing traffic signal), and possible pedestrian-bicycle bridges either east and/or west of Norton Lane.
- New OR 18 interchange at Cumulus Avenue (replacing the existing traffic signal).
- Possible pedestrian-bicycle only bridges over OR 18, located either east and/or west of Norton lane, providing greater study area connectivity.
- New roundabout on OR 18 at Cirrus Avenue, providing local land access in lieu of driveway closures.
- A series of parallel, east-west local access streets with connections to the future Cumulus interchange, Cirrus roundabout and Norton Lane. Loop Road is re-aligned to the Cirrus roundabout. The existing Loop Road and other local driveway connections to OR 18 in the study area are closed.

The plan view of the OR 18 interchange facility design option is illustrated in Figure 6. The reconstructed OR 18/Three Mile Lane interchange includes a direct connection to Stratus Avenue.

¹¹ Reconstruction of interchange and new Stratus Avenue connection will require a minor adjustment to the Urban Growth Boundary – for transportation facilities only.

As an alternative to OR 18 and Cumulus Avenue, the new Stratus Avenue link provides more direct connectivity between areas south of OR 18 and downtown McMinnville.

Two-way cycle tracks are added to Cumulus Avenue (north side) and Stratus Avenue (south side), with buffered treatments from adjacent vehicle travel lanes. These cycle tracks will provide better connectivity within, and from, the study area to downtown McMinnville, supporting a wider range of cycling residents and visitors. Wider sidewalks and planter strips along Cumulus and Stratus Avenues are also assumed under the interchange facility design option.

Figure 6. OR 18 Interchange Facility Design Option – Plan View / Corridor
West Section



East Section

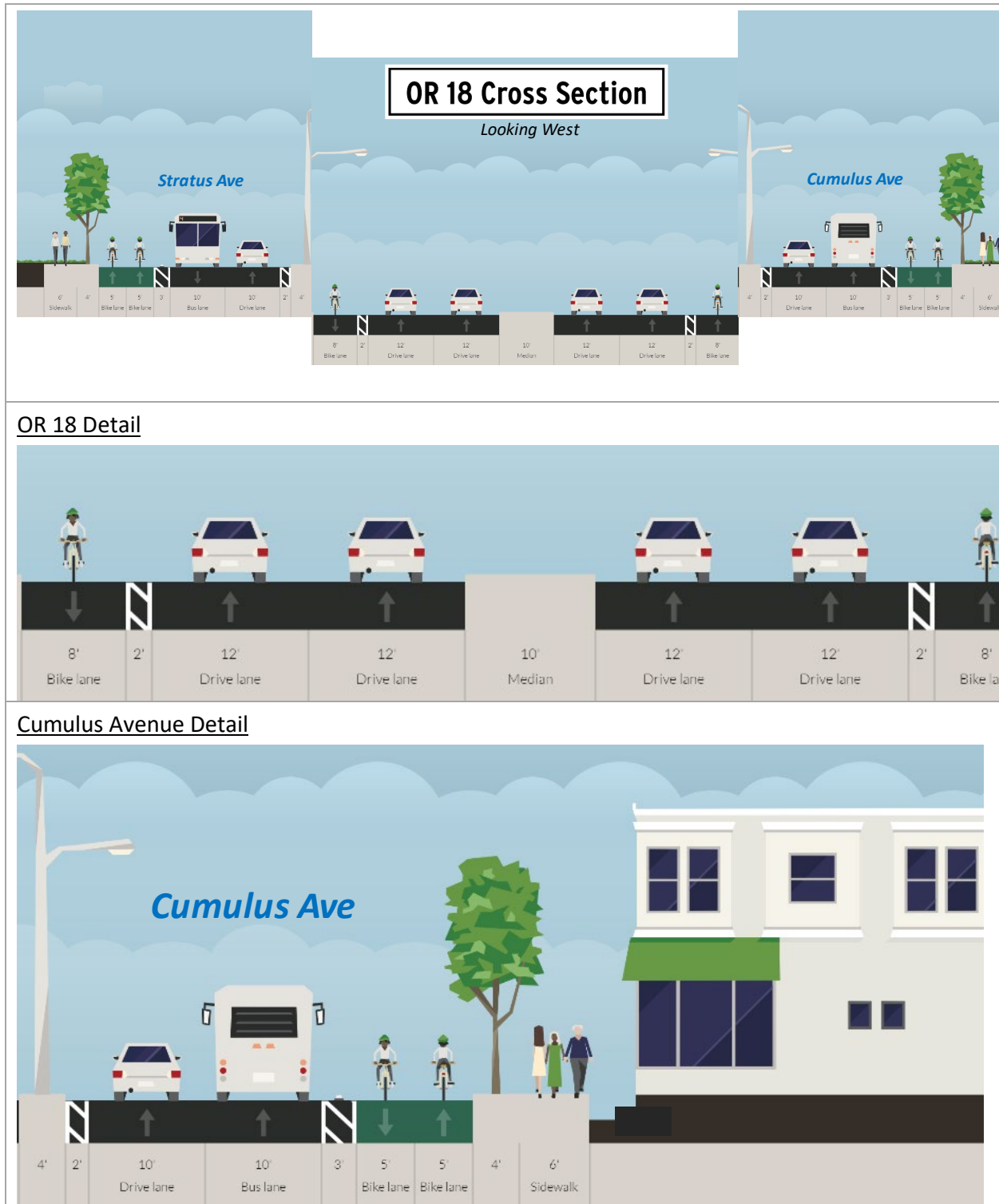


The profile view of OR 18 and Cumulus and Stratus Avenues is illustrated in Figure 7. As shown, the grade of mainline OR 18 is lowered, and both Cumulus and Stratus Avenues are widened to fit new, two-way cycle tracks, and buffered planting strips and wider sidewalks.

McMinnville gateway design treatments can be integrated into each of the major interchanges, overcrossings, and roundabout.

Plan views of more detailed design concepts for individual interchanges and junctions included as part of Option 1 are found in Appendix B.

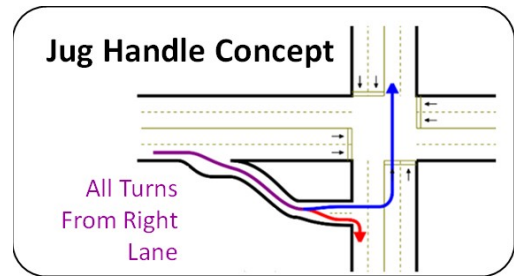
Figure 7. OR 18 Interchange Facility Design Option 1 – Profile View



Interim Capacity Enhancements

As noted in the Existing Transportation Operations and Safety Analysis Memorandum, the OR 18 signalized intersections at Norton Lane and Cumulus Avenue currently have an underutilized capacity for vehicular traffic. A combination of minor intersection improvements and the development of a frontage street network along OR 18 may also provide additional capacity. These capacity improvements may help achieve OR 18 mobility targets and provide local land use access within the 20-year planning horizon.

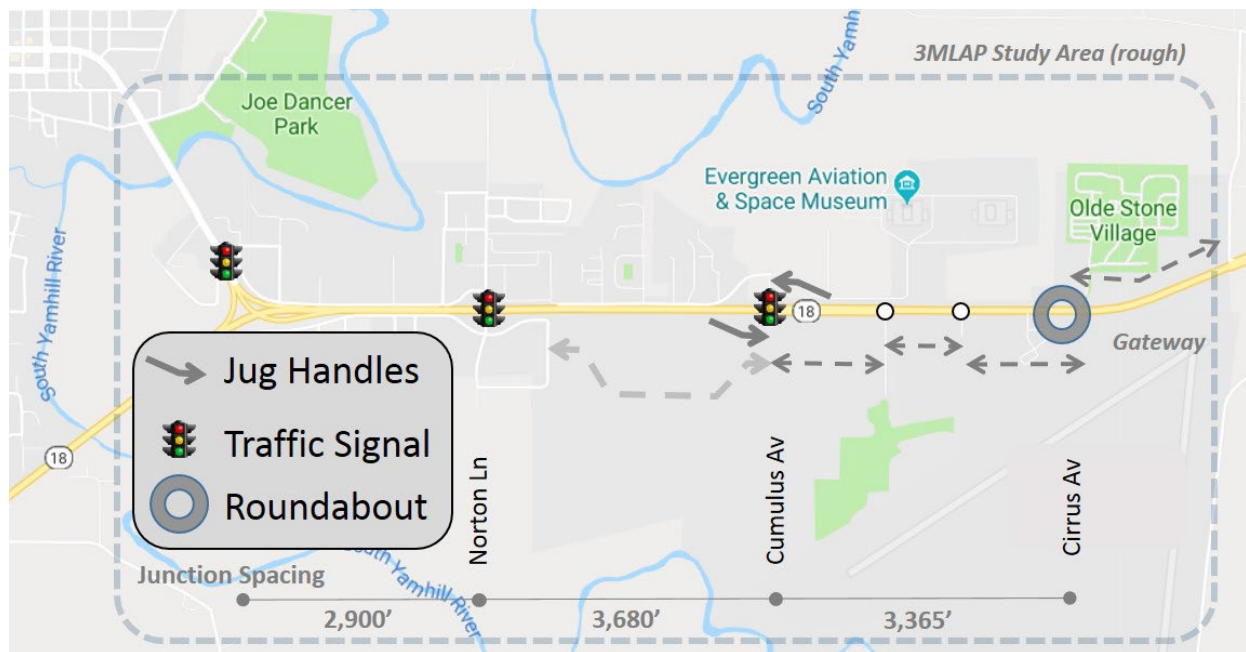
As shown in Figure 8, interim capacity enhancements may include the construction of “Jug Handle” right turn lanes on OR 18 at Cumulus Avenue (westbound and eastbound) and a roundabout at Cirrus Avenue. The Jug Handle turn lanes shift all turns from OR 18 to Cumulus Avenue, which may increase capacity and reduce delay for OR 18 through-movements at the Cumulus Avenue traffic signal.



The Jug Handle concept removes all turn movements from the major highway and shifts them to the cross-street via a right-turn lane.

The combination of these interim capacity enhancements may provide sufficient capacity to meet the Oregon Highway Plan mobility targets for OR 18 within the next 10-20 years.

Figure 8. Interim Intersection and Frontage Street Capacity Enhancements – Sketch Map



Concept Design Features for Further Consideration

Design features or issues related to Facility Option 1 that may require further consideration following the study include the following:

- Subsurface Water Table - Evaluation of subsurface water table and substrata to determine the suitability of lowering the mainline grade of OR 18, thus minimizing the height of new

structures within the study area. These measures help minimize the grade of future pedestrian and bicycle crossings of OR 18, reduce the visual impact of future structures, and reduce the height of new structure and street lights within the McMinnville Airport impact area.

- OR 18 Bicycle Facility Design – The shoulder lanes on OR 18 will require attentive design for future bicycle travel along OR 18, particularly through the on and off-ramp transition zones.
- Local Street Bus Stops - Potential additional right-of-way and design features to accommodate future bus stops along Cumulus Avenue (eastbound) and Stratus Avenue (westbound).
- Cycle Track Transition to New Yamhill River Bridge –The transition from two-way cycle tracks (Cumulus and Stratus Avenues) to the proposed bicycle and pedestrian facility design on the new Yamhill River Bridge requires further design considerations.
- Single-point Urban Interchange – Consideration of a more compact interchange form rather than tight-diamond (as depicted at Cumulus Avenue) to potentially reduce right-of-way impact.
- Roundabout Design – See Facility Option 2 below.

Facility Option 2 – Roundabouts

Option 2 generally assumes that a series of roundabouts on OR 18 is the intended primary junction design to balance local area access, circulation and regional highway through-movement mobility.

As shown in Figure 9, Facility Design Option 2 includes three new, dual-lane roundabouts along OR 18 within the study area: two replacing the current traffic signals at Norton Lane and Cumulus Avenue, and one at Cirrus Avenue (McMinnville Airport access). The general purpose of roundabout concept designs as part of Option 2 is to facilitate relatively continuous movement of OR 18 through-traffic, while providing local land use access to, and across, OR 18.

Each roundabout is presumed to include two-lane approaches on OR 18 (eastbound and westbound), two-lane approaches on Norton Lanes, and single-lane approaches on Cumulus and Cirrus Avenues. Spacing between the roundabouts is well over one-half mile. The OR 18 target design speed is assumed to vary under Option 2, from 55 mph at the study area's eastern entrance, to 30-45 mph within the study area.

Combined pedestrian and bicycle pathways are assumed around each roundabout, with designated crossings of OR 18 and the local street connectors. Median islands are assumed at each pedestrian-bicycle crossing as a refuge and safety feature.

Option 2 also assumes that the replacement of the existing OR 18/Three Mile Lane interchange with a dual-lane roundabout may not meet future OR 18 mobility standards. Option 2 assumes the same improvements to the OR 18/Three Mile Lane interchange as Option 1, including local street, pedestrian and bicycle connector enhancements along Cumulus and Stratus Avenues.

Figure 9. OR 18 Roundabout Facility Design Option – Sketch Map

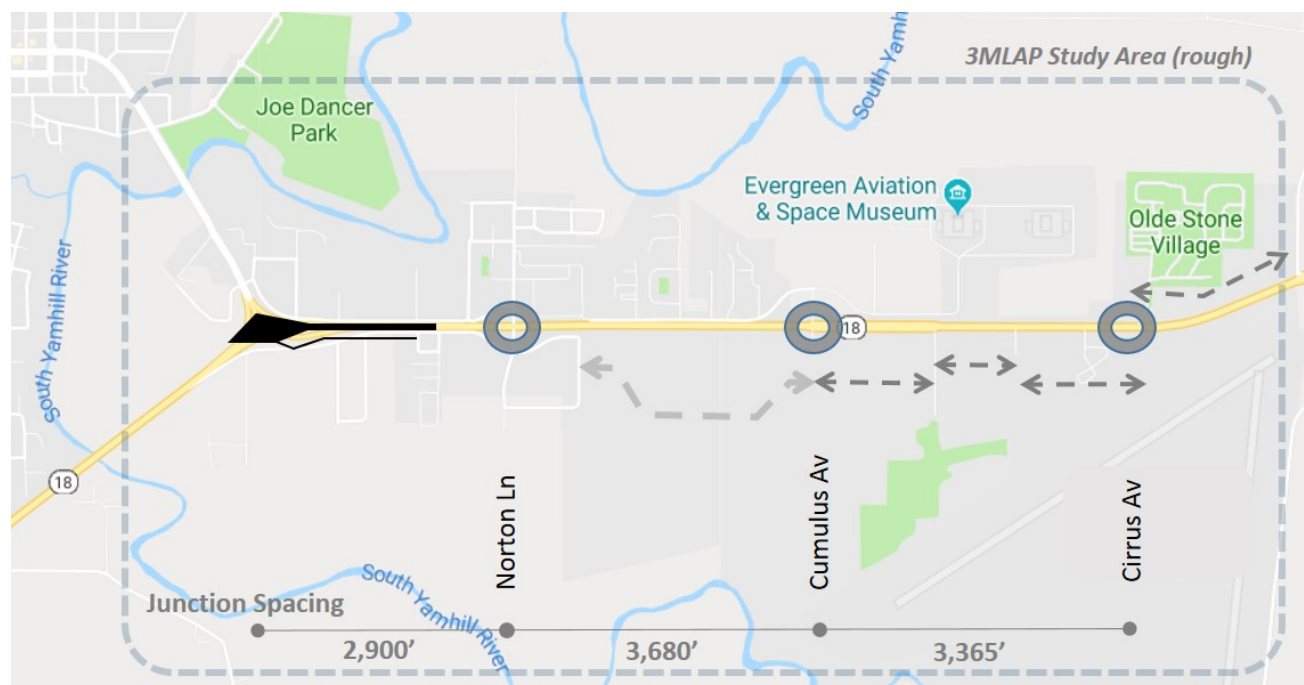


Figure 10 illustrates the plan view of the OR 18 roundabout facility design option. The existing Cumulus and Stratus Avenue intersections on Norton Lane are extremely close to OR 18, making it very difficult to fit a dual-lane roundabout on OR 18. It is more likely that both Cumulus Avenue and Stratus Avenue will require realignment further away from OR 18 under Option 2, as shown in Figure 6. A northern realignment of Cumulus Avenue to Norton Lane at Tanger Court will impact a number of residential and commercial properties.

In general, the existing OR 18 cross-section is retained between the roundabouts under Option 2.

Local street, pedestrian and bicycle connectivity within the study area across OR 18 is confined to the three roundabouts and Three Mile Lane interchange. McMinnville gateway design treatments can be integrated into the interchange and each of the three roundabouts, especially the eastern roundabout at Cirrus Avenue.

Plan views of more detailed design concepts for individual interchanges and junctions under Option 2 are included in Appendix B.

Figure 10. OR 18 Roundabout Facility Design Option – Plan View

West SectionEast Section**Concept Design Features for Further Consideration**

Design features or issues related to Facility Option 2 that may require further consideration following the study include the following:

- Inscribed Circle Diameter – The inscribed circle diameter of the concept roundabouts are conservatively assumed to be 250 feet, exceeding the Oregon Highway Design Manual guidance (200 feet minimum). The roundabout concepts also assume an 18-foot wide inside shoulder to assist truck maneuverability.

- OR 18 Design Speed and Design Vehicle – The targeted design speed of OR 18 will affect optimized roundabout operations and safety design. The target design speed may vary by OR 18 segment, from 55 mph at the study area’s eastern entrance, to potentially 30-45 mph within the study area. The target design vehicle for each roundabout concept design is WB-67.
- Roundabout Design Features – Other specific roundabout design features that require further examination (beyond this study) include approach lane deflection, roundabout radii, truck vehicle paths, pedestrian-bicycle pathways, splitter islands and many others.
- Pedestrian and Bicycle – Design features that best accommodate anticipated north-south pedestrian and bicycle crossings of OR 18 through the proposed roundabouts.

EVALUATION OF FACILITY DESIGN OPTIONS

The evaluation criteria used to test the two facility design options are derived from the project’s goal and objectives, as defined through the study’s public process.¹² Table 2 summarizes the evaluation criteria and ratings for each of the facility design options.

Table 2: Facility Design Option Evaluation Criteria and Ratings

Evaluation Criteria	Highway 18 Facility Design Options:	
	1 - Interchanges	2 - Roundabouts
Facility Design Features Help:		
Foster Economic Development*		
Ease of Access** to Existing and Planned Land Use	Interchange at Cumulus Avenue and Norton Lane overcrossing reduces direct accessibility to Willamette Valley Medical Center and other Norton Lane destinations.	Multiple, dual-lane roundabouts provide more direct access to existing and planned land uses both north and south of Highway 18.
Land Uses are Visible from Three-Mile Lane	Land uses are less visible from Three Mile Lane (Highway 18), when highway is lowered to fit interchange and overcrossings.	Land uses are more visible when highway is at-grade
Sustain Highway 18 as a Key Intercity Freight Route		
Desired Travel Speed on Highway 18	Limited access highway with single roundabout at Cirrus Avenue and interchange at Cumulus Avenue facilitates desired travel speed along Highway 18.	Multiple, dual-lane roundabouts (modestly) impede desired speed along Highway 18.
Highway 18 Truck Maneuverability	Limited access highway with single roundabout at Cirrus Avenue and interchange at Cumulus Avenue facilitates intercity truck maneuverability.	Multiple, dual-lane roundabouts impede intercity truck maneuverability.
* Within the Three-Mile Lane Study Area ** Auto, Truck, Pedestrian, Bicycle and Transit		
Enhance Multimodal Connectivity		
Within the Three-Mile Lane Study Area	Overcrossing at Norton Lane, interchange at Cumulus Avenue, roundabout at Cirrus Avenue and potential ped-bike overcrossings provide good vehicle (including transit), pedestrian and bicycle connectivity across Highway 18.	Evenly-spaced roundabouts provide good vehicle (including transit), pedestrian and bicycle connectivity across Highway 18. Dual-lane roundabouts may intimidate north-south pedestrian and bicycle connectivity, especially as Highway 18 traffic increases in the future.
Between Study Area and City Center	Replacement Three Mile Lane interchange with new Stratus Avenue connection, and new two-way cycle tracks and sidewalks along Cumulus and Stratus Avenues, significantly improve connectivity between the study area and city center.	Replacement Three Mile Lane interchange with new Stratus Avenue connection, and new two-way cycle tracks and sidewalks along Cumulus and Stratus Avenues significantly improve connectivity between the study area and city center.
Minimize Rights-of-Way And Cost Requirements***		
Rights-of-Way	ROW requirement for diamond interchange at Cumulus Avenue is greater than roundabout (Option 2).	ROW requirement for dual-lane roundabout at Cumulus Avenue expected to be less than tight diamond interchange (Option 1). Roundabout at Norton Lane will require additional ROW and impact several homes and possible businesses to re-align Cumulus and Stratus Avenues.
Cost (conceptual)	Costs are significant: new interchange at Cumulus Avenue, lowering Highway 18, and overcrossings at Norton lane and possible pedestrian-bicycle crossings.	Cost of roundabout at Cumulus Avenue is modest. Cost to re-align Cumulus and Stratus Avenues at Norton Lane is significant.

*** As differentiated between Options 1 and 2

Option 1 (Interchanges) is the most likely of the two options to positively impact and achieve desired travel speeds along OR 18 in the future, while minimizing adverse impacts on truck maneuverability. Option 2 roundabout junction designs will likely help maintain OR 18 through-movement traffic flow, but at a less than desirable or ideal speed than Option 1. Roundabouts are also likely to negatively impact truck maneuverability in the study area along OR 18.

Both facility design options are anticipated to help reduce serious crashes at key junctions within the study corridor.

¹² See Memorandum #4.

DISCUSSION AND NEXT STEPS

All of the alternatives presented in this memorandum will help the City of McMinnville meet the goals established for the Three Mile Lane area to some extent – the main differences are those of emphasis and degree. The information and analysis describe how the three distinct land use concepts and the two facility design options further the City’s goals. As described, the land use options meet most project objectives to some degree; Table 1 in this report uses select evaluation criteria to show how the alternatives match up, as compared to each other. The Facility Design options for OR 18 also largely meet project objectives, as demonstrated in Table 2, and can support the ultimate preferred land use option.

The next step of the project is to identify elements of the land use concepts and supporting transportation options that best meet the community’s goals and expectations in order to develop a Preferred Land Use Option and Facility Design Alternative. Project participants and stakeholders are asked to consider the following when envisioning an optimal future, or “preferred alternative,” for the Three Mile Lane area:

- Projects goals and objectives that are the most important and how they can best be reflected in existing and future land uses and transportation design.
- The overall character of the Three Mile Lane area and how it will be impacted by the use of the large vacant properties.
- The kinds of design guidance that will be important to create a high-quality environment given the wide range of uses existing and planned for the area.

As the process moves from the high-level concepts explored here to creating a preferred alternative and outlining its implementation, the project team will address the following:

- Consistent with project objectives, the preferred land use option will incorporate multi-modal design and allow for safe, efficient ways of traveling through and within the area. The high-level land use concepts described in this memorandum can all accommodate enhanced multi-modal connections if they are appropriately designed.
- Creating a walkable “town center” retail development with good multi-modal connections to other parts of the Three Mile Lane area.
- Creating a grid of walkable streets to integrate new development south of Three Mile Lane.
- Improving frontage roads for safer walking and biking.
- Orienting new residential areas toward existing and new trails and pathways to encourage walking and biking.
- Using design standards to prohibit long blank walls and reduce setbacks in pedestrian oriented areas.

Appendix A – Detailed Evaluation Tables

	Concept 1 - Industrial Campus		Concept 2 - Corporate Campus		Concept 3 - South Yamhill Neighborhood	
	Score	Notes	Score	Notes	Score	Notes
Goal 1: Support and enhance the district's economic vitality and marketability						
<i>This plan aims to support development of significant industrial and commercial parcels within the study area, enhance existing business by diversifying goods and services available in the area, and increase tourism. Alternatives will be evaluated qualitatively for how well they address the area's development/redevelopment potential.</i>						
Amount of Commercial Land	0	Moderate amount of commercial land compared to other options	+	Largest amount of commercial land of all options	0	Moderate amount of commercial land compared to other options
Amount of Industrial Land	+	Largest amount of industrial land of all options	-	Least amount of industrial land of all options	+	Significant amount of light industrial land
Estimated number of new employment uses.	0	Somewhat limited mix of employment types relative to the other options	+	Wide diversity of employment zone types	+	Wide diversity of employment types in a finer grained mix of zones
Estimated number of new jobs, economic development and business opportunities.	0	Midpoint of the three alternatives	+	Corporate campus arguably will produce the greatest job density of the three concepts	-	Residential component reduces employment capacity
Opportunity for additional goods and services for employees in the study area.	+	Mixed use area in NW, new retail center may provide goods and services.	+	Retail center, Evergreen Site provide goods and services	+	Evergreen site, commercial in NW, and smaller retail center provide goods and services
Improved multimodal access of property	+	Proposed new criterion (not in Memo 4). More trails and assume most streets will be MM.	+	More trails and assume most streets will be MM.	+	More trails and assume most streets will be MM.
Improved airport access for business and tourism.	+	No difference	+	No difference	+	No difference
Economic feasibility of potential development scenarios for large contiguous vacant sites.		Reference to case study report.				
Support for physical expansion and increased capacity of airport.	+	Industrial user takes advantage of airport	+	Potential airport concerns about more residential in NE. Corporate campus takes advantage of airport	0	Airport concerns re: residential nearby
Preserves the functional integrity of Highway 18 for freight movement.	0	See facility option comparison - no difference between land uses.	0	See facility option comparison - no difference between land uses.	0	See facility option comparison - no difference between land uses.
Opportunity for enhanced or new tourism opportunities within the area. Includes multi-modal access and visibility.	0	Preserves aviation complex. No significant increase of tourism capacity elsewhere	+	Significant commercial opportunities throughout district	0	Smallest amount of land for commercial of the three, but preserves aviation complex for continued tourism growth

GOAL 2: Provide opportunities for a complementary mix of land uses, consistent with the vision of a diverse and vibrant district.					
<i>The study area contains several existing residential neighborhoods, including assisted-living and manufactured home residences, as well as major employers and tourism destinations. This plan aims to provide a mix of land uses that support one another to create a unique part of the city.</i>					
Furtherers McMinnville Great Neighborhood principles.	0	This scenario will introduce a greater mix of activities, some additional housing, while protecting Least number of new residential units	+	this scenario introduces a new park, new housing that may be multifamily near the medical center, and the	+
Estimated number of new residential units accommodated in study area.	0		0	Mid-point of the three alternatives	0
Residential housing mix.	+	Some Multifamily in NE, mixed use on Cal Portland, modest infill with some multifamily elsewhere.	+	Multifamily near medical center. Modest infill in NW. Cal portland site is partially multifamily. NE edge is multifamily.	+
Number of existing and proposed residential units with multi-modal access to parks/natural areas and goods/services.	0		0		+
Provides transit-supportive land uses.	+	All options provide some basic transit-supportive land uses (job centers and higher density residential developments). Concept 1, with a larger piece of industrial land, may be less transit-supportive	+	All options provide transit-supportive land uses (job centers and higher density residential developments)	+
Access to amenities	+	Improves access to amenities through mixed use in NW and retail center.	+	Improves access to amenities through evergreen retail and retail center.	+
Visual and physical access to natural resources	0	Greater amount of units close to Joe Dancer, fewer close to south fork and airport park	0	Lesser amount of residential (especially multifamily) in proximity to Joe Dancer via existing or proposed bridge. Greater number of MF units in proximity to south fork and airport park.	+

GOAL 4: Create an aesthetically pleasing gateway to the City of McMinnville			
<p>The study area is a primary gateway to the City of McMinnville. Alternatives will be evaluated qualitatively for how well they provide an identity for the district, reflect McMinnville's intrinsic character and highlight the landscape features of the district.</p>			
Gateway Features	<p>One gateway feature located in interchange area, where it is likely to be auto-oriented in nature. Two others have the potential to be oriented toward other modes.</p> <p>+</p>	<p>0</p>	<p>Two gateway features are located within interchange areas, which are more likely to be auto-oriented in nature. One other has the potential to be oriented toward other modes, but it is located at the edge of the study area away from much of the likely pedestrian/bicycle activity.</p> <p>+</p> <p>All gateway features are located outside of interchange areas, making them more likely to have human-scale design and orientation.</p>
Building Design	<p>All concepts have the potential for design requirements to be implemented through an overlay zone, however industrial structures tend to have lower values and special industrial needs that can conflict with these requirements.</p> <p>0</p>	<p>+</p>	<p>Due to a lesser amount of industrial land in this concept, it may be able to better implement specific building design requirements.</p> <p>+</p> <p>Similar to Concept 1, industrial areas may be less able to incorporate some design requirements; however the new residential neighborhood may make these requirements even more important and be able to improve the aesthetics of the area generally through good neighborhood design.</p>
Landscaping and Street Trees	<p>Similar to the above topic, industrial land is less likely to provide high-quality street trees and other landscaping elements than other use types.</p> <p>0</p>	<p>+</p>	<p>The corporate campus, retail center, and other uses are very compatible with high-quality landscaping.</p> <p>+</p> <p>New residential areas are envisioned to have a high quality network of street trees and other landscaping. The light industrial area may also be required to provide quality landscaping.</p>

Appendix B - Plan Views of Detailed OR 18 Junctions – Options 1 and 2

Option 1 Plan View – Three Mile Lane Junction



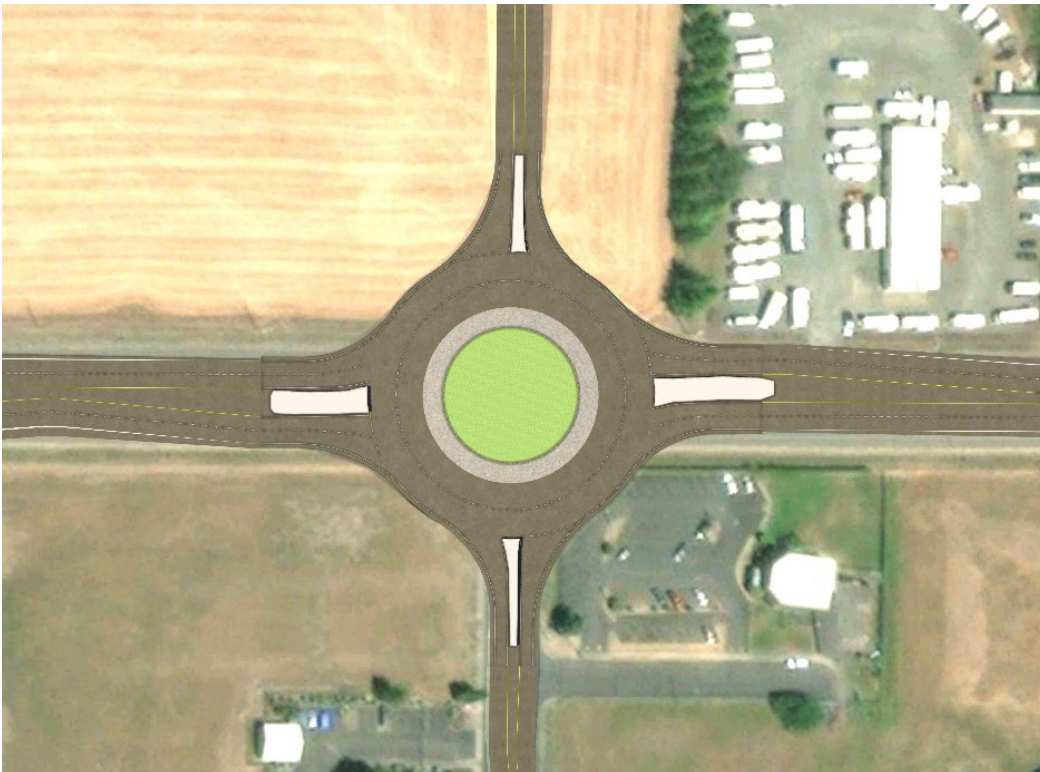
Option 1 Plan View – Norton Lane Crossing



Option 1 Plan View – Cumulus Avenue Junction



Option 1 Plan View – Cirrus Avenue Junction



Option 2 Plan View – Three Mile Lane Junction



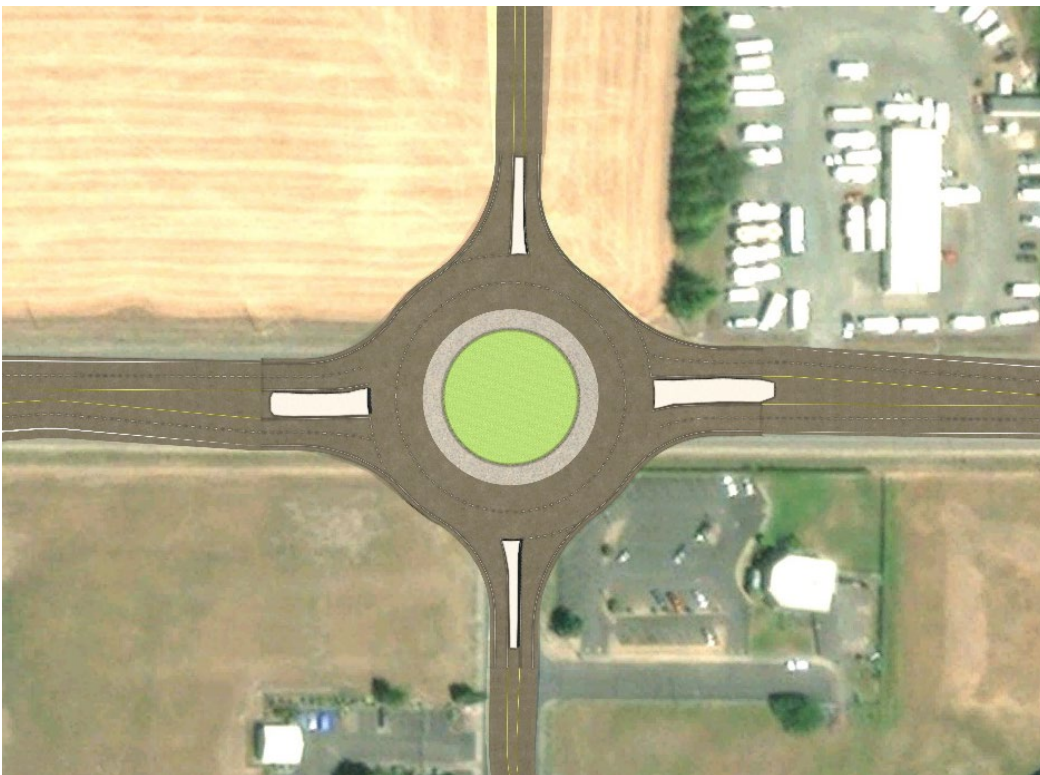
Option 2 Plan View – Norton Lane Junction



Option 2 Plan View – Cumulus Avenue Junction



Option 2 Plan View – Cirrus Avenue Junction



APPENDIX C: SUPPLEMENTAL EVALUATION - TRIP GENERATION ASSESSMENT

The original scope of work for this study anticipated applying future travel demand model estimates for each of the land use options (three) and two facility design options. Model data and estimates were not available at the time of the study. In lieu of applied travel model estimates, a supplemental trip generation analysis was completed. The trip generation assessment identifies the level and location of new trip generators within the study area, comparing and contrasting the three land use options. The assessment is predicated on the following assumptions:

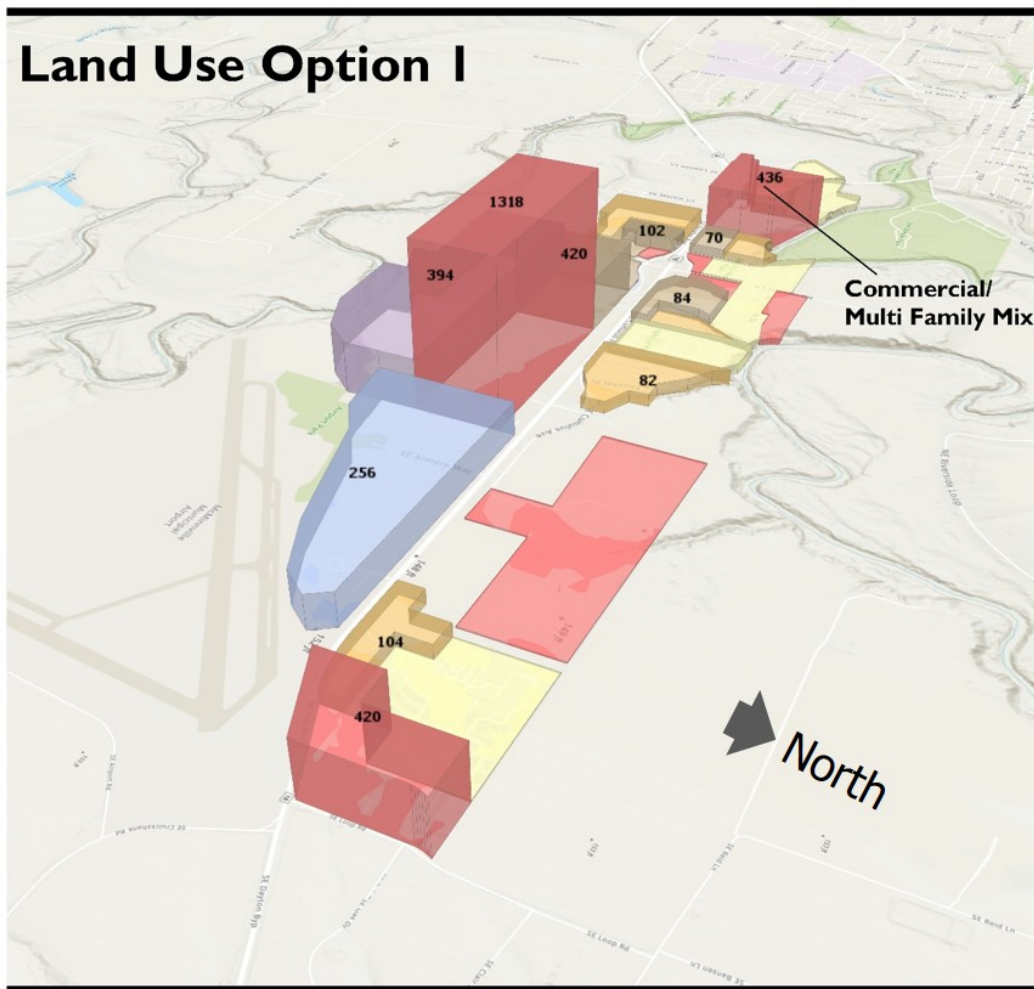
- Estimates of developable land by general type, assuming limited redevelopment
- Building density based on a range of floor area ratios by land use category
- Vehicle trip generation rates by land use type, as noted in the Institute of Transportation Engineers, Trip Generation (10th Edition), including pass-by trip rate reductions for commercial lands

Land Use Option 1

Figure 7 maps the net new vehicle trips generated in the study area under Land Use Option 1, by land use type.

The greatest number of new vehicle trips in Option 1 are generated by planned commercial and multi-story medical office developments on the south side of OR 18, between the Willamette Valley Medical Center and Cumulus Avenue. New commercial lands at the eastern end of the study area and along Cumulus Avenue (Baker Rock site) will also generate significant vehicle trips. Industrial land at the southern edge of the study area is not expected to generate significant vehicle traffic.

Figure 1: Net New Vehicle Trips – Land Use Option 1



Legend

Land Use

- Airport Commercial/Industrial
- Commercial
- Industrial
- Medical
- Single Family Residential
- Multi Family Residential

Net New PM Peak Hour Vehicle Trips

- 260
- 2,030
- 390
- 680
- 50
- 590

TOTAL 4,000

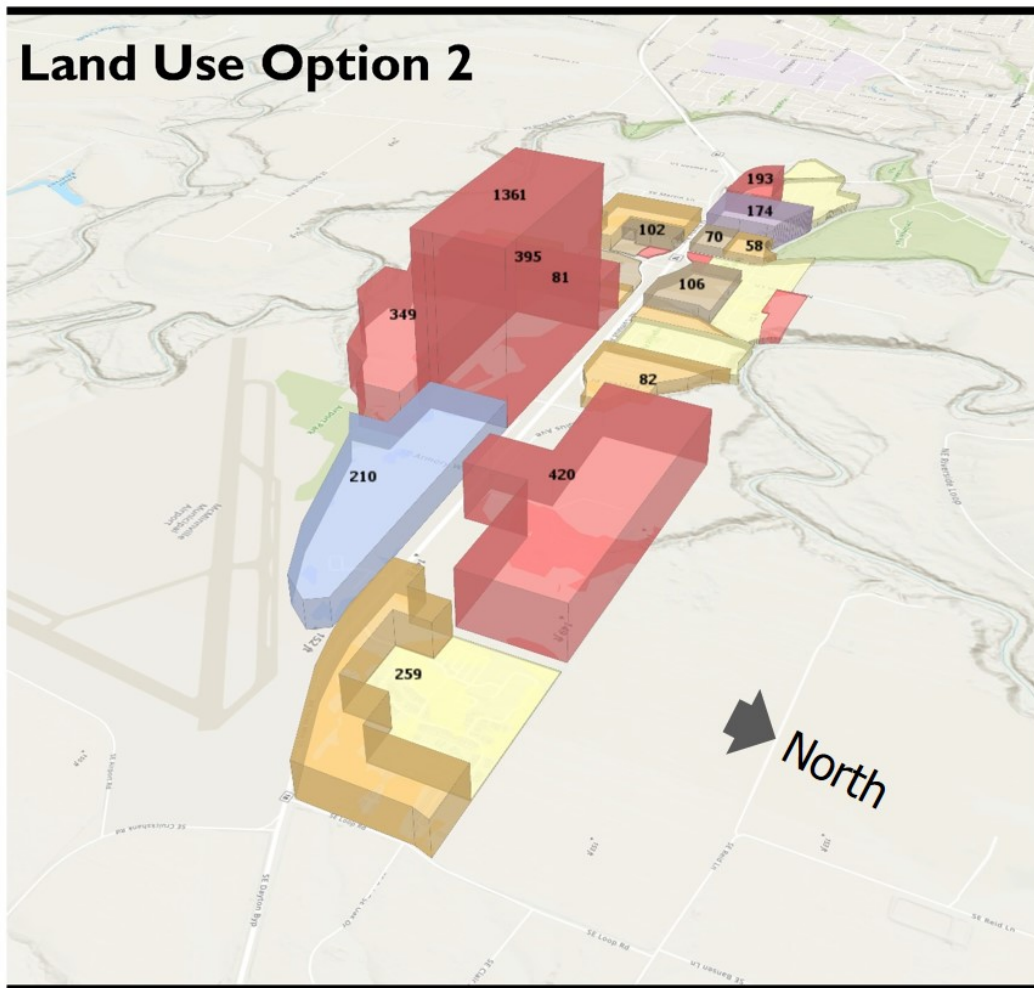
* Heights of bars correspond to the number of new PM peak hour vehicle trips per subarea

Land Use Option 2

Figure 8 maps the net new vehicle trips generated in the study area under Land Use Option 2, by land use type.

The total new vehicle trip generation is slightly larger in Option 2 than it is in Option 1, though more of the traffic is generated by commercial lands, located near (north and south of OR 18) and focused on Cumulus Avenue. Residential land at the eastern end of the study area will also generate new vehicle trips.

Figure 2: Net New Vehicle Trips – Land Use Option 2



Legend

Land Use

- Airport Commercial/Industrial
- Commercial
- Industrial
- Medical
- Single Family Residential
- Multi Family Residential

Net New PM Peak Hour Vehicle Trips

- 210
- 2,720
- 170
- 360
- 60
- 780
- TOTAL**
- 4,300**

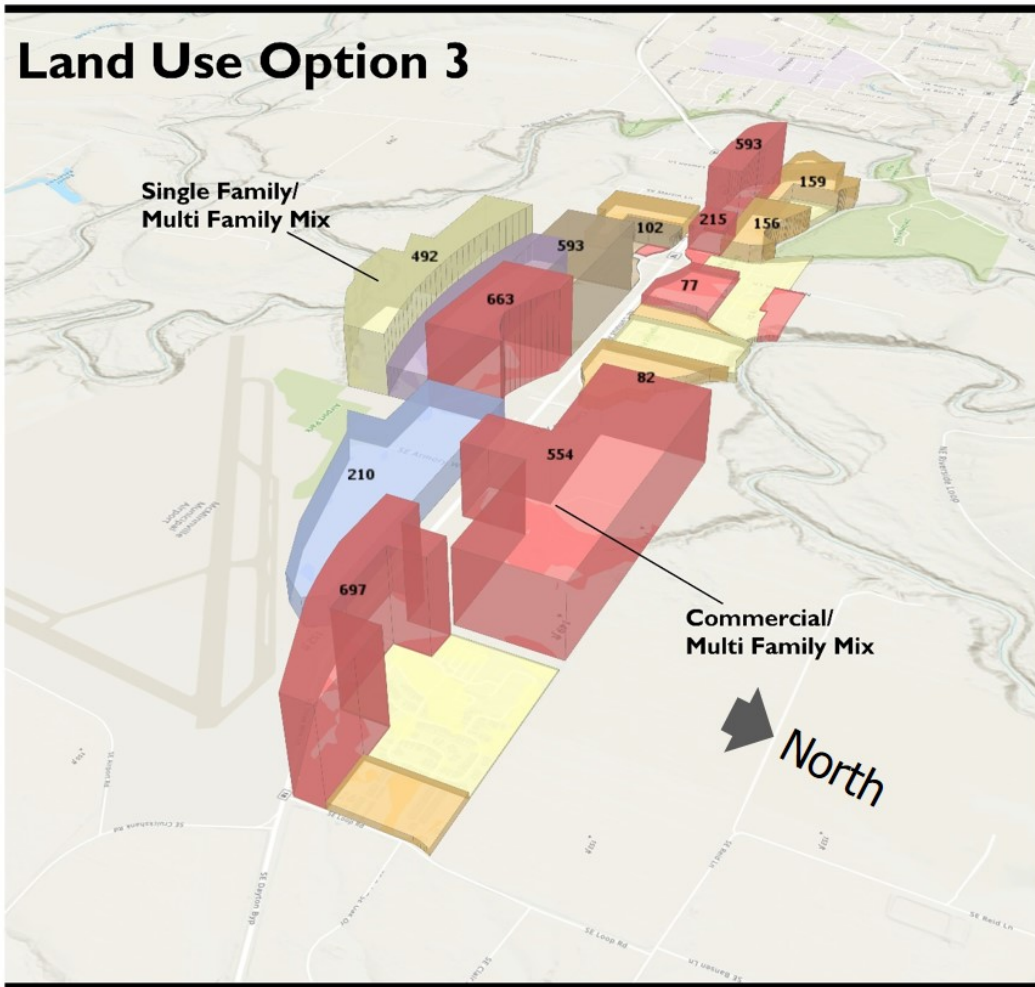
* Heights of bars correspond to the number of new PM peak hour vehicle trips per subarea

Land Use Option 3

Figure 9 maps the net new vehicle trips generated in the study area under Land Use Option 3, by land use type.

Option 3 focuses more on retail-related lands within the Evergreen Aviation site, and eastern end of the study area (north of OR 18) and along Cumulus Avenue west of Norton Lane. New trip generation by medical office use near Willamette Valley Medical Center is the largest under Option 3. Residential lands at the southern edge of the study near the airport will also generate a sizeable number of new vehicle trips. Option 3 presents a higher total new vehicle trip generation than Options 1 or 2.

Figure 3: Net New Vehicle Trips – Land Use Option 3



Legend

Land Use	Net New PM Peak Hour Vehicle Trips
Airport Commercial/Industrial	210
Commercial	2,720
Industrial	240
Medical	700
Single Family Residential	230
Multi Family Residential	930
TOTAL	5,030

* Heights of bars correspond to the number of new PM peak hour vehicle trips per subarea

Virtual Community Meeting

3310 SE Three Mile Lane
McMinnville, OR

November 17, 2020 – 6:00PM

Presented by: KIMCO McMinnville L.P. (an affiliate of Kimco Realty Corporation)



MEETING FORMAT

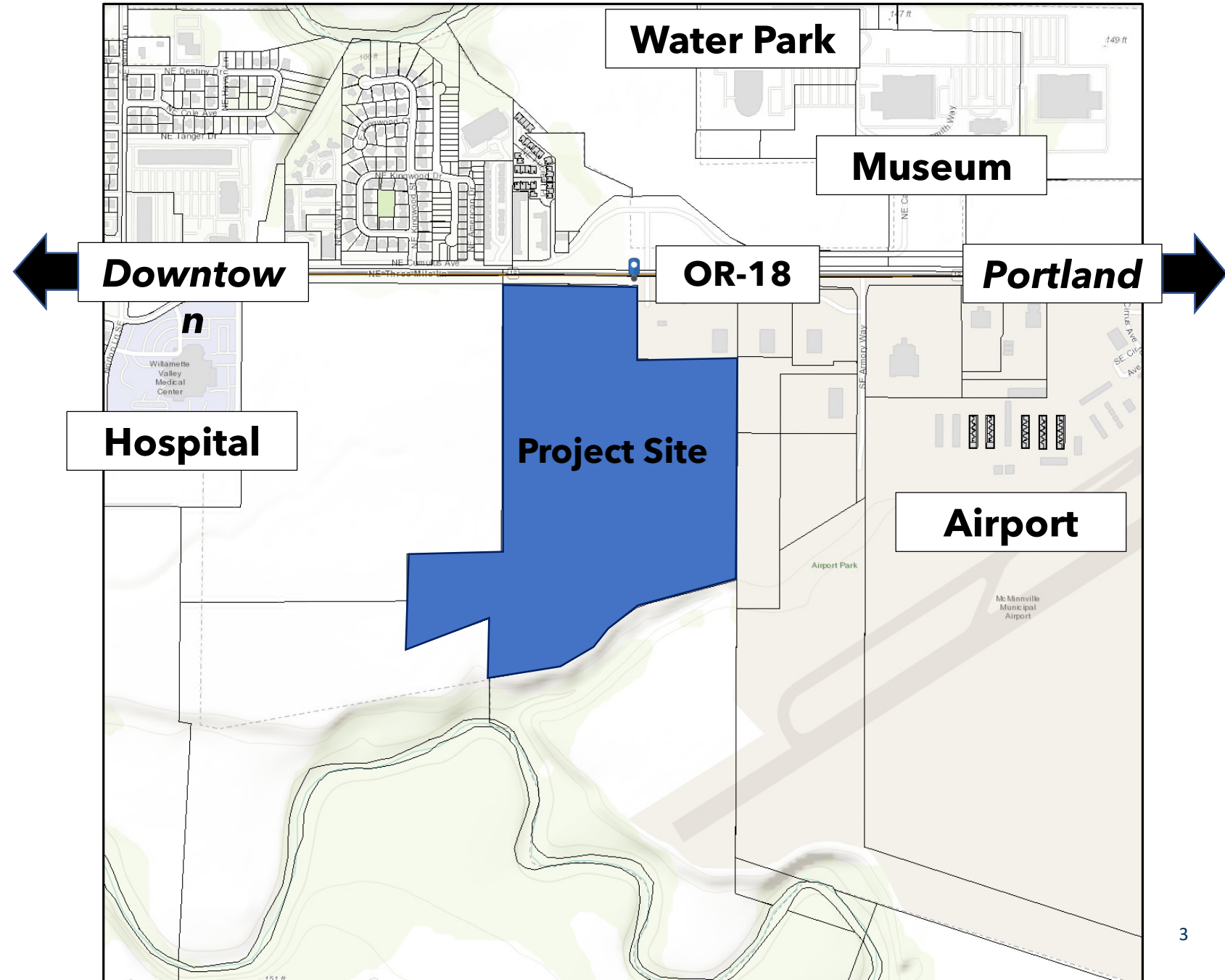
- 6:00 PM – 6:05 PM Introductions
- 6:05 PM – 6:20 PM Description of the Project by the Partnership
- 6:20 PM – END Questions

PROJECT LOCATION

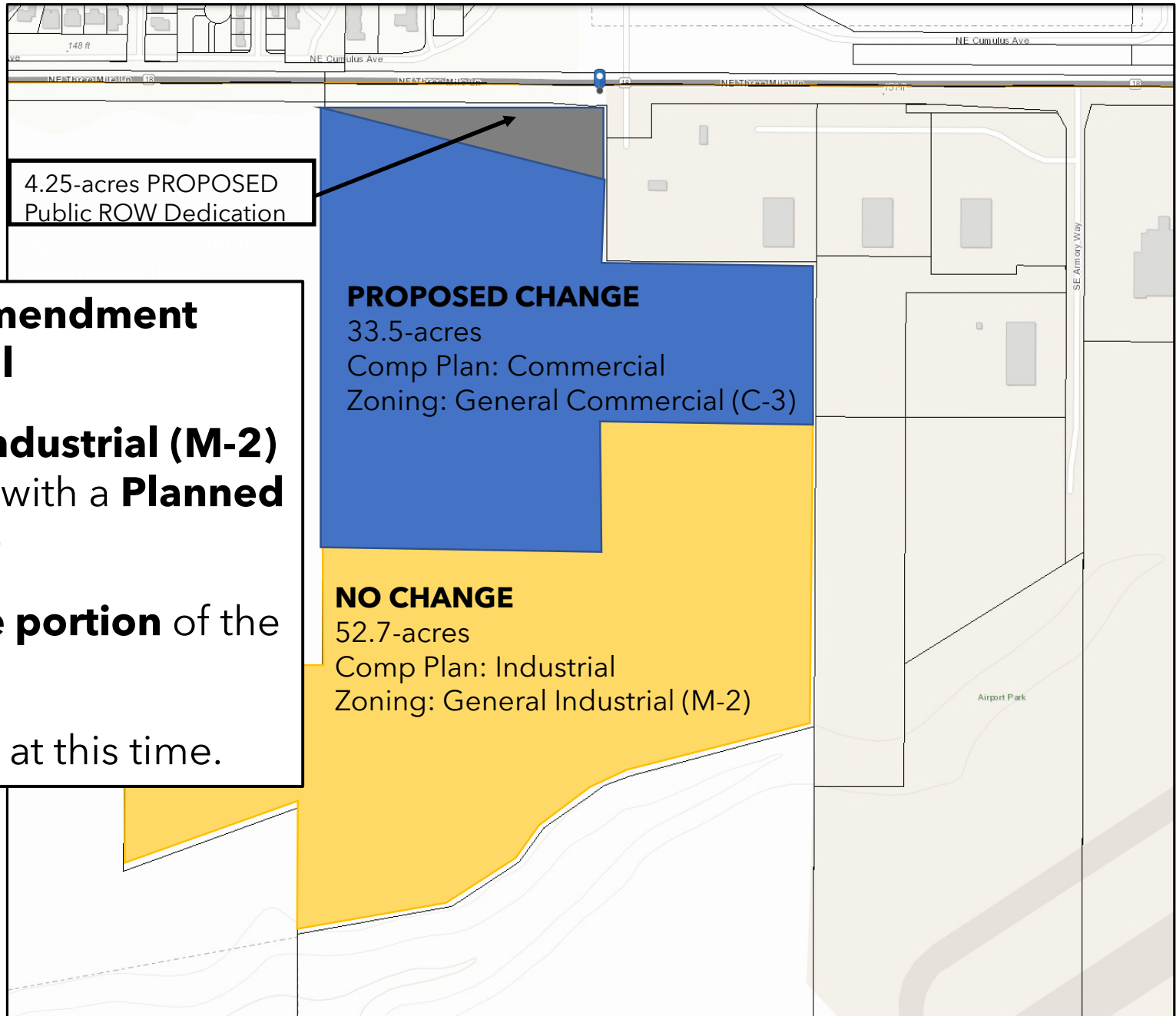
3310 SE Three Mile Lane
McMinnville, OR 97128

Tax Lot ID: R4426 00700

Lot size: 90.45 acres



PROJECT PROPOSAL



- **Comprehensive Plan Map Amendment** from **Industrial** to **Commercial**
- **Zone Change** from **General Industrial (M-2)** to **General Commercial (C-3)** with a **Planned Development Overlay (PDO)**
- Applies to **northern 33.5-acre portion** of the site along State Highway 18
- **No development** is proposed at this time.

PROJECT DETAILS

- Process and approvals required
- Community benefits
- Traffic impacts and improvements
- Future approvals required before development

CONCLUSION

- Q&A
- Contact **Sam Knutson** with any questions offline by e-mail at sknutson@kimcorealty.com or by phone at **(650) 757-2022**

Attachment 8

NOTICE OF NEIGHBORHOOD MEETING

ADDRESS: 3310 NE Three Mile Lane, McMinnville, OR 97128 (Tax Lot ID: 172164)

PROPOSAL:

- Comprehensive Plan Map Amendment from Industrial to Commercial;
- Zone Change from General Industrial (M-2) to General Commercial (C-3);
- Applies to northern 33.5-acre portion of the site along State Highway 18; and
- No development is proposed at this time.

APPLICANT CONTACT:

- Name: Kimco McMinnville, LLC (Sam Knutson)
- Email: sknutson@kimcorealty.com
- Phone: (650) 757-2022

VIRTUAL MEETING INFORMATION

DATE AND TIME: November 19, 2020 at 6:00PM

BY PHONE: (669) 900-6833 (Meeting ID# 923 4575 3326 and Password# 284715)

BY VIDEO CONFERENCE:

<https://kimcorealty.zoom.us/j/92345753326?pwd=cmhMTEFHM2NRWXNkUVlwV1JEMzJ2Zz09>

**Please contact Sam Knutson by e-mail or phone beforehand to receive the above weblink by e-mail.*

Attachment 8

NOTICE OF NEIGHBORHOOD MEETING

DATE AND TIME: November 19, 2020 at 6:00 PM

LOCATION: Due to the ongoing COVID-19 pandemic, this Neighborhood Meeting will be held virtually with options to join online and by phone. **Please contact Sam Knutson (info below) to receive a direct link by e-mail.**

- Join Zoom Meeting by Video Conference at:
<https://kimcorealty.zoom.us/j/92345753326?pwd=cmhMTEFHM2NRWXNkUVlwV1JEMzJ2Zz09>
- Telephone option: **(669) 900-6833** Meeting ID: **923 4575 3326** Passcode: **284715**

PROPOSAL: Comprehensive Plan Map Amendment (from Industrial to Commercial) and Zone Change (from General Industrial (M-2) to General Commercial (C-3)) for the northern 33.5-acre portion of the site. No development is proposed at this time.

- Property Address: 3310 NE Three Mile Lane, McMinnville, Oregon 97128
- Tax Lot ID Number: 172164
- Applicant: Kimco McMinnville, LLC
- Land Use Process: The proposal requires approval of a Comprehensive Plan Map Amendment and Zone Change under McMinnville Code Section 17.74.020

MEETING PURPOSE: We invite neighbors to attend this Neighborhood Meeting to begin a conversation about the proposal described above.

At a minimum the Neighborhood Meeting will provide the following:

- Opportunity for attendees to view the proposed map amendments
- Description of major elements of proposal
- Opportunity for attendees to speak and ask questions at the meeting. This is a time for attendees to identify any issues that they believe should be addressed.

TENTATIVE MEETING SCHEDULE:

Our tentative meeting schedule is as follows:

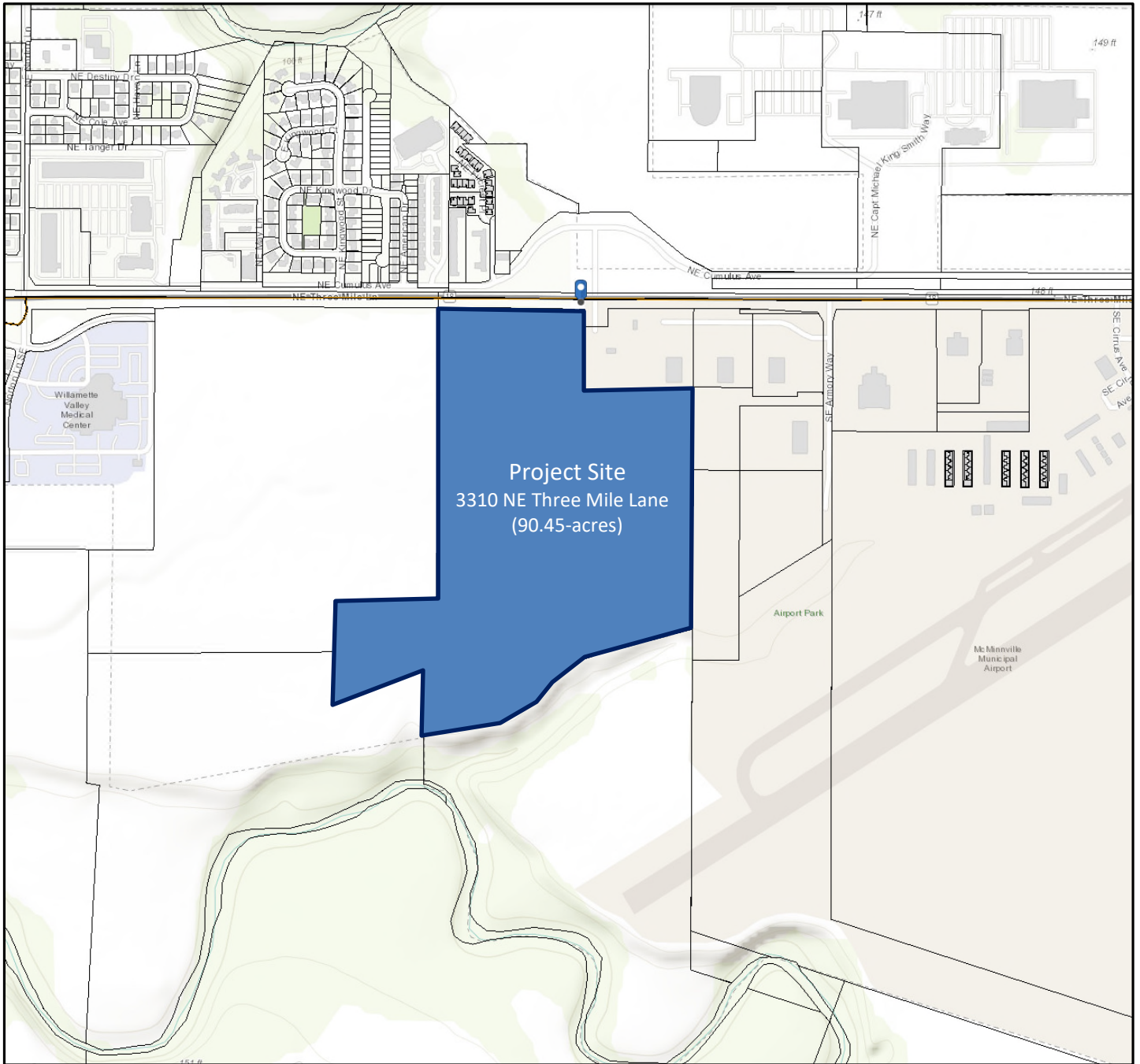
- 6:00 PM – 6:05 PM Introductions
- 6:05 PM – 6:20 PM Description of the Project by the Applicant
- 6:20 PM – END Opportunity for attendees to ask questions and offer feedback on the Proposal

MEETING CONTACT INFORMATION:

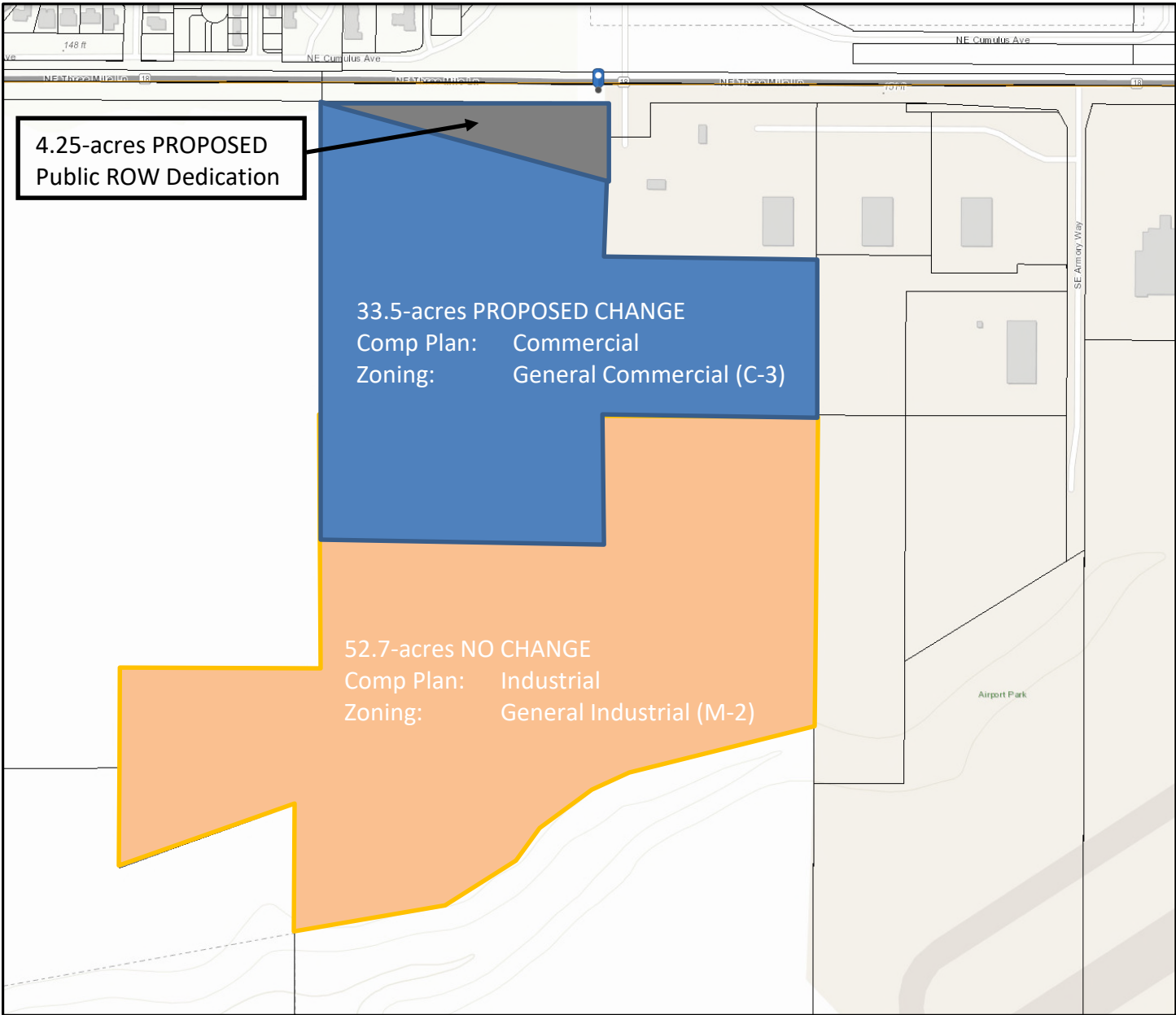
If you have questions about the meeting, please contact us at:

- Name: Sam Knutson
- Email: sknutson@kimcorealty.com
- Phone: (650) 757-2022

Property Location



Proposed Map Amendments



*Please note all boundary lines are approximate.

Attachment 8

Neighborhood Meeting - Mailing List

Map No.	Site Address	Tax Lot	Owner
0	3133 NE THREE MILE LN	R4422DD00101	KRE TIGER PARKLAND LLC
1	112 NE AMERICAN DR	R4422DD00215	SMITH RANDAL L
2	100 NE AMERICAN DR	R4422DD00216	LEWIS MATTHEW
3		R4422DD00217	CRAFTSMAN LANDING HOMEOWNERS
4		R4422DD00218	CRAFTSMAN LANDING HOMEOWNERS
5	107 NE AMERICAN DR	R4422DD00219	MANNING RON
6	3255 NE CUMULUS AVE	R4423 01000	WORLD FUEL SERVICES INC
7	3215 NE CUMULUS AVE	R4423 01100	WITTROCK BONNIE LEE TRUST
8	213 NE FIRCREST DR	R4423 01201	NHI-REIT OF OREGON LLC
9	219 NE FIRCREST DR	R4423 01203	NHI-REIT OF OREGON LLC
10	0 SE AIRPORT RD	R4426 00201	MCMINNVILLE CITY OF
11	3470 SE THREE MILE LN	R4426 00300	JACKSON FAMILY WINES INC
12	173 SE ARMORY WAY	R4426 00400	JACKSON FAMILY WINES INC
13		R4426 00500	MCMINNVILLE CITY OF
14	3330 SE THREE MILE LN	R4426 00600	3330 TML LLC
15	3310 SE THREE MILE LN	R4426 00700	KIMCO MCMINNVILLE LLC
16		R4426 00701	MCMINNVILLE CITY OF
17		R4426 00701	MCMINNVILLE CITY OF
18		R4427 00100	DRS LAND LLC
19	3030 SE THREE MILE LN	R4427 00200	DRS LAND LLC
20	7725 SE BOOTH BEND RD	R4427 02000	CRUICKSHANK BRIAN J CITY OF MCMINNVILLE

Attn:	Mailing Address	City	State	Zip
	19119 N CREEK PKWY	BOTHELL	WA	98011
	29661 NE PUTNAM RD	NEWBERG	OR	97132
LEWIS MELISSA	17800 SW PEAVINE RD	MCMINNVILLE	OR	97128
	133 NE AMERICAN DR	MCMINNVILLE	OR	97128
	133 NE AMERICAN DR	MCMINNVILLE	OR	97128
	PO BOX 605	NEWBERG	OR	97132
	9800 NW 41ST ST	MIAMI	FL	33178
WITTRICK BONNIE L TRUSTEE	13655 NW BERRY CREEK RD	MCMINNVILLE	OR	97128
	222 ROBERT ROSE DR	MURFREESBORO	TN	37129
	222 ROBERT ROSE DR	MURFREESBORO	TN	37129
	230 NE 2ND ST	MCMINNVILLE	OR	97128
	425 AVIATION BLVD	SANTA ROSA	CA	95403
	421 AVIATION BLVD	SANTA ROSA	CA	95403
	230 2ND ST	MCMINNVILLE	OR	97128
TRISTAN RYCHLICK LLC	401 NE EVANS ST	MCMINNVILLE	OR	97128
	3333 NW HYDE PARK RD NO 100	NEW HYDE PARK	NY	11042
	230 2ND ST	MCMINNVILLE	OR	97128
	230 2ND ST	MCMINNVILLE	OR	97128
	5801 SE BANSEN LN	DAYTON	OR	97114
	5801 SE BANSEN LN	DAYTON	OR	97114
CRUICKSHANK JEFFREY W	11400 SE STOCKHOFF RD	DAYTON	OR	97114
PLANNING DEPARTMENT	231 NE 5TH ST	MCMINNVILLE	OR	97128

Attachment 8

Neighborhood Meeting Notes

Summary of November 19, 2020 Virtual (Zoom) Neighborhood Meeting

Sam Knutson from KIMCO MCMINNVILLE, LLC called the meeting to order at 6:00 pm.

Developer Attendees were:

- *Sam Knutson, Alan Roodhouse and Michael Strahs with KIMCO MCMINNVILLE, LLC*
- *Dana Krawczuk, Esq. from Stoel Rives LLP, legal counsel to KIMCO MCMINNVILLE, LLC*
- *Kristine Connolly, PE from Kittelson & Associates, Inc., transportation engineer for KIMCO MCMINNVILLE, LLC*

Community Attendees were:

- *Stewart Kircher, from DRS LAND LLC (Owner of 180 acres to the west of the 90 acres owned by KIMCO MCMINNVILLE, LLC). Property is used to grow feed for dairy farm operation located offsite*

Applicant Presentation:

- *Sam Knutson made introductions, identified project location, and began PowerPoint Presentation*
- *Dana Krawczuk discussed:*
 - *Described aerial map and that proposal applied to only 33.5 acres of KIMCO MCMINNVILLE LLC's property*
 - *Proposal: Comprehensive Plan Map change from Industrial to Commercial and Zoning Map change from General Industrial (M-2) to General Commercial (C-3) for a portion of the site*
 - *No development or site plan proposed at this time – development will come later;*
 - *Steps:*
 - *File application*
 - *City reviews & Staff recommendation, public hearings before Planning Commission & City Council, lots more process to go – this is just the 1st step*
 - *Rationale: good site for retail, consistent with City's goals, good local access for community member convenience*
 - *Planning Efforts – too much industrial, surplus 200+ acres, deficit of commercial land of over 30 acres*
 - *More retail to capture growth*
 - *Address leakage, sales leaving area, to as far as Salem, missed opportunity for City*
 - *Three Mile Lane Planning process shows KIMCO property with commercial designation, consistent with City goals in Three Mile Lane plan*
 - *Zone Change – Traffic Study analyzes reasonable worst-case scenario, no actual site plan prepared or proposed, roadway network safe and can accommodate rezone, multimodal area with bikes and pedestrians also accommodated*

Community Comments

- *Stewart Kircher familiar with Three Mile Lane Zoning process and has participated*
- *Mr. Kircher has no questions or concerns about the proposal. Notes that access into KIMCO's property, and to adjacent properties is key.*
 - *Project team explains that when the KIMCO's property develops, we expect that access to the south will be by a signalized intersection, with roads that connect to adjacent properties.*
- *Mr. Kircher asks if KIMCO MCMINNVILLE rezone limits options for adjacent properties*
 - *Dana Krawczuk answers that no – rezone is consistent with Three Mile Lane plan, and the City's 2013 EOA and updated planning documents show that there is additional demand for retail development and that the Three Mile Lane corridor is an appropriate place for retail (and other) development. Ms. Krawczuk also explained that while this application will be considered in advance of the adoption of the Three Mile Lane Area Plan, which has been delayed, KIMCO's application is supportive of and consistent with the City's efforts*
 - *Group discussion about delays in the Three Mile Lane Area Plan and reconsideration of prior Urban Growth Boundary appeal as causing a delay with the Three Mile efforts.*
 - *Ms. Krawczuk clarifies that the UGB appeal process does not impact KIMCO's application. KIMCO's application will be processed under the 2013 EOA and is consistent with the goal of maintaining a compact urban form.*
- *Mr. Kircher expresses support for the project and asks whether there is any opposition.*
 - *Project team responds that it has not been contacted directly yet by any project opponents, but understands that there has previously been, and are currently ongoing, appeals to the City's long-range planning efforts.*

Meeting concluded at 6:30 pm.

Revisions to Application Based Upon Comments

- *None needed. Only supportive comments were received.*

Attachments:

*Mailed notice
Mailing list
Photograph of posted notice
PowerPoint presented at neighborhood meeting*

AVAILABLE FOR **IMCO**
OFFICE • WAREHOUSE
OFFICE
FOR INFORMATION 847-294-6446
IMCO
REALTY

Michael MacLean
847-294-6446

Michael Shultz
847-294-6446

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OFFERING PRICE: \$10.00 PER SHARE

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OFFERING TYPE: PRIVATE PLACEMENT

OFFERING SIZE: 1,000,000 SHARES

OFFERING TOTAL: \$10,000,000

OFFERING STATUS: OPEN

OFFERING URL: [www.imco.com/offering](#)

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